

ROGER JAMES LAWRENCE

TAMANA: A STUDY OF A REEF ISLAND COMMUNITY

Submitted for the degree of
Doctor of Philosophy in Geography
at the Victoria University of Wellington

October 1984

The first love, the first sunrise,
the first South Sea Island, are
memories apart, and touched by a
virginity of sense.

Robert Louis Stevenson

Abstract

This thesis is an exploration of the factors which give the tiny reef island of Tamana, in what is today the nation of Kiribati, its particular character. The research falls into three main sections. The first reviews the available documentary sources in order to build up an understanding of the settlement of the region by Micronesian peoples, the character of the island environment they encountered and the economy and society that developed. The changes resulting from the expansion of western capitalism into the region are then described. This material provides the context for the contemporary household-based study presented in the second section. This presents the findings of twelve month's field study of sixteen Tamana households. It considers household structure and organisation, access to resources, patterns of time allocation as well as the character of the subsistence and cash economies, their relationship to each other and the extent to which the household economy has become incorporated into the market economy of the outside world. The third section draws both sets of material together to consider issues of change and development and the likely future character of Tamana.

The initial settlement of Tamana by Micronesian people led to some environmental modification and the introduction of new plant species. However, the system that evolved could be considered an autarkic man/environment system where a fluctuating balance between man and resources was maintained through drought-associated mortality.

With the arrival of the whalers, traders, missionaries and colonial officials Tamana ceased to operate as an isolated entity and the changes which ensued resulted in the external relationships, through trade, employment and aid becoming increasingly important in determining the character of economic life on Tamana. In several important respects the process of incorporation into the market economy evident on Tamana differs from that encountered in other subsistence economies subject to similar influences. Colonial policy, in recognition of the high population densities and obviously limited resources, discouraged the establishment of a plantation economy. The limiting atoll environment restricted the choice of cash crops to the coconut which was already an important element in the vegetation and whose productivity could be maintained with little intensification of labour

inputs. The subsistence economy thus was able to maintain its vitality and enabled the islanders to oscillate between the subsistence and market economy as market conditions dictated. This is reinforced by the fact that some 45 percent of household income comes from outside the village economy through remittances and gifts, thus underlining the significance of Tamana as a "straddled economy" where the household depends on local production and wages earned in employment in either the phosphate workings or urban employment away from the island. For these reasons the commitment to the cash economy on Tamana is not strong.

Because of the heavy emphasis of government spending on welfare and service spending and the emergence of a large, aid-dependent bureaucracy at the administrative centre on Tarawa, the aspirations of most Tamana peoples are towards wage employment which implies migration to the urban centre as an alternative to rural life. Unless these trends are rectified rural outmigration can be expected to increase.

CONTENTS

ABSTRACT	i
CONTENTS	iii
LIST OF TABLES	x
LIST OF FIGURES	xiii
ACKNOWLEDGEMENTS	xv
 Chapter 1: INTRODUCTION	 1
Islands, Ecosystems and Human Ecology	4
Islands	
Human Ecology and Ecosystems	4
The Thesis	12
The Aim and Scope of the Study	12
Sources and Research Method	15
Historical Sources	16
The Field Study	17
The Census and Selection of Sample Households	17
Data Collection	19
 SECTION ONE THE ISLAND AND THE PEOPLE	 21
Chapter 2: THE MICRONESIAN CONTEXT	22
The Peopling of Micronesia	25
Archaeological Evidence	25
Linguistic Evidence	26
Genetic Evidence	28
The Peopling of the Gilberts	32
Tamana Oral Traditions	34
 Chapter 3: THE ISLAND ENVIRONMENT	 37
Atoll Origins	37
Atolls and Reef Islands of the Gilbert Group	40
Tamana	42
The Sea	44
The Land	48
Land Types	48
The Soils	56

The Freshwater Lens	58
Climate	59
Rainfall	61
Vegetation	64
Terrestrial Fauna	67
Summary	67
 Chapter 4: THE PRE-CONTACT SOCIETY	 69
The Source Material for Reconstruction	70
I-Kiribati Social Structure	74
Kinship and Kin-based Groups	74
The <u>Utu</u>	76
The <u>Kainga</u>	78
The <u>Boti</u>	79
The <u>Kainga</u> , <u>Maneaba</u> and <u>Boti</u> on Tamana	81
The <u>Kainga</u> on Tamana	81
The <u>Maneaba</u> on Tamana	88
The Pre-Contact Economy	90
Subsistence Resources and Activities	91
Coconuts	91
Pandanus	93
Fishing	96
The Storage of Food	103
The Household Structure, Ownership of Capital and the Organisation of Labour	104
The Division of Labour	105
Land, Capital and Resource Access	107
Society and Environment	110
Pre-contact Population and Resources	112
 Chapter 5: CONTACT	 118
The Whalers	120
The Impact of the Trade with the Whalers on the Island Community	124
The Coconut Oil and Copra Trade	126
Tamana and the Coconut Oil Trade	129

Blackbirders, Recruiting and Overseas Labour Migration	133
Recruiting on Tamana	135
Recruiting and Population Change in the Nineteenth Century	136
The Economic and Social Impacts of Labour Migration	138
The L.M.S. Mission	140
The Colonial Era	147
Administration and Local Government	148
Social Change	152
Population Change in the Colonial Era	155
Contact and Environmental Change	164
Summary	166
 Chapter 6: THE CONTEMPORARY SOCIETY: TAMANA IN THE 1970s	169
The Household: Kinship, Residence and Production	171
The <u>Utu</u>	171
The <u>Kainga</u>	173
The <u>Mwenga</u>	175
The <u>Mwenga</u> Census 1971-2	178
Household Size	178
Factors Influencing Household Composition	180
Population Mobility and Changes in Household Composition	182
The Household as a Productive Unit	184
Household Types	186
The Village and the Island	189
The <u>Maneaba</u> , <u>Boti</u> , <u>Unimane</u> and Island Affairs	189
The Villages	190
The Island Council	191
Summary	195
Tamana Values in the 1970s	196
Motives and Development	204
Tamana Population and Environment in the 1970s	209
Population and Production	211
Tamana, The Gilbert Islands and Kiribati	218
Environment, Population and Production	219

The Cash Economy of the Rural Islands	223
Government Intervention and Influence on the Rural Economy	224
Social Factors	226
The National Economy	233
The National Income and Government Revenue	234
Employment	235
Migration and Employment	239
The Phosphate Workings and Circular Migration	239
Migration to Tarawa	241
SECTION TWO THE HOUSEHOLD STUDY	247
Chapter 7: THE HOUSEHOLD RESOURCE BASE	248
Access to Land	249
<u>Babai</u> Pits	257
Livestock	257
Capital Goods	259
Capital Goods and Employment	260
Chapter 8: THE HOUSEHOLDS IN ACTION: THE ALLOCATION OF TIME	264
Perceptions of Work and Leisure on Tamana	267
Time and the Individual	272
Daily Activity Patterns and the Division of Labour	272
Activities Quantified	275
Time Allocation at the Household Level	282
The Data	282
The Relationship between Labour Input and Household Size	285
Time as a Scarce Resource and the Relationship between Sectors of the Economy	288
Allocation of Time and Household Types	289
Chapter 9: SUBSISTENCE IN THE ECONOMY	291
The Sea and Its Exploitation	291
Deep-Sea Fishing	292
Fishing the Nearshore Waters	299
Fishing Quantified	301
The Conservation of Marine Resources	306

Exploitation of Land Resources	307
Working the Land	311
Clearing Lands	313
Planting	313
Tree Crops in Subsistence	314
Coconuts	314
Nut Use Quantified	316
The Adequacy of Household Palm Resources	318
Toddy Production	321
Pandanus	325
Breadfruit, <u>Bero</u> and Pawpaws	327
<u>Babai</u> in Subsistence	328
Livestock	335
Cooperative Subsistence Production	335
<u>Airiri</u> Groups	335
<u>Aiai</u> Groups	337
<u>Kabeabea</u>	338
 Chapter 10: THE CASH SECTOR	 339
Present Attitudes Towards Cash-earning	343
The Household Economy Quantified	346
Data Sources and Problems	346
Sources of Income	351
Household Income Changes: the Implications of the Straddled Economy	353
Household Types	357
Local Production and Cash Income	360
Copra	363
Copra Production Strategies	364
Levels of Copra Production and Household Resources	374
Copra as a Cash Crop and Models of Economic Change	375
Handicraft Production	377
Sales of Other Goods	381
<u>Mronron</u> Divisions	381
Cooperative Cash-earning	382
Nei Toromi <u>Mronron</u>	385
<u>Mronron</u> Economics	387
<u>Mronron</u> and the Future	390

External Income Sources	390
Remittances	390
Sources of Remittances	391
Remittances and Time	394
Expenditure	395
Estimates of Expenditure	398
Expenditure Patterns	400
Store Purchases and <u>Mronron</u> Purchases	402
Expenditure Breakdown by Commodities	405
Church Donations, Taxation and Other Payments	408
Consumption and Diet	409
Meal Patterns	410
Food Types	411
Diet and Economic Circumstance	414
Rural Poverty?	416
Savings and Investment	418
 SECTION THREE THE FUTURE	 422
 Chapter 11: CHANGE AND DEVELOPMENT	 423
The Context of Contemporary Change	424
Agents of Change	426
Models of Rural Change	430
Urban Bias	435
Policies for Economic and Social Change	437
Pre-World War II Policies	437
Post-War Policies	439
Policies for Education and Social Welfare	442
The Development Plans	443
Policies for Agriculture	444
Development Projects and the Rural Areas	447
Agricultural Development Programmes	447
Education, Employment and Development	453
Other Programmes	456
Individual and Community-Generated Development	457
Individuals, Entrepreneurs and Epstein's Schema of Economic Growth	458

Tamana Projects on Tarawa	463
The Tamana Fishing Schemes	463
Fishing Scheme Postscript	465
The Kekeiaki Store	466
Chapter 12: CONCLUSION	469
The Context of Incorporation	472
Tamana and Change	478
GLOSSARY	485
APPENDICES	492
Appendix 1 Aim and Scope of the Victoria University of Wellington Rural Socio-economic Survey of the Gilbert and Ellice Islands	492
Appendix 2 School Programme L.M.S. Village Schools, 1914-1915	496
Appendix 3 Items of Personal and Household Property, Sample Households	498
Appendix 4 I-Kiribati Fish Names and Tentative Identifications	502
Appendix 5 Plant Uses Recorded on Tamana	504
Appendix 6 Household Expenditure and Income Based on Results of Weekly Surveys of Sample Households	506
BIBLIOGRAPHY	507

LIST OF TABLES

Table 3-1	Island Type and Land Area Gilbert Islands	42
Table 3-2	Report of Droughts on Tamana 1863-1968	62
Table 4-1	Estimated Island Population Densities, 1860	115
Table 5-1	Shore Contacts by American Whalers and Traders in the 19th Century	121
Table 5-2	Tamana: Population Changes Documented in Colony Censuses	156
Table 5-3	Population Changes GEIC 1905/16, 1931 and 1947 Censuses	158
Table 5-4	Replacement Ratios: Tamana Island 1947-78	160
Table 5-5	Persons Claiming Tamana as Home Island Enumerated on Other Islands at Time of Censuses 1947-73	161
Table 6-1	Size of Households, Tamana Island, January 1972	178
Table 6-2	Household Composition, Tamana Island, January 1972	180
Table 6-3	Mobility by Age and Sex for Members of the 16 Sample Households. Assessed at seven points in time between January 1972 and December 1973	182
Table 6-4	Purpose of Overseas Moves by Members of Sample Households Assessed at seven points in time between January 1972 and December 1973	183
Table 6-5	Summary, Selected Characteristics of Sample Households Differentiated on Causes of Income Variation 1970-73	188
Table 6-6	Age and Sex Structure, Tamana Island Population, 1973	210
Table 6-7	Rural Island Population Densities, Selected Islands in Kiribati, Tuvalu and Eastern Islands of Fiji	213
Table 6-8	Land Area, Population 1973 and Population Density Gilbert Islands	220
Table 6-9	Percentage Frequency of Particular Food Types in Meals Taken, Four Study Islands	222
Table 6-10	Annual Income per Household by Source, Four Study Islands	231
Table 6-11	Pattern of Employment: Indigenous and Non-indigenous Population Aged 15 Years and Over, 1973	235

Table 6-12	Indigenous and Non-Indigenous Persons Employed in the Cash Economy by Industry	237
Table 6-13	Population Change, Tarawa Urban Centre, 1947-1978	241
Table 6-14	Percentage <u>De jure</u> Population Resident on Island and in Urban Tarawa 1963-1978	243
Table 6-15	Proportion of Indigenous Non-Tarawans Aged 15 Years and Over Enumerated in Urban Tarawa by Home Island	244
Table 6-16	Length of Stay of Non-Tarawans in Urban Tarawa	245
Table 7-1	Land Plot Ownership and Usage, Sample Households, Tamana Island	251
Table 7-2	Size Frequencies of Land Plots Held by Sample Households	253
Table 7-3	Land Area and Coconut Resources, Sample Households, Tamana Island	254
Table 7-4	Palm Densities on Plots Owned and Used by Sample Households	255
Table 7-5	<u>Babai</u> Pit Ownership and Usage, Sample Households, Tamana Island	258
Table 7-6	Ownership of Selected Capital Items by Sample Households	260
Table 7-7	Employment Histories and Goods Acquired by Members of Sample Households, Tamana Island	261
Table 7-8	Employment by Age Group, Male Members and Male Offspring over 18 (Resident and Non-Resident) Sample Households, Tamana Island	262
Table 8-1	Typical Daily Activity Sequences by Age and Sex	273
Table 8-2	Segment A Activities by Age and Sex (ranked in order of diminishing mean hours per week)	277
Table 8-3	Time Allocation; Age and Sex, by Broad Sectors	281
Table 8-4	Time Allocated by Sector, Sample Households	283
Table 9-1	Fishing Technologies Used and Fish Caught in Different Marine Environments, Tamana	293
Table 9-2	Fishing Expeditions by Sample Households Over Five Survey Weeks	302

Table 9-3	Fishing Expeditions and Fish Caught Over Five Survey Weeks	303
Table 9-4	Species Composition and Meals Provided by Deep-Sea Fishing Methods for Sample Households over Five Week Survey period	304
Table 9-5	Land Holdings and <u>Babai</u> Pits Visited by Sample Households During Five Week Survey Period	309
Table 9-6	Trips to Lands by Sample Households Over Five Survey Weeks	310
Table 9-7	Estimated Yearly Production and Subsistence Utilisation of Coconuts by Sample Households on Tamana 1972-3	317
Table 10-1	Estimate of Annual Income and Expenditure for Sample Households from Different Sources	350
Table 10-2	Mean Annual Income from Various Sources for Sample Households 1971-73	352
Table 10-3	Rank Ordering Importance of Recorded Income Sources in Mean Household Income 1971-73	353
Table 10-4	Estimated Production and Utilisation of Coconuts in Cash Earning and Subsistence, Sample Households 1971-73	365
Table 10-5	Source, Number, Amount and Destination of Remittances Sent by Frequent Remitters to Sample Households	392
Table 10-6	Estimated Weekly Expenditure by Sample Households	399
Table 10-7	Use of <u>Mronron</u> and Non-Cash Purchases by Sample Households Weeks 2-5 (before copra price rise) and Weeks 6-7 (after price rise)	403
Table 10-8	Mean Weekly Expenditure on Specified Commodities at Cooperative Society and <u>Mronron</u> by Sample Households	406
Table 10-9	Weekly Expenditure at Tamana Cooperative Society Store Sampled from Surviving Cargo Books	408
Table 10-10	Meal Patterns, Sample Households	411
Table 10-11	Percentage Frequency of Foods of Specified Types in Meals Taken by Sample Households	413

LIST OF FIGURES

Fig 2-1	The Gilbert Islands, Micronesia and the Pacific	24
Fig 3-1	The Gilbert Islands and Tuvalu	41
Fig 3-2	Tamana	43
Fig 3-3	Cross Section Showing Major Ecological Zones on Tamana	47
Fig 3-4	Aerial View, Southern End of Tamana Island	49
Fig 3-5	Tamana Vegetation	51
Fig 3-6	Land Types - The Place of Staying Alive	53
Fig 3-7	Land Type - The Land of the Living	54
Fig 3-8	Land Type - The Land of the Dead	55
Fig 3-9	Tamana: Deviation from Mean Monthly Rainfall 1950-73	65
Fig 4-1	Tamana: Kainga and Land Names	83
Fig 4-2	Powell's Drawing of House and Idol on Tamana	86
Fig 4-3	Powell's Drawing of <u>Maneaba</u> on Tamana	87
Fig 4-4	Composite Wooden Fish Hooks	97
Fig 4-5	Pearlshell and Stalactite Lures	98
Fig 4-6	Flying Fish Float and Gorge	99
Fig 4-7	Clamshell Adze	100
Fig 4-8	Pearlshell and Wood Coconut Grater	101
Fig 6-1	Street Scene, Bakaka Village 1972	192
Fig 6-2	Rear View of Houses Showing Kitchen and Storehouses	193
Fig 6-3	Household Head and Visitors Sitting Down to Specially Prepared Meal	194
Fig 7-1	Tamana: Land Resources and Palm Densities, Sample Households	256
Fig 8-1	Tamana: Recorded Activities - Time Allocation by Age and Sex	276
Fig 8-2	Tamana: Time Allocation Grouped Activities by Age and Sex	279
Fig 8-3	Tamana: Time Allocation by Sample Households	284
Fig 8-4	Tamana: Scatter Diagrams, Household Size, Structure and Time Allocation	287
Fig 9-1	Setting Off for Deep-sea Fishing	295
Fig 9-2	<u>Kababa</u> Fishing Off Western Beach at Sunset	296
Fig 9-3	<u>Tatae</u> Fishing at Night with Coconut Leaf Flares	297
Fig 9-4	Scouring the Reef Flat at Low Tide	300
Fig 9-5	Youth with <u>Ibu</u> for Toddy	322
Fig 9-6	Cutting the Bound Spathe	323
Fig 9-7	Harvesting <u>Katutu Babai</u>	329
Fig 9-8	<u>Babai</u> Planted in <u>Niba</u> Cut Through Hardpan	330
Fig 9-9	<u>Airiri</u> Group Returning from the Bush	336

Fig 10-1	Tamana: Changes in Income from Local and Other Sources for Sample Households 1970-73	355
Fig 10-2	Tamana: Income from Sales of Grade 1 Copra, Handicrafts, Salt Fish and Sharkfin, <u>Kamaimai</u> and Members Goods to Tamana Co-operative Society by Sample Household	361
Fig 10-3	Bringing Coconuts in From the Bush	367
Fig 10-4	Drying Husked Coconuts at the Housesite	368
Fig 10-5	Drying Split Nuts in the Bush	369
Fig 10-6	Cutting and Bagging Dried Copra for <u>Mronron</u>	370
Fig 10-7	Copra Store, Tamana	371
Fig 10-8	Weighing Copra	372
Fig 10-9	Loading Copra	373
Fig 10-10	Weaving Panama Hat	379
Fig 10-11	Checking Passbooks at <u>Mronron</u> Meeting	389
Fig 10-12	Tamana Store	396
Fig 10-13	Tamana Store	397

Acknowledgements

My first debt acknowledged in this thesis must be to the people of Tamana who made fieldwork there an enjoyable and richly rewarding personal experience. Particular thanks go to Tauman, Tamaroa, Tebatanga, Rakenang and Terorati who acted as interpreters, teachers, discussants and guardians of my manners. Thanks also go to the members of the sample households who endured persistent visiting, repetitive questioning and a considerable invasion of privacy with patience, cooperation and frequent good humour which lessened the drudgery for all of us. Without their help Section Two of the thesis would not have been possible.

My wife, Judy, shared this experience on my last visit to Tamana, gave invaluable assistance in the field, and lived with the thesis' long gestation thereafter.

Fieldwork was carried out as part of the Victoria University of Wellington Rural Socio-economic Survey of the G.E.I.C. funded under United Kingdom Aid Research Scheme no. R2625 A & B. In Tarawa the staff of all government departments visited showed a willingness to assist and interest in the study. Special thanks must go to Bob Bryden and Dave Wimblett, Department of Agriculture; John Pitchford, Neemia O'Brien, Medical Department; and Mike Walsh and Baraniko Baro of the Planning Office.

In Wellington thanks are due to Ray Watters for supervision, John McKinnon for his interest and encouragement, Robin Mita and Dave Winchester for their cartographic assistance, John Casey for photographic processing, Rhyl Singleton for typing and Alexandra Storm for proof-reading.

Their help is all deeply appreciated.

Roger Lawrence
Wellington
October 1984

Chapter One

INTRODUCTION

...Zur Eigenart der Länder gehören Natur und Mensch und zwar in so enger Verbindung dass sie nicht von einander getrennt werden können.

...Both nature and man are intrinsic to the particular character of place, and indeed in such intimate union that they cannot be separated from each other.

A. Hettner 1905:554

This thesis is concerned with the particularity of place; with understanding the present geography of the tiny island of Tamana in what is known today as Kiribati.¹ It is concerned to identify and describe the wide range of forces that have shaped the island's landscape. As a reef island, Tamana must constitute one of the strangest and most areally restricted habitats to have become the home of man. The island's land area totals only 4.8 sq km and it rises barely 8 m above sea level in its most elevated parts. It is surrounded by ocean over 1800 m deep within 300 m of the shore. Over 100 km of open ocean separate it from its nearest neighbour, Arorae, another reef island of similarly miniscule proportions and both are more than 600 km from the administrative centre on Tarawa Atoll. The islands owe their origin to the growth of corals, and dry land is made up entirely of coral debris. Because of this soils,

¹ During the course of study the country changed its name from the Gilbert and Ellice Islands Colony (G.E.I.C.), to the Gilbert Islands Colony (G.I.C.) following the separation of the Ellice Islands to form Tuvalu in 1976, and finally to Kiribati on independence in 1979. The name Gilbert Islands is retained here to refer to the 16 indigenously inhabited islands from Butaritari to Arorae. Kiribati is used to refer to the nation which includes the Gilbert Islands, Phoenix Islands (uninhabited at present), the Line Islands (settled in the colonial period) and Banaba (Ocean Island). The term I-Kiribati is used to refer to the indigenous Micronesian people.

in the conventional sense, are absent and the plant life colonising such islands must be adapted to the extreme nutrient deficiencies which prevail. These limitations on Tamana are intensified by the low and unreliable rainfall. The range of plants occurring naturally on the island is thus very restricted and possibilities for crop introduction almost non-existent. The coconut figures pre-eminently as the major plant of economic importance in both subsistence and commercial production to the extent that these islands can realistically be described as coconut economies. Despite the isolation, the limitations of scale and restricted resources Tamana is "home" to some 2000 I-Kiribati Micronesians whose forbears settled the island an unknown number of centuries ago. They fished, introduced new plants and animals, modified the natural vegetation through planting and excavating pits for the cultivation of babai (Cyrtosperma chamissonis) and evolved a system of resource use which enabled them to successfully continue to occupy the island despite its limited and constantly fluctuating resource base.

Perhaps equally surprising is the fact that these same resource limitations did not prevent the region falling prey to the exploitative interests of expanding western capitalism or prevent the area becoming incorporated to some degree at least, into the market economy which emerged as a result of this process. The whalers, coconut oil and copra traders, phosphate miners and "blackbirders" all came in search of raw materials, land, labour and markets; the missionaries came in search of souls; and the colonial powers, somewhat ambiguously, came in search of control in order to protect interests. All of these influences have had a profound influence on Tamana's landscape. Some of the changes produced are of a general nature resulting from the externally-oriented, distorted, dependent development that accompanies the penetration of pre-capitalist economies by capitalist ones in the manner already described by Amin (1974, 1976), Frank (1978) or Britton (1980). However, while these approaches have proved useful in describing the spatial reorganisation of an economy resulting from the introduction of the capitalist mode of production through plantations, European settlement, the introduction of a wage-earning labour force and the development of urban areas, they describe the context of spatial economic change rather than the process.

What this thesis does is to consider this process in the context of the particular local environment, the character of the local society and the evolving character of the external linkages. All of these factors affect the way in which Tamana people perceive and respond to the forces acting on them. These factors determine the character of Tamana's geography today.

The approach taken here accords, at least in part, with Hartshorne's (1960: 47) dictum that geography as a discipline should seek "to describe and interpret the variable character from place to place of the earth as the world of man". Such an analysis would involve, according to Hartshorne (1960: 63), examination of:

...relationship among phenomena, of whatever kinds, which are found to be significant in the total integration. In many cases such relationships may be between human and non-human phenomena, in others between animate (whether human or non-human) and inanimate phenomena, or between visible and invisible, or between material and nonmaterial.

Brookfield (1964: 285) suggests that too much emphasis is given to the question Where? in geography to the extent that questions of Why? and How? may not even arise. He argues that the search for explanation of human landscapes cannot be met simply by establishing regularities in distribution patterns or by correlating one variable with another. He concludes (1964: 284) that it "seems unreasonable to argue that in studying such abstractions we are concerned with place and not with man". Explanation must concern itself with process and give adequate consideration to the workings of society and the reasons for human action. Geography cannot restrict itself purely to a discussion of man/land or man/environment relationships because man/man relationships are equally, if not more, important in understanding of landscape. Recognition of the ongoing economic and social changes which shape the character of society and the interrelationships between these and the natural processes at work in the environment are essential to an understanding of how areas attain their distinctive character and give insights into the likely direction of future change. The study of place thus becomes the study of man.

Islands, Ecosystems and Human Ecology

The island-bound nature of this study¹ brings together two themes which have intermittently caught the attention of geographers: the usefulness of islands to research and the search for a discipline of human ecology. The two themes came together in an important symposium held in 1961 focussing on "Man's Place in the Island Ecosystem" (Fosberg 1963) and have been addressed since then in papers by Stoddart (1965, 1967), Chorley (1973), Bayliss-Smith (1977) and others.

Islands

The importance of islands in zoogeographic and ecological research has long been recognised (MacArthur and Wilson 1967). Interest by geographers is probably somewhat more recent. Fosberg (1963: 5) identifies two aspects of islands which make them particularly attractive for study: isolation and limited size. Bayliss-Smith (1977: 12) argues that the boundedness of an island society enables the spatial definition of man's ecosystem to be made relatively unambiguously; it facilitates the operational definition of a population and simplifies the measurement of flows and migrations. He also argues that the limitations of size encourage cultural unity, thus enabling generalisations to be made more easily and ensuring that any sample drawn from the population will inevitably represent a large percentage of the total population.

There can be no quibble with the latter claims, but assumptions as to the boundedness of island populations and the supposed ease with which its operational ecosystem can be defined need closer scrutiny. In pre-contact times on Tamana it may have been realistic to treat the island and man's ecosystem as being coincident, but it should be remembered that some clans in the southern Gilbert Islands retained rights to lands on several islands and that inter-island alliances and warfare were not

¹Fieldwork for this study was carried out as part of the Victoria University of Wellington's Rural Socio-Economic Survey of the Gilbert and Ellice Islands. Five fieldworkers were involved in the study and each fieldworker spent at least a year studying one of five selected islands. The aim of ensuring that each fieldworker develop an intimate understanding of a rural community prevented wider acquaintance with a range of islands. The aims and scope of the survey are discussed in detail in Appendix I.

unknown. In addition, temporary migration to other islands to escape the ravages of drought and subsequent recolonisation may have been a necessary strategy in ensuring continued occupation of the smaller and more drought-prone islands. With European contact and incorporation into the market economy Tamana became enmeshed in flows of goods, services and information far beyond its immediate shores. Trade generated flows of resources to overseas markets and reverse flows of imports. The island shared indirectly in the benefits of the exploitation of Ocean Island because this provided a market for labour and access to goods not previously obtainable. The flow of goods and remittance incomes augmented rural lifestyles and influenced islanders' expectations, as well as their attitudes to the exploitation of local resources. Temporary outmigration also reduced the pressure on local resources. Changes in colonial administrative policy generated new flows of resources to the islands and investment in infrastructure and services which was not necessarily uniform in its impact. Improvements in schooling and communications raised islanders' expectations and increased their awareness of the wider world around them. It also required the generation of a bureaucracy to administer it and most employment opportunities were located in the urban centre on Tarawa. All of these trends tended to break down the insularity of the island entity and make it increasingly difficult to meaningfully delimit the island ecosystem or to treat it separately from the wider system in which it had become enmeshed. More and more islanders are responding to these linkages by forsaking rural life and migrating to the "bright lights" of the urban centres. Those remaining can sit on leaf mats in their meeting houses and thrill to the cinematographic delights of the "Brides of Frankenstein" while eating "Cheeze Twisties". They draw parallels between accounts of sectarian strife in Northern Ireland purveyed by the radio and rivalry between missions in their own country. The fiction of even relative isolation and an "island ecosystem" falls to earth with a resounding thud. All of these factors must affect the islanders' perceptions of the ecosystem within which they operate, the way they utilise the resources available to them and their aspirations for the future.

Human Ecology and Ecosystems

Human ecology as a field of study and a solution to the problems of dualism between physical and human geography has attracted intermittent

attention from geographers over the last 60 years. The term was coined by Park and Burgess (1921) of the "Chicago Group" of urban sociologists. Park and others' programmatic statements on the scope and nature of human ecology drew heavily on such concepts developed in biology as the "balance of nature", "web of life", "competition", "dominance" and "succession". In The City Park, Burgess and McKenzie (1967: 64) saw human ecology as a means of studying urban life where the emphasis of investigation was on the biotic balance resulting from the interaction of man with nature mediated through culture and technology. In his presidential address to the Association of American Geographers in 1923 Barrows (1923) drew his colleagues' attention to the opportunities for redefining their discipline as the science of human ecology and in so doing provide regional geography with a distinctive field, an organising concept and the opportunity to develop a unique group of underlying principles. Despite periodic reviews of the relationship between geography and human ecology [Hawley (1944, 1951), Schnore (1961), Eyre and Jones (1966), Stoddart (1967), Chorley (1973), and Bayliss-Smith (1977)], and attempts by students (particularly of the Berkeley School) to interpret the relationship between man and land in ecological terms [notably Aschman (1959)], progress towards achieving Barrow's aim of developing a unique group of underlying principles was not forthcoming. Even by 1967 Stoddart (1967: 522) was forced to conclude that the "field delimited by Barrows and Park was abandoned by both geographers and human ecologists alike".

However, despite the failure of early attempts to establish a discipline of human ecology with a widely recognised and accepted framework and methodology Chorley (1973: 155) observes that the notion that geography can be justified as an application of the ecological model to man in society is now more ingrained than ever. However, the reasons for this relate more to a growing concern for conservation, pollution and the problems of quality of life than they do to methodological considerations. The concern of earlier geographers with human ecologists was to confront the study of relationships between man and land without retreating to organic analogy or synthetic as opposed to analytic approaches to regional geography which produced essentially descriptive, stereotyped catalogues of regional data, or which relied upon an often unsubstantiated and unstable cause/effect relationship. In this respect the need still remains for an approach to the study of man/environment relationships which, to use

Brookfield's words (1964: 284), is not "unduly earthbound", which provides an alternative concept that does not exclude either man or his habitat, and does not necessarily involve any assumption of possibilist influences or deterministic controls. To this end Fosberg (1963), Brookfield (1964) and Stoddart (1965) have advocated the use of the ecosystem concept in human geography.

Brookfield (1964: 284) argues that the ecosystem approach to the subject matter of human geography:

...places man at the centre of our thinking without in any way disregarding the whole environment in which he has his being: it permits us to consider and interpret the areal differentiation of phenomena involving man, his works, and the non-human environment, but it does not demand that this should be the whole of our endeavour; it allows us to abstract process from differentiation.

Stoddart (1967: 512) argues that the ecosystem concept provides an important approach to one of the central themes in geographical enquiry; that of the relationship of man and environment in area. He sees it as an approach which overcomes the methodological problems associated with dualism between man and environment and between human and physical geography, as well as providing a coherent framework for the organisation of geographic data.

The plant ecologist Tansley proposed the use of the term ecosystem in 1935 (1935: 299) and its adoption reflects a movement away by the ecologists from the vague, essentially descriptive, organic analogies of Clementsian ideas on succession and climax in vegetation studies to more analytical approaches which focus on the interactions between the organic and the inorganic, between biome and habitat. In presenting the ecosystem concept at the "Man's Place in the Island Ecosystem Symposium" Fosberg (1963:2) developed Tansley's definition as follows:

An ecosystem is a functioning interesting system composed of one or more living organisms and their effective environment, both physical and biological....The description of an ecosystem may include its spatial relations; inventories of its physical features, its habitats and ecological niches, its organisms, and its basic reserves of matter and energy; its patterns of circulation of matter and energy; the nature of its income (or input) of matter and energy; and the behaviour or trend of its entropy level.

In addition to the properties mentioned previously, Stoddart (1965: 243) sees the advantages of the ecosystem concept lying in the fact that ecosystems are structured in a more or less orderly, rational and comprehensible way so that once the structures are recognised they can be investigated and studied. Ecosystems also function and involve a continuous throughput of matter and energy. This involves the framework of the communication net and the goods and people flowing through it. Thus once the framework has been defined, it may be possible to quantify the interactions and interchanges between component parts. Finally, Stoddart sees the ecosystem as a type of general system, as an open system tending towards a steady state and obeying the laws of open-system thermodynamics. Ecosystems in a steady-state would thus possess the property of self-regulation (action and reaction) and this is similar in principle to a wide range of mechanisms such as homeostasis in living organisms and feedback principles in cybernetics. Stoddart (1965: 249,250) concludes that:

...in general system theory, the ecosystem is potentially capable of precise mathematical structuring within a theoretical framework, a very different matter from the often tentative and incomplete descriptions of highly complex relationships which too often pass for geographical "synthesis"....In the ecosystem concept ecology makes its most profound and powerful contribution to geography.

One cannot deny that the ecosystem concept gives geographers a potentially powerful tool with which to work. The emphasis on organisation, structure and functional dynamics and necessity that a systems approach generates for the careful selection and structuring of components is seen by Stoddart (1967: 534) as bringing geography back into the realm of the natural sciences and by Brookfield (1964: 284) as allowing geographers to adopt a position parallel to some of the social sciences, including anthropology, sociology, economics, political science and demography. However, any attempt to appropriate this essentially biological model to geography and expand its application to encompass contemporary social man must, as Chorley (1973:156) argues, make a clear distinction between the historical formulation of a scientific model and its appropriate historical application. The ecosystem concept was developed in the 1930s

as part of a search for new ways of analysing relationships between plant and animal communities and their environment. There is no surety that the specification of components or the identified or assumed interactions between organism, community and environment developed for the analysis of such biological systems will necessarily provide the key to the general understanding of relations between humans, modern society and nature and hence provide a basis for contemporary geographical studies. There are several reasons for this.

The first relates to whether man's relationship to the habitable earth can even approximately be interpreted as being an ecological model, and if so, how the analysis should proceed. Chorley (1973: 156) sees the appropriation of the ecological model by geographers as being yet another example of their longstanding habit of attacking new problems with outmoded models. He concludes that the Industrial Revolution and its far-reaching economic and social ramifications made the ecological model inapplicable as a geographical template for large areas of the world long before it was developed and applied to the study of biology. Bayliss-Smith (1977: 13) questions the capacity of researchers to cope with the daunting complexity of the real world, particularly as it relates to the interaction of man and his biotic environment. He points to two particular areas of difficulty. In present-day situations the definition of the system, the identification of components and the specification of the nature of linkages within it all involve making subjective decisions about the critical processes in operation. This raises the question as to whether the ecosystem approach presents a tool for analysis or a means of presenting the results once the analysis has been carried out. The problem harks back to Stoddart's (1967: 528) warning that the potential value of a system clearly depends on the correct selection of components at the initial structuring stage. This presupposes considerable experience with the problems and data involved, which in turn underscores Brookfield's (1964: 299) plea for micro-geography built upon in-depth field studies.

The second of Bayliss-Smith's reservations relates to interest in reconstructing the ecosystems of past periods where direct observation and measurement are not possible. Here the problems of system definition are even greater and more difficult to resolve.

Further difficulties arise in making assumptions about the structure and functioning of ecosystems which include man. Chorley (1973: 157)

questions whether flows of capital investment, population, technological information, generated energy, water and the like, together with such constraints as those involving economic policies and the mechanisms of group decision-making can be reduced to comparable units so as to permit structuring into energy linkages similar to those assumed to prevail in ecosystems not including man. Difficulties are also encountered in assumptions as to the "purpose" of function in an ecosystem; the reasons for persistence, development or degeneration over time and the analysis of change in the system. In the analysis of function in natural ecosystems there is a heavy reliance on homeostatic mechanisms to explain control, balance, equilibrium and persistence. Negative feedback loops ensure that the system is brought back to the status quo and change is only conceived of in terms of succession or evolution. Such changes are seen by Margalef (1968: 29) as leading to improved self-organisation where successively more probable states follow less probable ones and where greater stability is achieved through increasing complexity of structure and increased diversity (Odum 1969: 264-265).

Such a situation is clearly not comparable with an ecosystem where man is involved and where active control is an added factor. The latter extends beyond the manipulation of a functioning ecosystem in order to maximise productivity and can involve the replacement of one ecosystem with another or with the "impelling of systems on time trajectories through sequences of states, each different, probably non-recoverable and presumably even more adapted to the evolving needs of society" (Chorley 1973: 161). In a situation involving contact between different cultures or between groups within a complex society, questions relating to which society and whose needs add further complications. Hence change in systems including man can often be traced to purposive action and this may not in itself have adaptive value for the system in which it occurs. It may reflect longer-term needs with respect to population levels, but may equally reflect changing social goals and responses to stimuli quite outside the immediate local area. Thus positive, rather than negative feedback mechanisms are likely to characterise such systems including man and, rather than being equilibrium-bound, the man/environment system is likely to be effected by continual and essentially unpredictable change resulting from the growing interdependence of the local man/environment system with the evolving world economy. Man/man relationships are thus

likely to assume increasing importance as agents of change and influences on the direction of development of future man/environment systems. The historical perspective becomes central to understanding how the present landscape evolved.

The reconstructed and contemporary data presented in the following chapters adequately demonstrates the validity of this conception in understanding Tamana. If the Tamana ecosystem after the arrival of Micronesian man ever approximated a "natural" ecosystem, it certainly ceased to do so once European contact was established. The Micronesian migrants modified the environment they found and adapted their culture so as to establish a subsistence system which enabled them to persist in the strange and restricted atoll environment, possibly for several thousand years. The balance struck between population and resources was such that the system was unsteady and the population was frequently forced to reconstruct after recurring environmental crises. However, with the colonialist expansion of the capitalist world in the late nineteenth century this system was transformed. It became incorporated into the wider market economy of the west and a new set of relationships between population, resources and environment came into play. The transformation was fundamental and continuing. The prevalent agents of change are external and take forms that cannot easily be predicted. For these reasons there is little to be gained from attempting to force the man/environment system into an inappropriate analytical framework in the mistaken belief that its behaviour might be governed by universal laws. Rather, one is thrown back, as Brookfield (1964: 285-299) suggests, on observation, description and report, on the use of the historical method to elucidate past changes and their causes and a reliance on generalisations established through the study of similar, interrelated phenomena over a wide range of territory to identify questions worth more detailed consideration in the hope of generating new and more powerful explanatory generalisations.

The Thesis

The Aim and Scope of the Study

This thesis is concerned to identify and describe the wide range of factors that have contributed to the present-day character of the Tamana landscape. The first section presents the background historical and environmental detail necessary for the interpretation of the field study. The middle section focusses on the analysis of empirical material collected during fieldwork and is essentially a micro-study depicting the activities, resource access and resource utilisation patterns of sixteen hopefully representative Tamana households in the early 1970s. The final section attempts to place this material in the wider context of the emerging political economy of Kiribati and explore the wider issues of change and development, thereby identifying the trends that are likely to be significant in shaping Tamana's future.

In more detail, Section One proceeds by reviewing the scant and diverse information such as might permit some insight into the questions of how and when the island world of Micronesia became settled. Chapter 3 concentrates on the unique characteristics of the atoll environment, recognising the transient nature of the landform, the fine line it represents between land and sea and the limitations it presents for human settlement. The available ethnographic material is reviewed in Chapter 4 in an attempt to reconstruct the pre-contact Tamana society and its relationship to the island environment. It focusses on developing an understanding of the social system, the system of production, resource allocation and utilisation. This establishes, as far as is possible, the character of the largely autarkic man/environment system which must have prevailed on Tamana for much of its history as a place for human habitation. This system became transformed in the nineteenth century as the result of contact with outside cultures, particularly those related to the expanding trade and colonial activities of emerging western capitalism. These influences are discussed in Chapter 5 which deals with the establishment of commodity trade and the incorporation of the island economy into the world market economy. Investment in mining in the area created a demand for labour, employment and reverse flows of remittances and capital goods to the island. Missionisation and the

establishment of colonial rule engendered far-reaching changes in Tamana's social fabric, its relationship with other islands in Kiribati (particularly with Tarawa which emerged as the administrative centre for the colonial government) and with its relationship with the wider world. These external relationships continue to exert enormous influence on developments in Kiribati through the aid policies of metropolitan countries. Chapter 6 attempts to draw the effects of these influences together and to demonstrate their significance in contemporary society. It presents the transformed social system and its implications for day-to-day relationships between people and the way production is organised. It considers the new possibilities for evaluation of the environment offered by trade and the extent to which the agricultural system was transformed as a result of this. It discusses the contribution of the transformation of agriculture and investment in phosphate extraction to regional growth (or the lack of it) and the systems of labour migration which have emerged from this. Finally, and perhaps most importantly, Chapter 6 outlines the continuing influence of government policy and welfare expenditure on employment opportunities, the expectations of and options available to the rural dwellers and the significance of these for rural-urban migration. In this respect the value system espoused by Tamana people is critical in understanding how they perceive and respond to the opportunities available to them. It is in this chapter that appreciation of the importance of man/man relationships in understanding the landscape is developed. Chapter 6 provides a basis for the interpretation and understanding of the contemporary, household-based study arising out of three lengthy fieldwork periods on Tamana.

This fieldwork, from which the material presented in Section Two is derived, was carried out as part of the Victoria University Rural Socio-Economic Survey of the Gilbert and Ellice Islands carried out for the then colonial government and funded under United Kingdom Technical Aid Project no 2875 A and B. Tamana was one of five islands¹ in the survey which sought to provide base data and an advisory report "describing the structure and dynamics of the present economic and social systems and the changes occurring or likely to occur in response to internal or

¹The other islands were Butaritari, Abemama, North Tabiteuea and Nanumea.

external stimuli".² Without a doubt the "external stimuli" uppermost in government officials' minds was the depletion of the phosphate reserves on Ocean Island in the late 1970s and in the prevailing international atmosphere, the necessity for decolonisation, political independence and the seemingly impossible goal of some measure of economic independence to go with it. The survey was to give some insight into the likely income and employment loss suffered by the village economy with the cessation of mining and the ability of this sector to adjust or respond to the impending loss by expanding existing cash-raising activities and initiating new ones. The government was also concerned to measure the impact of such government-sponsored programmes as the Marine Training Scheme (whereby large numbers of young I-Kiribati men were trained for employment with overseas shipping lines), the Family Planning Programme, and the Coconut Improvement and Replanting Schemes on the village economy and its ability to respond to the need to increase export earnings to make good the loss of phosphate.

As in many Less Developed Countries very few data on village sector production or its constraints were available. Little was known as to how village people allocated time to their various daily tasks, what motivated people to engage in such cash-earning activities as copra production, how subsistence and cash production interrelated if they did and whether existing resources were being utilised to capacity. In short, the survey was directed to provide social, economic, population and resource data for use in planning programmes aimed at understanding and providing a guide for inputs to maintain or improve living standards in the village sector.

This same material provides the basis for micro-geography based on in-depth field study of the type advocated by Brookfield (1964: 299). The empirical data provides the means of describing and quantifying aspects of man/environment systems of Tamana in the 1970s. It enables such topics as the social systems controlling access to land, the utilisation of resources and the relationship between population and resources to be explored (Chapter 7: The Household Resource Base). It also enables questions of wider interest to be addressed and generalisations

² Central Planning Office 1972 Research Project Economic Development and Social Response in the Gilbert and Ellice Islands. For a full statement of objectives and scope see Appendix 1.

established in other studies in other areas to be tested with data from Tamana. In Chapter 8 the allocation of time is discussed which enables some appreciation of the range and types of activities followed by Tamana people. As well as providing direct reflection of a society's way of life in a situation of change and incorporation into the market economy, the pattern of time allocation between production for subsistence, cash-earning and social activities has been used as a measure of the extent to which incorporation has proceeded. Chapter 10 provides a detailed description of Tamana's subsistence economy, Chapter 11 describes the types and strategies of cash-earning activities and again returns to the general issues of incorporation and the transition from traditional village subsistence economy to a cash crop economy on Tamana.

Section Three attempts to draw this material and the historical and environmental material together in order to consider questions of change and development on Tamana. Against the background of a very narrow range of possible physical resource options which constrain possibilities for action, the Tamana economy has become enmeshed in a wider system (not unlike the atolls on their plate being subducted into the trench) where man/environment relationships and concepts of equilibrium have less relevance, where change is the normal condition and where ongoing social and economic change reflecting external forces are increasingly important in understanding the reality that is Tamana and what its future shape might be. The aid programmes of donor countries and "development programmes" which create urban bias and present rural villagers with employment options outside of village agriculture that can only be taken up by moving to the urban centre are thus likely to exert an increasingly important influence on the future geography of Tamana.

Sources and Research Method

The source material and research methodology applied in this thesis falls into two separate areas. For Sections One and Three the emphasis is obviously on the historical method and the careful searching out and combing of historical sources, both primary and secondary. The second section necessitated field research, the development and execution of an appropriate field programme and the analysis of its results.

Historical Sources

The historical research required much time to be spent in libraries tracing a wide variety of largely manuscript material, particularly that relating to the activities of whalers, traders, missionaries and government officials. Extensive use was made of the logbooks of American whalers made accessible through the Pacific Manuscript Bureau's New England Microfilming Projects. The South Seas Journals, Reports and other letters from the missionaries of the London Missionary Society (on microfilm in the Alexander Turnbull Library, Wellington and the originals in the School of Oriental and African Studies Library, University of London) were also studied and provided valuable insights into the missionisation of the southern Gilbert Islands. The Hawaiian Gilbert Island Church Reports 1866-88, Hawaiian Evangelical Association Archives in the Mission Children's Society Library, Honolulu, also provided insight into the activities of American missionaries on islands to the north of Tamana, with occasional references to that island as well. Other material relating to traders, recruiters and visitors was garnered from manuscript and published material held in the Mitchell Library, Sydney, the National Library, Canberra, the Queensland State Archives, Brisbane, the Alexander Turnbull Library, Wellington, the Library of the South Pacific Commission in Noumea and the University of Hawaii Library and Bishop Museum Libraries in Hawaii. Ethnographic material was studied in the Museum of Mankind (British Museum), London, Pitt-Rivers Museum, Oxford, Museum für Völkerkunde, Hamburg, and the Bishop Museum, Honolulu. Government files in Tarawa, and in the Western Pacific High Commission Archives in Suva, as well as some former officers' papers held in the Rhodes House Library, Oxford, were consulted to gain insight into past developments and Tamana as seen through the travelling officers' eyes and in the study of the evolution of government policy. In respect of the latter considerable assistance was also gained from the published research of Macdonald (1971-2 and 1982). The writings of linguists, ethnographers, archaeologists and anthropologists were reviewed in an attempt to provide the context of Micronesian settlement in prehistoric times.

The Fieldstudy

The fieldwork on which Section Two is based was aimed at providing empirical data with which to demonstrate the articulation of the economy at the household level - the level at which production and consumption is organised. The approach taken owes much to the tradition of household studies and quantitative data collection established by Belshaw (1957), Epstein (1968), Lockwood (1971) and others. However, the scope of the study was to a large degree determined by the objectives of the research project discussed previously. The data had to be quantitative, comparable with the studies on the other islands, representative of the range of the household variation on the island, and collected in such a way as to minimise interference in everyday village life.

Three trips were made to Tamana for fieldwork. The timing of visits was constrained by the availability of leave and hence could not hope to give year-round coverage of supposed seasonal differences. However, in reality, the fickleness of the weather and the failure of the seasons to commence on the due dates meant that the main seasonal differences between easterly and westerly conditions were experienced. Research covered the periods December 1971-February 1972, December 1972-May 1973 and December 1973-February 1974. Use is also made of research carried out during January-February 1979 while the writer was part of a Development Planning Unit, University College London, team advising government on decentralisation. The approach adopted during field work was that of participant observation accompanying people going about their everyday tasks. This was augmented by more quantitative data collected from sixteen sample households by way of interview schedules administered daily for a week at a time. Data were recorded on household income, expenditure, diet and time use. The resource bases of these households in terms of access to land and land usage, palm resources, holdings of capital goods and employment histories were also studied in detail.

The Census and Selection of Sample Households

At the outset and in the absence of any more detailed information than that contained in the 1968 Colony Census, fieldwork began with a household census to characterise the nature of the household population.

The census covered all 235 households on the island and obtained information on household size and structure, employment, numbers of land plots and babai pits owned and used and numbers of kin in employment off the island. For the purposes of the census the eating from the one pot definition of the household was adopted as the best means of identifying the entity which cooperated in productive tasks, provided for its needs and hence had common interests. However, as will be apparent from discussion in later chapters, the household on Tamana proved to be a constantly changing social unit whose members frequently showed a preference for communal work aimed at minimising drudgery while still achieving wider social and long-term goals at the same time as satisfying immediate needs. Similar problems confronted the selection of sample households for closer study.

Experience has shown that 15 to 20 households are all that can be readily managed by the one fieldworker in a study of this kind. It is doubtful that this number, randomly selected, would have been sufficient to ensure adequate representation of the variation within the population at large. This required some method of stratification before selection, but the criteria on which such a stratification might successfully be based were the very data that the survey was seeking to collect. Given the limitations of time and the lack of knowledge of variability within the population, an arbitrary selection procedure was adopted. Assumptions were made as to the importance of age and sex in economic performance and the importance of land access and kin in employment off the island. Males 15-60 were scored 100, females in the same age group 90 and males in employment off the island at 120. All others were regarded as consumers only and ranked at 100. The ratio between consumers and productive workers should thus give some indication of the labour potential and needs of the household. The scores of all households were ranked and the distribution divided into quintiles. Three households were selected from each quintile and within each selection attempted to get households with above average, average and below average numbers of land plots. Other considerations guiding choice included the need to get a representative number of households headed by women, distance from the store and copra-buying point and to quantify neighbourhood interactions. The households selected had to be in close enough proximity to enable all to be visited in the one evening.

Even though there are three villages on Tamana, these now all form one continuous strip of housing down the western shore of the island with the store, government station, church, school and dispensary all about the middle of the spread. This encouraged me to select all 15 households from the northern village, Barebuka.

In hindsight, the process seems like cracking the proverbial nut with a sledgehammer but little other guidance was available and I wanted the experience of collecting some survey data during my first visit. The artificiality of the approach became apparent as fieldwork progressed and the inconstant nature of the real world revealed itself. This applied to household formation, composition and activity patterns. During fieldwork three of the 15 households (so carefully selected) disappeared, another two joined with other households outside those initially selected and subsequently broke away again during fieldwork. In all 167 personnel changes were recorded in the sample household membership during the seven survey weeks. Activity patterns proved to be similarly variable. Faced with such problems there was little choice but to stick with the initial selection and soldier on, replacing households as they disappeared and keeping tabs on the pieces after they split up. This creates problems of data comparability and in following household performance over time. However, as fieldwork continued and the range of household types on Tamana became apparent, I suspect those selected cover the range of types present. These range from small relatively stable households to larger, more complex and often less stable households; from households with few dependents and large labour forces to those with few adult members and large numbers of dependent children; from households strongly oriented to subsistence production to those largely dependent upon wages and remittances. The degree to which the selected households are representative of Tamana generally cannot be readily established nor can the validity of the selection procedures be adequately tested. However, the data presented do give the feel of the household economy on Tamana in the early 1970s.

Data Collection

Having selected the households, the next decisions concerned what data to collect, when and how. The week was chosen as the most suitable time span to reduce boredom and maintain interest and data quality. Over the three fieldwork periods each household was visited daily in

seven survey weeks. On each visit household members were asked to outline their activities for the day in the order they were executed and using the doer's estimate of time taken. No arbitrary duration was adopted for a "day" allowing the full spread of 24 hours. This proved particularly important (because of night fishing). Each activity was recorded under the local categorisation and if necessary, regrouped for the purpose of analysis. It soon became clear that certain activities were not seen by the people as constituting purposeful activities and so eating, sleeping, personal hygiene and resting were lumped into "unallocated time". For diet data, the number of meals taken, number of eaters and ingredients were recorded. To attempt to get specific data on quantities would have been too disruptive. Such data is of little use in dietary analysis unless matched by data on individual intakes. Household income and expenditure over the survey weeks were also recorded. Supplementary information on these was also gained from Tamana Cooperative Society store records and the Post Office Telegraphic Money Order Journals and these provided a check on the reliability of the survey week data for the sample households (see Chapter 10). Additional data on land access, coconut and babai resources and an inventory of capital goods was also collected.

The interpretation of this field data provides the basis for the description of the present-day household economy on Tamana, the analysis of the way in which production is organised and the relationship between a society and its resources. The articulation of this man/environment system in the context of ongoing processes of change which are largely the result of external and man/man forces allows us to understand the evolution of the Tamana landscape and to gain some insight into the likely direction of future change.

SECTION ONE

THE ISLAND AND THE PEOPLE

Chapter Two

THE MICRONESIAN CONTEXT

The term Micronesia was first used by Codrington in 1896 and applies to the 2000-odd small islands of the Mariana, Caroline, Marshall and Gilbert Archipelagoes. The total land area amounts to slightly more than 2500 square kilometres spread over a vast 11 million square kilometres of ocean. Guam, the largest island in the region, has an area of only 583 square kilometres while some of the permanently inhabited atoll islets measure as little as 0.1 square kilometres. The present resident indigenous population is estimated to be between 125,000 and 135,000 individuals (Alkire 1977: 5). Thus smallness and dispersion are basic characteristics of this island world.

Micronesia includes both "high" and "low" islands; the Marianas being entirely volcanic high islands, the Carolines including both volcanic and "low" coral islands, while the Marshall and Gilbert Islands are entirely of coral. Such a basic geological distinction also finds expression in the usually larger size, more varied topography and richer soils of the high islands, which in turn support a greater variety of plant and animal life, distinct vegetation zones and a great range of different habitats. In contrast, the coral islands are of low elevation and little differentiated in relief; the soils are coralline, of low fertility and vegetated with a limited range of plant species.

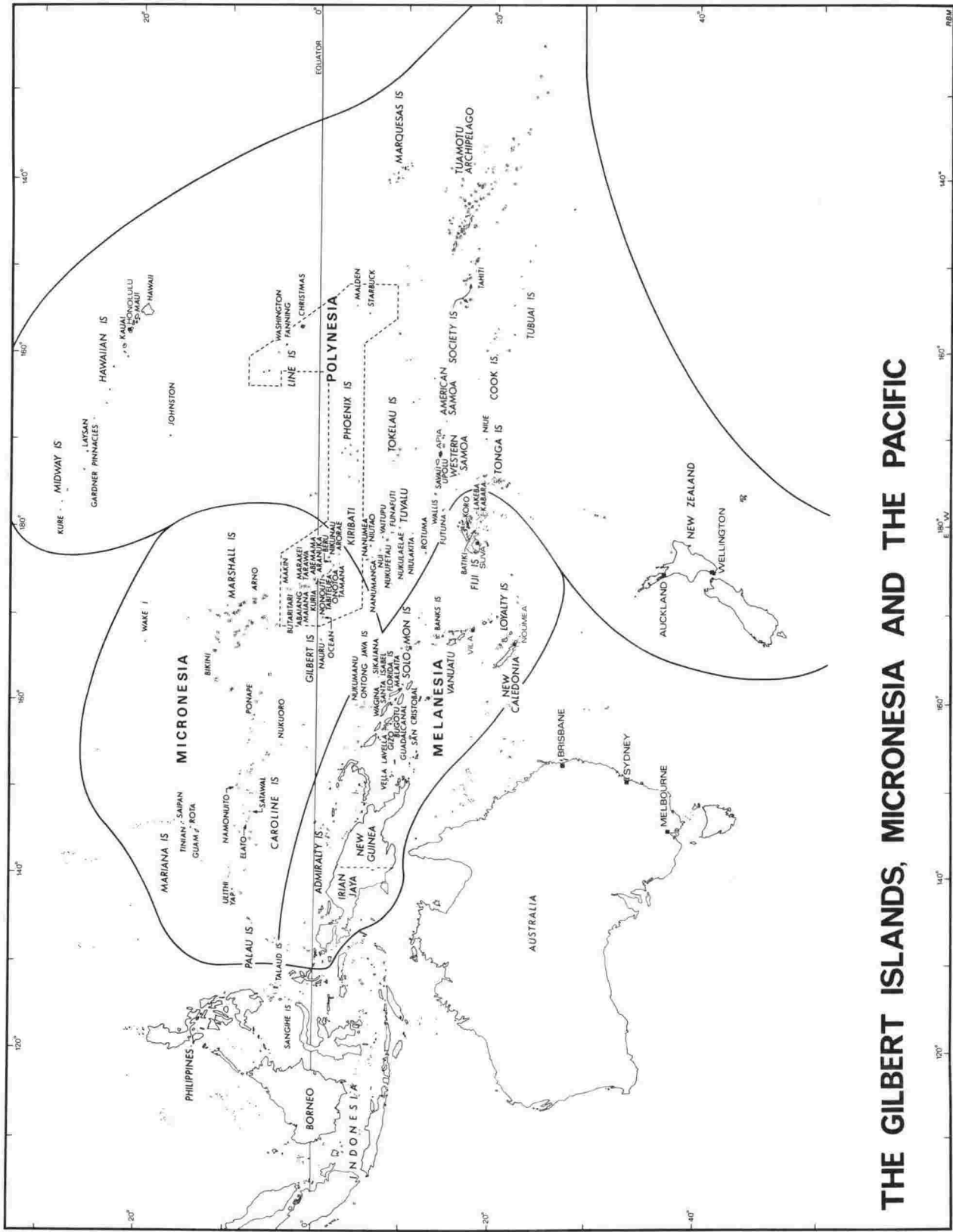
One might expect such environmental differences and the scope each offers for human exploitation to encourage cultural adaptation and give rise to substantial differences in material culture between groups inhabiting high and low islands. However, this has not happened. Alkire (1977: 14) considers the difference between high- and low-island technologies to be of emphasis rather than kind. With the exception of stone and clays suitable for pottery, the main materials of wood, vegetable fibres, coral and shell, were equally accessible on high and low islands and were used in similar ways to manufacture simple digging sticks, wooden spears, shell adzes, axes,

spears, spades and fish hooks, bamboo knives, sennit or fibre fishing lines and nets as well as fish weirs and traps. Bellwood (1978: 195) notes that stone tools were not common in Micronesia, even on the volcanic islands where suitable stone was available. Adzes were generally simple, untanged, oval or lenticular in cross section and similar to those found in Melanesia. There appears to have been no characteristically Micronesian elaboration of design.

Similarly, the main subsistence crops of the region are cultivated on both low and high islands. Breadfruit (Artocarpus spp.) and the aroids Cyrtosperma, Colocasia and Alocasia, imported from Southeast Asia after domestication (Barrau 1963: 3-6), are grown throughout the region. No major food crop is endemic to or was domesticated on any of the high or low islands of the region. However, Stone (1963: 61) argues that the selection of edible, large-fruited cultivars of Pandanus is distinctive of the Marshall, Gilbert and certain Caroline Islands (and possibly formerly of the Tuamotus), thus reflecting the poor indigenous vegetable resources of the atolls. Coconuts are utilised throughout the region. Yams are restricted to high islands. Both wet and dry rice may have once been cultivated in the Marianas (Yawata 1963: 91-2), a crop which would have been difficult, if not impossible to cultivate in atoll environments.

Alkire (1977: 14) sees the most important differences between high- and low-island Micronesian cultures being in the degree of development of canoe and navigational technology and hence their mobility. He implies that the high islands had larger populations as a result of their larger land area and richer and more protected environments which, in turn, reduced the islanders' need to intensively exploit the sea and engage in inter-island travel. The latter factor is reflected in the geographical distribution of languages spoken in Micronesia. Languages spoken by high-islanders have a limited areal distribution while the Micronesian languages with the widest occurrence are those associated with coral island populations. The difference could reflect either a shorter period of separation or, more probably, the maintenance of continuing contact between the coral islands' populations. In a world of small islands and limited resources prone to such natural catastrophes as prolonged drought and cyclones, temporary migration is an obvious strategy for survival and a strategy dependent upon a highly

Fig. 2-1



THE GILBERT ISLANDS, MICRONESIA AND THE PACIFIC

developed canoe and navigation technology. It is to this latter group of Micronesians that the I-Kiribati unquestionably belong.

The Peopling of Micronesia

Archaeological Evidence

Despite an early start to archaeology in Micronesia with the excavation, or perhaps more accurately, the looting of Nan Madol in the Carolines by Christian in 1896 (Christian 1899) and excavations by J.C. Thompson in Guam in the 1920s (Thompson 1932) data on Micronesian prehistory is scant in the extreme. In Western Micronesia excavations have been carried out on Saipan, Rota and Tinian (Spoehr 1957), Guam (Reinman 1968), Yap (Gifford and Gifford 1959) and Palau (Osborne 1966). Eastern Micronesia is represented by only one major excavation, that carried out by Davidson in 1965 on Nukuroro, a Polynesian outlier in the Caroline Islands (Davidson 1968), and a salvage operation on Ocean Island (Lampert 1968). Regional coverage is thus poor. Extensive, adequately dated prehistoric sequences are generally lacking. In the absence of these linguistic, genetic and other ethnological data has to be relied upon.

Radiocarbon dates from shell materials (which may be suspect because of subsequent carbonate contamination from groundwater) collected by Spoehr on Saipan (Spoehr 1957) suggest that the island was settled by 1500 B.C. No dates of greater antiquity have been obtained from the Marianas or other sites in Micronesia. The Giffords (1959) provide a date of 176 A.D. for the settlement of Yap. Davidson's excavation on Nukuroro provides the sole date for eastern Micronesia with that island being settled at least by 1400 A.D. and possibly earlier (Davidson 1968: 54). These isolated dates hardly provide a basis for Alkire's statement (1978: 20) that there is no evidence to show that the coral islands of Micronesia were inhabited as early as the high islands of western Micronesia, or a means of testing Howell's assertion (1973: 255) that the coral islands were

occupied only after all the neighbouring high islands had been settled. More adequate data are needed before such statements can be validated.

Both Spoehr (1957) and Osborne (1966) see similarities between the prehistoric record of the Philippines and Micronesia. In addition Osborne considers there are sufficient similarities to link the early settlement of the Carolines with Indonesia and the Talaud and Sangihe Islands and Northern Celebes in particular (Osborne 1966: 465). He puts the beginning of his Archaic Indonesian phase at least as early as 1800 to 1500 B.C. with the later Lower Early Philippines phase dating from 200-300 B.C. The lack of regional coverage allows nothing to be said of the cultural relationships between western and eastern Micronesia or, perhaps more importantly, between eastern Micronesia and Melanesia and Polynesia; relationships which, on the basis of linguistic evidence, would seem to be of considerable importance.

Linguistic Evidence

To some degree the same problems of uneven quality and regional coverage bedevil attempts to bring linguistic evidence to bear on the question of peopling of Micronesia. Pawley's study (Pawley 1972) of the internal relationships of Eastern Oceanic languages led him to include Gilbertese in his Eastern Oceanic language group; a group which includes the Southeast Solomonian languages of Guadalcanal, Bugotu, Florida, Malaita and San Cristobal areas and the North Hebridean/Central Pacific languages of the Banks Islands, northern and central New Hebrides, Polynesia and Fiji. He considers there is some as yet inconclusive evidence which may justify placing Gilbertese in the North Hebridean/Central Pacific sub-group (Pawley 1972: 135). Verification awaits further comparative study involving a wider range of Micronesian languages.

Three earlier studies also point to links between some Micronesian and Melanesian languages. Matthews (1951: 436) suggests close links between Melanesian languages and the vernaculars of the Caroline, Marshall and Gilbert Islands. Grace (1961: 364) considers the closest affiliations of Palauan and Chamorro to be with the languages of the New Hebrides, which is somewhat at variance with results of Dyren's (1965) analysis of five eastern Micronesian languages (Gilbertese, Wolean,

Trukese, Ponapean and Marshallese) which he found to be more closely related to New Hebridean, Rotuman and Fijian than they are to Yapese, Palauan and Chamorro.

Alkire (1978: 21) argues that the linguistic diversity evident within Micronesia, and the time necessary to produce such diversity in fundamentally related languages, would suggest that most of the coral islands were occupied or known and exploited by the time of European penetration into the area during the sixteenth century. He suggests that the atolls of the eastern Carolines, Marshalls and Gilberts were settled first, probably between 100 A.D. and 1300 A.D., with the central Carolines being settled somewhat later. The linguistic evidence suggests that movement and contact continued after the initial settlement.

In respect of its relationship with other languages in the region, Gilbertese has been considered something of an outsider with no close relatives. Pawley (1972: 133) observes that Gilbertese has been affected by considerable borrowing from Polynesian languages and has undergone sufficient grammatical change as to leave a very small amount of residue material for analysis by lexico-statistical methods. If this is recognised and allowed for, it is probable that Gilbertese will ultimately be shown to have its closest relationships with certain of the languages in Micronesia, and that the Polynesian elements in Gilbertese arise from more recent contact and not simply from their common origins in Eastern Oceanic.

Pawley's analysis leads him to conclude that "whatever justification there may be for the use of the label 'Melanesian' to denote genetic or typological categories in physical or cultural anthropology, there is none for persisting with it in linguistic classification" (Pawley 1972: 138). This, at least in part, is presumably the non-archaeological evidence which prompts Bellwood (1978: 282) to postulate an eastern Melanesian source for migration into eastern Micronesia and Polynesia. The presence of Polynesian borrowings in Gilbertese indicates continuing contact between eastern Micronesia and western Polynesia and these conclusions are supported by evidence from genetic studies.

Genetic Evidence

Simmons, Graydon, Gadjusek and Brown's study (1965) of blood group genetic variation in the people of the Caroline Islands and other parts of Micronesia indicates a general "intermediate" pattern of gene frequencies for the total Micronesian sample and this is taken as evidence of contact with Philippine, Malay, Melanesian and Polynesian populations. In the light of the linguistic and archaeological evidence discussed above this is not unexpected. However, the most intriguing and illuminating of the authors' findings relate to the variability in gene pattern between islands in Micronesia and even between islets of the same atoll. The authors attribute this in part to "random genetic drift" attendant upon genetic sampling in groups of very small size but also to historical accident and chance which time and time again returned the genetic fate of the small communities to a few new "founders". As a result of catastrophes such as cyclones, tidal waves, severe and prolonged drought, volcanic eruptions, warfare, canoe sinkings or accidental voyages and disease, or even transient and faddish changes in sexual practices, the breeding population would have been reduced to a small number of individuals whose genetic makeup in no way approached the mean or average gene pool of the population. If these "founders" remained isolated within a few generations the average physical type of the isolated community would diverge significantly from that of the population at large. Simmons et al.'s findings tend to lessen the importance of what previously seemed significant ethnic differences between Polynesians, Micronesians and Melanesians and questions the validity of previous "wave" or "horde" type interpretations of the settling of Oceania. Alkire (1977: 10) considers this and the weight of linguistic and archaeological evidence to point increasingly to Melanesia, specifically the Fiji-New Hebrides area, as having the most direct links not only to Polynesia but also eastern and central Micronesia and that the settlement of the latter was not the result of a simple one-way movement of a mass of humanity.

The weight of evidence would thus suggest that the settling of Micronesia was part of the general movement of people into the vast island world of Oceania which began around 3000 B.C., soon after the beginnings of plant and animal domestication in Southeast Asia. The

Marianas were undoubtedly settled directly from the Philippines-Indonesian area by the middle of the second millenium B.C., with later and possibly local developments leading to the settlement of Yap and Palau about two thousand years ago. Whether this movement continued on to eventually encompass the very different coral island environments of eastern Micronesia is still an open question. Howells (1973: 255) postulates that this movement occurred once population levels on high islands reached the point where outmigration was necessary and once adaptation to atoll living had been mastered. These migrations of Austronesian-speaking peoples led to the settling of the previously ignored atolls of the central Carolines, the Marshall and Gilbert Islands and reached the Tonga-Fiji area by 1500 B.C. The succeeding period was, according to Howells, characterised by continued dispersal, movement in all directions and substantial language differentiation within Micronesia. Such an interpretation has yet to find archaeological evidence which is not open to a number of interpretations. This same linguistic evidence prompts Bellwood (1978: 244, 282, 295) to seek an east Melanesian origin for the eastern Micronesians, seeing them as part of the seaborne colonisation of Melanesia, Polynesia and eastern Micronesia (i.e. the Gilberts, Marshalls, eastern and central Carolines) by Lapita-culture-bearing people during the mid to late second millenium B.C. He uses this to explain similarities between Polynesian and eastern Micronesian material culture, attributing the dissimilarities to environmental differences (between the volcanic islands with which he associates Polynesian culture and the atoll-world of eastern Micronesia) and 2000-3000 years of virtual separation. The latter is rather hard to reconcile with extensive Polynesian borrowings in the Gilbertese language and with Bellwood's own statement (1978: 282) that despite the basic dual origin of the Micronesian cultures there has been a great deal of contact between all the Micronesian Islands and with those of western Polynesia. Again, the postulated Lapita associations of eastern Micronesian culture have still to be demonstrated archaeologically.

Whatever the origin of the eastern Micronesian people proves to be it seems likely that occupation of this atoll-world could extend as far back as 2000 years. It is probable that small groups, possibly

as few as one or two canoe-loads of people,¹ may have been involved in the initial peopling of some islands. Some voyages may have been purposeful and a conscious seeking-out of new islands for settlement; others may have been simply accidental drifting. Intermittent contact, both within Micronesia and with surrounding regions continued after settlement and permitted the introduction and diffusion of new material culture traits and language borrowing and contributed to the genetic diversity now characteristic of the Micronesian population. Golson (1962) and Reisenberg (1965) document recent known drift voyages in Oceania. Thirty-eight of these relate to voyages emanating from the Gilbert Islands involving between one and 30 canoes and between one and 300 people. Seventeen of these journeys ended in the Marshall Islands, 11 in the Carolines and 10 reached such diverse localities within Melanesia as the Admiralty Islands, Sikaiana, Ontong Java, Banks Islands, Nukumanu and Rotuma. Only one journey in the reverse direction, from the Marshalls, was recorded. This may reflect the predominant direction of movement resulting from wind and current patterns, but could also simply result from a lack of potential recorders in one locality, or the fact that arrivals from other island groups went unrecorded, or the records did not survive, or were not published and widely accessible.

In the time following settlement the migrants successfully adapted to the very limited land areas and land resources available and developed a considerable emphasis on the exploitation of the rich marine resources of their environment. However, their "success" must be measured in terms of their ability to persist through time in this limited and fluctuating environment, rather than in maintaining stable and permanent populations on any one island. The very small size of the islands and the fact that many of them lie within either the climatic zones of low and unreliable

¹ Computer simulations by McArthur, Saunders and Tweedie (1976) suggest that there would be a fifty-fifty probability of successful community establishment from initial colonisation by three males and three females.

rainfall or higher rainfall and severe tropical cyclones mean that the productivity of the whole island could be seriously reduced during and following a severe and prolonged drought or for several years following cyclone damage. The famine associated with such natural catastrophes would have resulted in starvation, population decline and increased out-migration. It is thus clear that a well developed canoe and navigation technology must have been an essential part, not only of the colonisation and exploitation of this island world, but also of its continued occupation through time. The periodic decimation of the population and its mobility is evident in the genetic patterns of the island populations.

The ocean-going skills of the Micronesians also made inter-island alliances in warfare and exchange possible. In pre-contact times, probably during the seventeenth century, the southern Gilbert Islanders joined forces under the leaders Kaitu and Uakeia and invaded all the islands to the north except Butaritari and Makin (Maude 1963: 10). Feuding between rival dynasties in the central islands with attack, invasion and reprisal seems to have been endemic in the recent past. However, in contrast, supra-island political and economic alliances in the Caroline Islands seem to have operated to reduce potential conflict and promote cooperation and exchange. The hũ or "hook" system which linked Elato and Satawal to Lamotrek and the sawei system of tribute exchanges between specific villages on Yap and all the islands from Namonuito to Ulithi, which became known at its height as the Yapese Empire, are examples of these supra-island networks. Both systems entailed presentation of tribute, usually goods such as coconuts, preserved breadfruit and sea-turtle, in return for rights to exploit the resources symbolically owned by the superior partner, as well as the invocation of superior magic to ward off natural catastrophes and assistance in the event of such disasters. Alkire (1978: 124) sees these systems as a response to the peculiar limitations of an island world insofar as they served to link communities on a number of small dispersed and vulnerable islands into a larger unit which permitted members of their ranked societies to expect aid or move between islands in times of disaster and resource shortages. The systems also encouraged everyday exchanges between participating individuals so that regular or predictable localised shortages of food, timber or other resources or personnel could be overcome.

It is interesting to note that no similar institutionalised system of exchange has been recorded from the drought-prone southern Gilbert Islands. In the early period of European contact individuals were evidently willing to leave their islands and be taken to other islands where conditions might not be so severe, or be recruited to work overseas, but there does not appear to have been a formalised system linking particular islands and which could be activated for assistance in times of stress. The reasons for this may lie in the nature of the environmental hazard. Although the impact of drought seems to have varied from island to island, all islands in the region were affected. In contrast the devastation of a tropical cyclone could be quite localised and the chances of all islands in an area falling within the cyclone path are somewhat remote. Thus some islands could suffer devastation while other islands might only be marginally affected by the storm and thus able to come to the aid of the worse hit island or islands. A second important difference lies in the socio-political structure of the communities concerned. Social stratification, both within island communities and in supra-island relationships is characteristic of Carolinian society, whereas socio-political organisation within the southern Gilbert Islands is egalitarian, "democratic" and essentially individualistic, which may have militated against the formation and maintenance of such supra-island ties.

The Peopling of the Gilberts

In the complete absence of archaeological sequences and radiocarbon dates from any site within the Gilbert Islands it is impossible to suggest even an approximate date for the initial settlement, which islands were settled first, from what general direction the first settlers came or what contact may have occurred with other cultures since. Folklore and oral tradition are of only limited value in answering these questions. Some stories, particularly those from the northern islands, tell of connections with the Marshallese and other Micronesian people (Beiabure, Teraku and Uriam 1979: 9). However, the creation myth with the most widespread occurrence places Tamoa as the original homeland of

the settling spirits. Tamoa has somewhat unquestioningly assumed to have been the Samoan Islands.

The creation myths¹ describe the activities of Nareau-the-Creator (or Sir Spider - the first of things, according to Grimble) and Nareau-the-Wise (or the Mischief-maker). Nareau-the-Wise was responsible for finally separating the earth and the sky, bringing to life and naming the chief spirits and killing his father Na Atibu, from whose dismembered body the sun, stars, dominant winds, people and the first of all lands with its Te Kaintikuaba or mythical tree and home of the spirits were created. Tamoa was the name of this spirit-homeland and it has been almost automatically and perhaps uncritically glossed as Samoa in the writings of Grimble, Sabatier and others.² Subsequent migrations of the spirits and journeying of Nareau-the-Wise led to the creation and settlement of most islands in the Group.³ The myths merge with recorded tradition at the point where Nareau-the-Wise changed his name to Tematawarebwe who, with his three sons returned to Samoa and removed Te Kaintikuaba and the umananti (spirits' house) to Tabontebike on Beru Island (Kirion and Karaiti 1979: 12). The history of the Karongoa clan of Beru, taken down by Tione Baraka in 1930, encourages Maude to equate this with the bringing of the maneaba custom to Beru which he calculates took place somewhere around 1400 A.D. and that Tematawarebwe was one of the vanquished in a series of Samoan wars known as Uruakin Kain Tiku-aba which literally means the breaking of the tree of the resting place of lands (Maude 1963: 7). In the myths the removal of Te Kaintikuaba from Samoa affected the remaining spirits who then attempted to follow the route taken by Tematawarebwe and his followers. Several spirits never reached their destination and instead created and settled upon the islands of Nonouti, Onotoa, Nikunau, Arorae and Tamana (Kirion and Karaiti 1979: 13).

¹ See Grimble (1972: 36-57), Beiabure et al. (1979: 1-9), Kirion and Karaiti (1979: 10-17).

² The name Tamoa was first given to what is now Banaba by Nei Maanga-ni-buka in the Banaba Creation myth (Grimble 1972: 52-3, 146).

³ The island of Beru must have already been settled for the myth recounts that Tetaake, the second spirit to leave the tree of life was driven off by Tabuariki, the deity of the people already living there (Kirion and Karaiti 1979: 11).

Tamana Oral Traditions

The following is an account of the settling of Tamana recounted to me during fieldwork by Matatia, an old man on the island who was the most respected living source of traditional tales:

Tamana was originally inhabited by a race of subhuman creatures with large ears and flat noses; in fact their arms and legs were their only recognisable human features. These beings lived mainly on fish and made little use of land foods although coconuts had by this time drifted ashore and become established on the island. The present race came from the Marshall and Caroline Islands in canoes, enslaving or killing the original inhabitants who in time disappeared. The newcomers brought with them the main food plants now to be had on the island, breadfruit (Artocarpus spp.), te non (Morinda citrifolia) and trees useful in building. Later arrivals brought all the present known varieties of babai (Cyrtosperma chamissonis). On planting, the lands became the property of the clan group and the site of the clan hamlet, the kainga. The movement of people which led to the settling of Tamana continued southward and encountered a northward moving migration which had settled Tuvalu. At some later time this southward migration returned.

Matatia's account makes no reference to Banaba which figures as the source of Tamana settlers in the legends collected by Powell (Powell 1871)¹ and does not associate the return from the south with the bringing of the maneaba tradition from Samoa to Beru.

These oral traditions give some hint of the variety of past influences in the settling of the region. The contacts with other Micronesian cultures, particularly the Marshall and Caroline Islands provide no major interpretive problems. However, the possible Samoan associations implied in the creation myths and the introduction of the maneaba system need to be treated with more circumspection. While it might be tempting to see this as support for either (1) Bellwood's postulated Lapita culture origins for eastern Micronesians, Melanesians

¹Also evidently recorded by the missionary Turner (see Grimble 1972: 87).

and Polynesians and/or (2) post-settlement Polynesian influences in the Gilbert Islands, the pitfalls are obvious. With reference to the former, Beru at least was supposedly already settled by the time Tetaake, the first migrant from Samoa arrived (Kirion and Karaiti 1979: 11). There are also difficulties in trying to argue a Polynesian origin for the later migration led by Tematawarebwe. Both Grimbale (1972: 87) and Maude accept this as an actual proto-historical event and seem to accept Samoa as the point of origin of the migrants. Grimbale goes as far as to state that "Seven hundred years ago the Group was invaded and its people dominated by a fugitive host from Samoa; it is the traditions of these conquerors that the modern race, with few exceptions has inherited" (Grimble 1972: 87). The foremost of these traditions was the maneaba tradition and the maneaba built by Teweia and his grandfather Tematawarebwe at Tabontebike on Beru. This building was the prototype of all I-Kiribati maneaba and a copy of the one left behind on Samoa. It was also supposed to have incorporated timber brought from the former edifice¹ (Maude 1963: 11).

However, these postulated associations between the Gilberts and Samoa are difficult to accept at face value. Any resemblance between the maneaba structure and the present Samoan fale tele is superficial. The I-Kiribati structures probably have more characteristics in common with those in Yap and Palau than with the Samoan fale tele which is usually round-ended and sometimes circular and which is known to go right back in time to the ceramic period from excavations at Sasoa'a (Bellwood 1978: 316). Similarly, the elaborate boti system regulating seating within the maneaba has no parallel in the hierarchical matai system now present in Samoa. These observations lead one to suspect that the Tamoa of the oral traditions may not have been Samoa after all, or if it was, then the contact did not lead to the replacement of the rectangular meeting houses by round-ended or circular ones, and that Samoan and/or I-Kiribati culture has changed substantially since the time of the migration. This is not to deny Polynesian influence in the Gilbert Islands. This is evident in the language (Pawley 1972: 133) and possibly in the cognatic

¹The autochthons on Beru already possessed meeting houses which functioned merely as centres for social functions (Maude 1963: 11).

form of social organisation (Goodenough 1955). However, Koch's study of I-Kiribati and Tuvaluan material culture led him to conclude that few culture traits were held in common between the two groups (Koch 1965: 201). These influences are hardly sufficient to support Grimble's claim that the I-Kiribati inherited most of the traditions of the alleged Samoan migrants and it is highly probable that contact with Polynesians was, like contact with other Micronesian groups, the result of intentional and unintentional journeys by small numbers of people which therefore had little chance of significantly altering the already established communities, but whose contact did serve to introduce new ideas and material items which were then diffused through the Group as a whole, producing the distinctive culture encountered first by the European explorers and then with increasing frequency and impact by the whalers, oil-traders, labour recruiters, missionaries and finally government officials.

Chapter Three

THE ISLAND ENVIRONMENT

...for everyone must be struck with astonishment, when he first beholds one of these vast rings of coral-rock, often many leagues in diameter here and there surmounted by a low verdant island with dazzling white shores, bathed on the outside by the foaming breakers of the ocean, and on the inside surrounding a calm expanse of water which from reflection is of a bright but pale green colour. The naturalist will feel this astonishment more deeply after having examined the soft and often gelatinous bodies of these insignificant creatures, and when he knows that the solid reef increases only on the outer edge, which day and night is lashed by the breakers of an ocean never at rest.

Charles Darwin, On the Structure and Distribution of Coral Reefs

From the dates suggested for the beginnings of human settlement on the atolls of eastern Micronesia in the previous chapter, it is clear that occupation of this low-lying world began well after the time at which world sea levels are thought to have reached their post-glacial maximum. Whatever short-term environmental perturbations the settlers may have had to contend with, they have not been confronted with sea levels substantially higher or lower than those at present or with significant climatic changes from which the sea level changes directly result. Given the low elevation of the atoll islets even a small rise in mean sea level would have a dramatic effect on the land area, its vegetation, the availability of subsurface fresh water and hence their suitability for human settlement.

Atoll Origins

Charles Darwin was the first scientist to attempt a comprehensive theory of atoll formation and by and large his theory has withstood subsequent critical examination. He recognised that continued subsidence was necessary to account for the colossal thickness of the reef structures

given the light and temperature requirements of reef-building corals. Because these grow most actively in warm, shallow, clear, saline water Wiens (1962: 11) argues that most reef building takes place in depth of 27 metres or less although living reef-type corals may occur at depths down to 155 metres. In drillings on Bikini atoll the skeletons of reef-building corals were found at depths in excess of 1220 metres (Ladd 1973: 101). Thus subsidence and actively upward growing reef corals are necessary to explain the thickness of coral limestone evident and the continued accumulation of lagoon facies which Emery Tracy and Ladd argue (1954: 2) must have taken place in lagoonal environments less than 56 metres deep.

Although the first corals evolved some 500 million years ago (Newell 1972: 4) the reef-building corals of genera common today did not evolve until Triassic times around 200 million years ago (Scott, Rotondo and Rannie 1976: 7). The growth of present atolls probably began in the Oligocene or late Eocene, perhaps 30 to 60 million years ago with at least several periods when accumulation was interrupted by emergence; once during the Miocene and at least twice during the Pleistocene (Emery, Tracy and Ladd 1954: 2). The first of the Pleistocene emergences resulted in the development of a level now evident as the present lagoon bottom and the second in the broad terrace at -20 metres on the outer edge of many reefs. The reef above this level and the islet accumulations would thus be post-glacial in age.

While Darwin's theory of upbuilding reef corals on a subsiding volcanic base has been supported by drillings carried out nearly one hundred years after he first promulgated his explanation, the mechanisms of subsidence, the apparent alignment of some islands in chains or arcs and the relationship between atolls, reef islands, emerged and submerged atolls and seamounts or guyots is now only just receiving attention. Scott, Rotondo and Rannie (1976) have attempted to relate atoll development to the theory of plate tectonics and particularly to the tangential movement of the lithospheric plate as it is subducted into an oceanic trench. Chains of volcanic islands and seamounts develop as the plate passes over a melting anomaly where a thermal plume originating in the asthenosphere causes weaknesses in the lithospheric plate and out-pourings of magma result. If these islands occur outside regions favourable to coral growth, subaerial erosion and the tangential movement of the plate

ensures rapid reduction and subsidence and the disappearance of the island. However, in warm tropical waters, the rate of upward growth by reef-building corals exceeds the rate of subsidence attributable to the tangential movement of the plate and reef corals thus prevent the demise of the island. In this way it is possible to generate Darwin's sequence of volcanic island, island with fringing reef becoming a barrier reef as subsidence and subaerial erosion reduces the island and finally the atoll. If the movement of the plate carries the atoll into cooler waters coral growth ceases and subsidence alone takes over. The atoll then passes below the surface to become a seamount. In warm tropical waters migration into deeper water with subduction would lead to a progressive reduction in atoll area at sea level and eventual submergence to form a seamount. Raised atolls are interpreted as resulting from the passing of the island-bearing lithospheric plate over bumps in the asthenosphere. The raised atoll is then subjected to subaerial erosion before passing off the bump and thus becomes a submerged atoll once away from the influence of the asthenospheric bump.

The principal value of Scott, Rotondo and Rannie's theory is that it provides a mechanism for subsidence and a means of interpreting volcanic islands, island arcs, atolls and seamounts in an overall context. The theory is most neatly demonstrated by the Hawaii-Emperor Island chain where the island of Hawaii is seen as the island at present above the melting anomaly and this factor is evident in its greater elevation and current volcanic activity. The islands of Maui, Kauai and Gardner Pinnacles are of progressively older geological age and have been reduced in altitude by subaerial erosion and subsidence. The sequence is continued with Midway and Kure atolls and several seamounts at progressively greater depths beneath the surface, ending finally in the Kamchatka trench. With the Caroline and Marshall-Gilbert chains the situation is not so simply portrayed since relationships with melting anomalies, either past or presently active, and subduction zones are not so clearly evident.

The Atolls and Reef Islands of the Gilbert Group

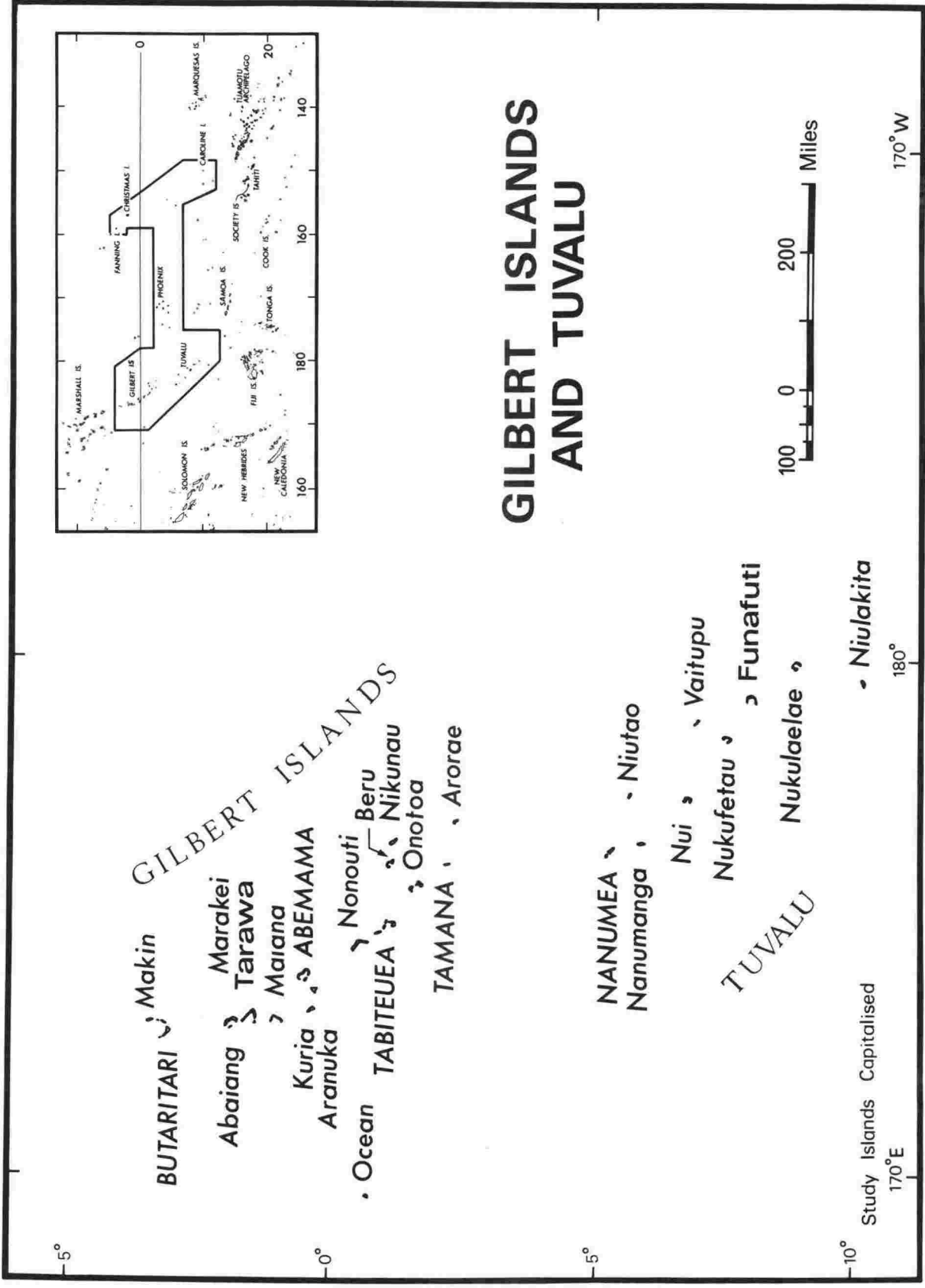
The islands of the Group straddle the equator between latitudes 3°30N and 2°45S between longitudes 172°30 and 177° giving a spread between Makin in the northwest and Arorae in the southeast of 650 km. The chain consists of eleven atolls and five reef islands (see Fig. 3-1). Wiens (1962: 8) reviews previous attempts to come up with a satisfactory definition of an atoll and offers his own definition:

a more or less continuous emerged or slightly submerged calcareous reef surrounding a distinctly deeper lagoon or several such lagoons without emerged volcanic islands, which stand apart from other islands and whose upper seaward slopes rise steeper than the repose angle of loose sediments from a generally volcanic foundation too deep for the growth of reef corals.

While Wien's definition, in his own words "probably excludes all those islands which are not considered to be atolls and includes all those that may be accepted as atolls" (Wiens 1962: 8) neither his definition, nor the theories of atoll formation give any real attention to what appear to be closely associated features, the reef islands. In fact, the index to Wien's massive study Atoll Environment and Ecology lists all the reef islands of the Gilbert Group as atolls even though they quite clearly do not conform to his own definition. To adapt this definition a reef island would then be an emerged or slightly submerged calcareous reef with no surficial evidence of a volcanic core, existing apart from other islands and washed on all sides by the ocean. While small lakes may exist on some islands, lagoons are absent and not an integral part of the landform. While no one seems to have addressed themselves specifically to the problem of reef island formation, it would appear that they owe their origin to the process of movement of the island bases into deeper water which results in the tops of their coralline peaks becoming "so narrow that they will no longer support any island form whatsoever" (Scott et al. 1976: 28). The reef island could thus be a penultimate stage in this development.

The main physical differences between reef islands and atolls as environments for human settlement is firstly in the generally smaller size of the reef islands. Nikunau is the only reef island in the Gilbert Islands with a larger land area than the land area of the smallest atoll

Fig. 3-1



(see Table 3-1). In addition the reef islands completely lack the sheltered lagoon environment with its extensive tidal areas and also the large reef flat areas and permanently submerged reefs which mark the periphery of the atoll and link its islets into an entity. Tabiteuea has no fewer than 60 separate islets strung along some 50 km of reef flat. Thus the total area of marine environment available for exploitation on a reef island is restricted to the exposed reef flat and seaward facing reef fronts fringing a small and usually compact island and all offshore fishing must be carried out here and on the open sea. On the other hand, the land areas of the reef islands though generally small are compact, uniformly accessible and often higher and not as narrow as some atoll islets. These latter factors are important because island width and height are important factors in the development of freshwater lenses under the islands and upon which the islanders depend for their water supplies. Tamana is the smallest of the reef islands in the Gilbert Islands and it is with this island that the study is primarily concerned.

Table 3-1. Island Type and Land Area Gilbert Islands

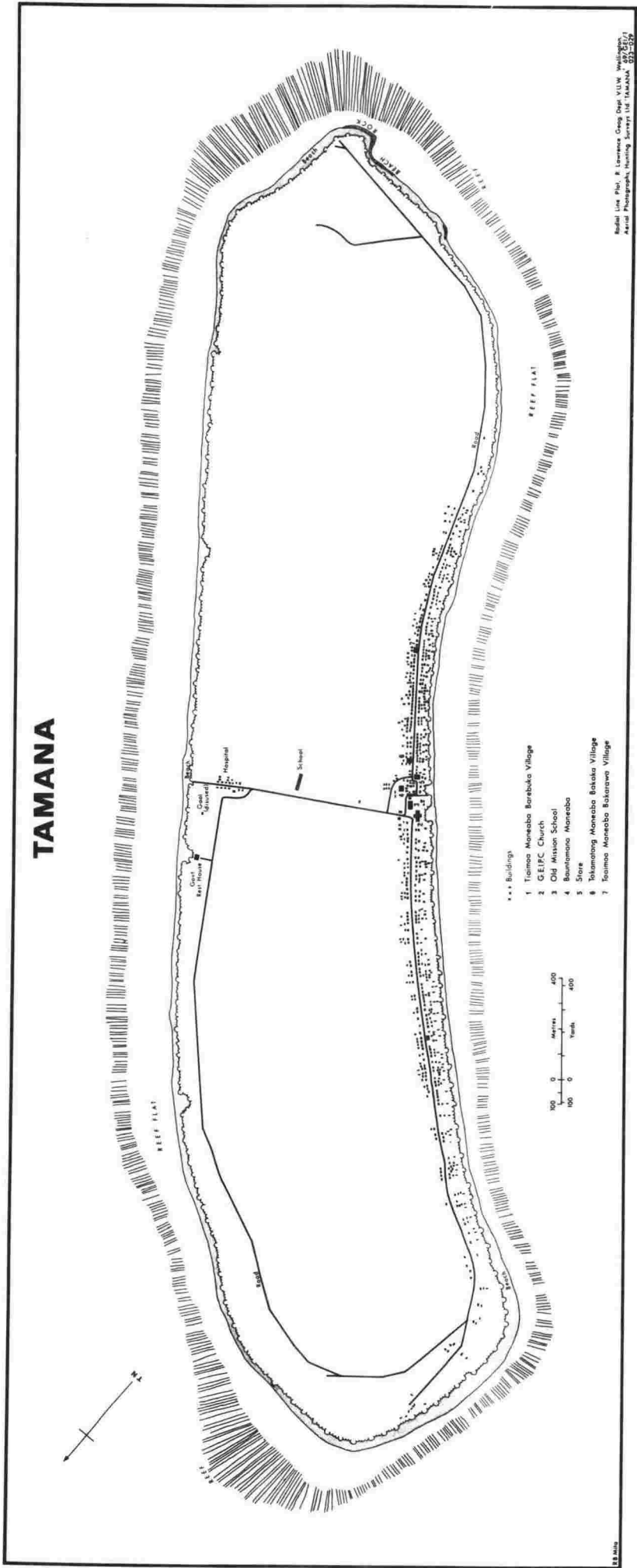
Island	Type	Area km ²	Island	Type	Area km ²
Tabiteuea	Atoll	38.0	Beru	Atoll	14.7
Nonouti	Atoll	29.2	Butaritari	Atoll	13.6
Abemama	Atoll	27.8	Marakei	Atoll	13.5
Tarawa	Atoll	23.2	Onotoa	Atoll	13.5
Nikunau	Reef	18.2	Kuria	Reef	12.3
Abaiang	Atoll	16.0	Arorae	Reef	9.5
Maiana	Atoll	15.9	Makin	Reef	6.7
Aranuka	Atoll	15.5	Tamana	Reef	4.8

Areas from Table 1, Report on the 1973 Census of Population
Gilbert and Ellice Islands.

Tamana

Tamana is a small, relatively isolated reef island in the southern part of the island chain. It is some 100 kilometres from its nearest neighbour, Arorae, and over 600 kilometres from the administrative centre at Tarawa. The island (Fig. 3-2) is barely five kilometres long

Fig. 3-2



and just over one wide. Being a reef island it lacks a lagoon and the sea around the island is 1800 metres deep within 300 metres of the reef edge. The small size of the island and the changing current and wind patterns of the open ocean make the possibility of being swept away from the island a very real one. As a consequence present-day fishermen, reliant upon paddle power only, are constantly watchful and somewhat chary in their willingness to travel far from the island fishing, or even to put to sea at all under certain weather conditions. Inter-island travel between the more dispersed islands of the southern Gilberts is now unheard of and was forbidden under colonial regulations. It seems that their forebears with sailing canoes may have been more adventurous in that they travelled further from the shore to trade with the whalers (see p.122) and must have engaged in at least intermittent inter-island travel.

The Sea

Figure 3-3 portrays the main marine ecological zones recognised by Tamana people. They broadly reflect the reef structure, have distinctive fish populations or fish-feeding patterns and are exploited by differing age and sex groups using different fishing methods and equipment. These zones are also clearly evident on the aerial photograph (Fig. 3-4).

The karo is the deep ocean and the preserve of strong and experienced canoe fishermen. It overlies the deep fore-reef which descends almost vertically, its upper reaches being encrusted with frame-building corals. Fishing lines are lowered to great depths in this zone in quest of tuna, shark and kingfish.

The kamai¹ overlies the narrow shelf forming a break in the slope of the fore-reef. At its landward edge it is five to eight metres below the surface and slopes gently to a depth of about 20 metres where the almost vertical slope of the deep fore-reef resumes. Goreau and Land (1972: 89) argue for interpreting the shelf as a Pleistocene

¹On the atolls the term kamai is used to refer to the white sandy bottom of the lagoon, as well as to the white of the eye. On Tamana the shelf is likened to a verandah.

geomorphic feature mantled by Holocene reef growth, whereas earlier studies by Emery, Tracy and Ladd (1954: 30) and Newell and Rigby (1957: 68) interpret the terraces they observed on Bikini and the Great Bahama Bank as being erosional features corresponding with the base level of marine planation for the present sea level. The shelf surface on Tamana has a veneer of living and dead coral. Tuna and shark, among other large fish, cruise through the waters of the kamai which is also the habitat for a great variety of smaller fish which feed among the coral heads on the shelf and the crevices of the fore-reef slope. The zone is fished from canoes, but more frequently by young men and boys with swimming floats using fishing lines, spears and nets.

The reef-front above this shelf is heavily indented giving rise to an alternating pattern of grooves and spurs or buttresses. In Tamana terminology it is called the kawarawara meaning literally "full of holes or spaces". At the upper end some of the grooves end abruptly, others continue as surge channels on or tunnels under the reef flat. On Tamana the groove and spur system encircles the entire island and is the best developed at the northern and southeastern corners of the island where wave energy from the prevailing easterly wave approach is concentrated. On Bikini the systems are present only on the windward facing reef (Munk and Sargent 1954: 277) and this pattern appears also to apply to atolls in the Marshalls (Wiens 1962: 55). Controversy surrounds the origin of these features. The floors of the grooves are clearly abraded and any irregularities in their length contain sand and gravel, presumably the agents of abrasion. However, the buttresses support colonies of reef-building corals and in some instances the growth of these turns the groove into a tunnel through roofing over. If erosion exceeds growth it is then possible to argue with Emery, Tracy and Ladd that the shelf below is an erosional feature resulting from the steady retreat of the reef-front. Against this Goreau and Land see post-Pleistocene submergence and growth as dominant and argue that small scale features, such as the groove and spur system, are a response to the need for uninterrupted clastic flow of unconsolidated debris to prevent the reef communities drowning in their own clastic waste (Goreau and Land 1974: 89). Whatever their origin, at high tide the grooves, surge channels and caverns provide fishing grounds for younger men and boys who dive with spears to seek their prey. In recent years the groove and spur systems are combed

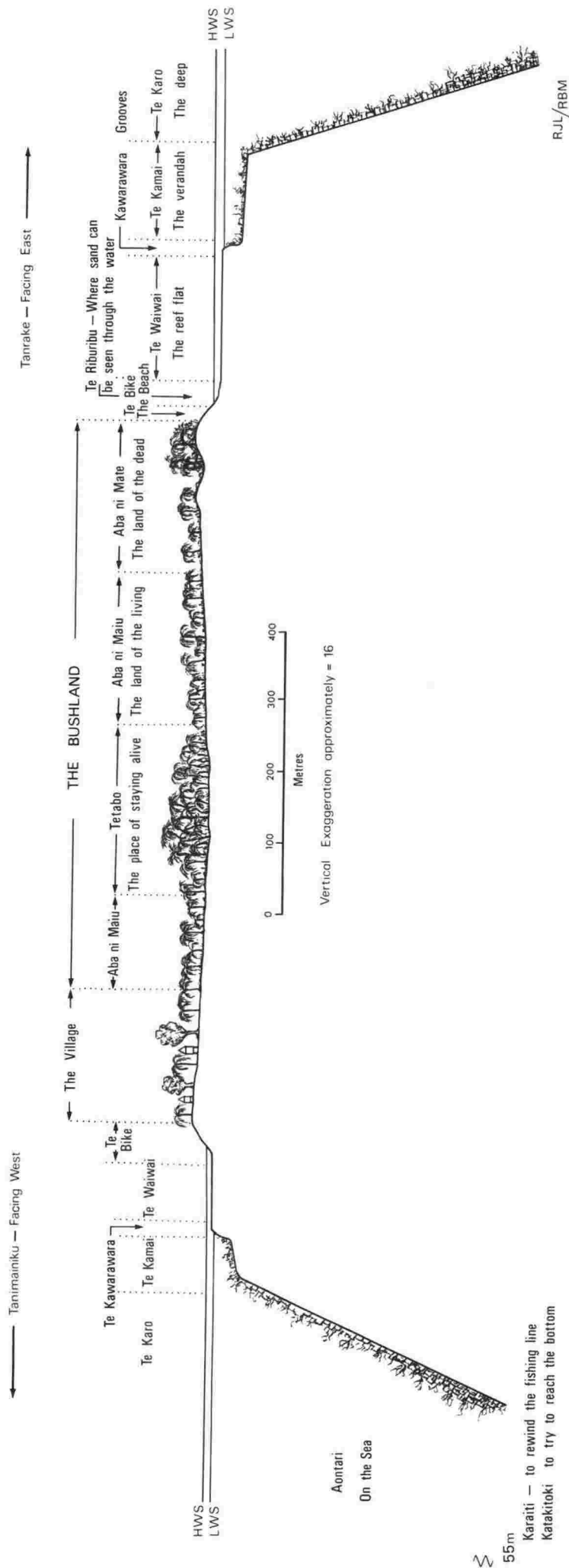
at night with underwater torches in search of crayfish. At low tide old men, women and children fish the grooves much more sedately from the reef flat with rod and line.

The waiwai is the reef flat, an almost imperceptibly seaward sloping platform of cemented coral debris. The reef flat entirely surrounds the island varying in width from 100 to 400 metres. At neap tide low water it is just above water level while during spring tides it is exposed for several hours at the low point of the tidal cycle. The inner margins are generally free of coral growth and dimpled by shallow solution pools. Occasional boulders deposited by storm wave action on the reef edge dot its surface but are numerous only where concentrated wave action has smashed the reef flat. This debris, and that derived from the erosion of reef rock remnants above the present reef flat give rise to weakly cemented rubble tracts. However, large tracts of loose sediment, and particularly sand flats providing suitable habitats for molluscan fauna such as those encountered and extensively exploited on the lagoon islands, are lacking on Tamana. The outer margin of the reef flat is bordered by a raised algal ridge resulting from the vigorous growth of calcareous algae which survive the exposure at low tide because of constant bathing in the spray of breaking waves. The ridge is honeycombed with holes and surge channels which connect with the kawarawara below. At low water spring tide large numbers of women, children and men not already out deep-sea fishing comb the pools by daylight or at night with lamps or coconut leaf flares in search of stranded fish, small reef flat fish, eels, octopus, and shellfish, using knives, noose-traps, wire hooks and fish poisons. In the past stone fish weirs were also built on the reef flat where there was a ready supply of suitably sized boulders to be had:

The beach or bike and riburibu is a narrow and restricted unit on Tamana. It rises abruptly from the smooth and usually sediment-free surface of the reef flat. Wave erosion of this loose sediment is most marked on the northeastern and southeastern corners of the island. The material removed from here is transported around the ends of the island to be incorporated into the accreting "horns" on the western shore, thus giving the island its characteristic bean shape. In some locations the beach sediments have been cemented forming beach rock which, with the broken reef flat, dead coral boulders and the soil hardpan, form the only permanent materials suitable for building walls, columns and

Fig. 3-3

CROSS SECTION SHOWING—MAJOR ECOLOGICAL ZONES ON TAMANA



foundations. Occasionally small flatfish are sought with spears in the sandy shallows at high tide.

The Land

The beach passes into the backshore zone and "dry land" proper with no marked change in the substrate. The island is made up entirely of wave deposited debris from the reef. It is generally low with even the highest points reaching little over six metres. The most conspicuous features are the boulder ridges made up of coarse rubble to boulder sized coral debris. Again, these are best developed on the most exposed parts of the windward coast, but also occur in other parts of the island and do not necessarily bear any obvious relationship to the present shoreline. In the southeast the ridges form a roughly parallel series presumably representing intermittent progradation resulting from severe storms. Oral tradition refers to several such storms when most of the island was inundated and many babai pits were destroyed. Where these ridges are absent the seaward margins of the island are still slightly elevated and composed of sand and finely broken coral, and probably represent continuous and less dramatic progradation. The fact that the seaward edges of the island tend to be higher than the centre has a basic effect on the groundwater characteristics of the island, its ecology and the way in which the Tamana people perceive and use their island.

Land Types

Tamana people differentiate the main island land types on the growth histories and responses of their main productive trees: coconuts and pandanus, and particularly their response to drought. The growth patterns reflect the interplay between incoming rainfall, the nature and elevation of the debris mantle above mean sea level which determines groundwater conditions. The three main land types distinguished are: aba ni mate "the land of the dead", aba ni maiu "the land of the living" and tetabo "the place of staying alive"; the last giving a measure of importance of the spectre of drought on this tiny island. There is little point in attempting to give an estimate of the areal extent of each of



Fig. 3-4 Aerial View, Southern End of Tamana Island

these zones because their essential character derives from the reaction of land type to the variability of climate. Hence the differences are not necessarily apparent under "normal" or "mean" conditions. Under normal or higher than normal rainfalls palms on most lands would be productive; palms on lower lands may be less productive because of waterlogging. With the onset of drought the aba ni mate lands would become less productive. As drought severity and duration increases the aba ni maiu would become effected and palms on the aba ni mate might be killed, until, under very severe drought the tetabo refuge would be the only area with palms surviving and even here fruit-setting might be unsuccessful. Thus at any one point in time under non-drought conditions, the productivity of the different land types might not be greatly different.

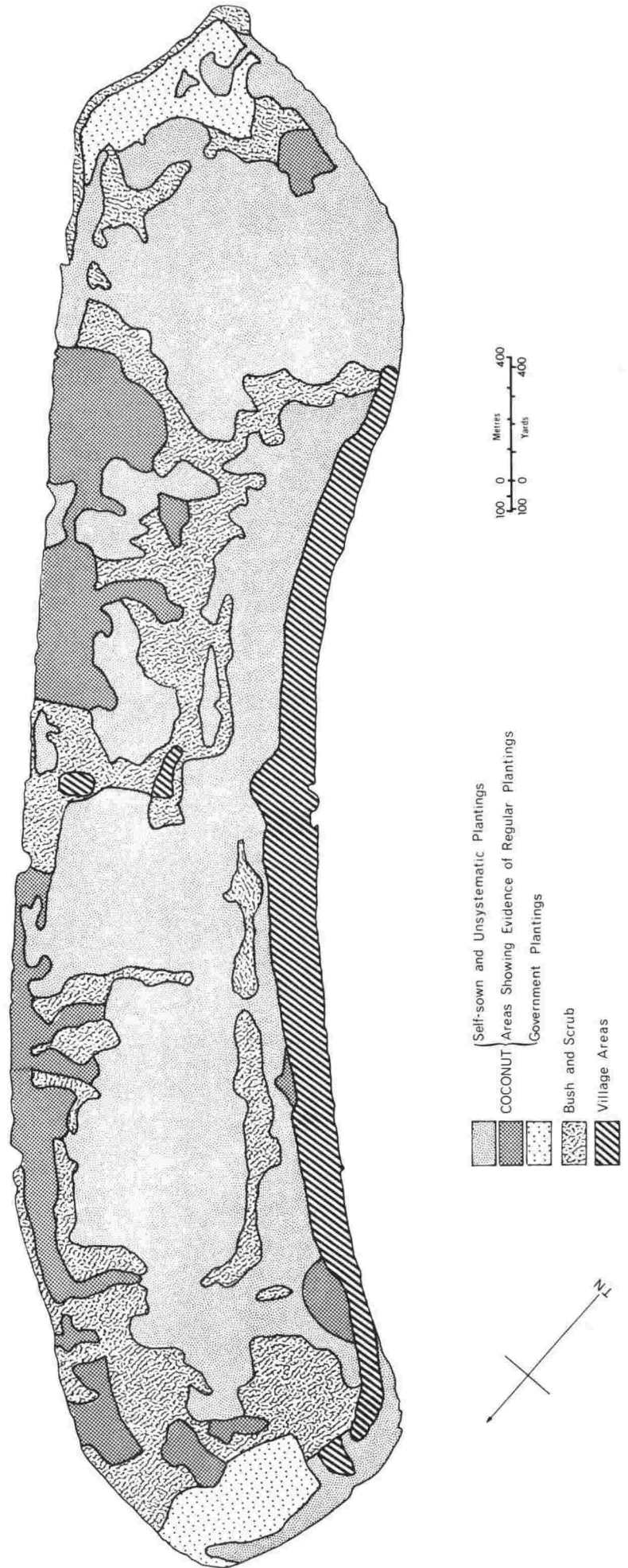
The aba ni mate includes the area of higher land around the edges of the island (see Fig. 3-3). Here the debris mantle is thickest and the underlying water lens is at its thinnest and its upper surface close to mean sea level. As a result of this, plus wind and salt damage, coconut palms grow poorly at the best of times and are frequently killed by even moderate droughts. Establishment of seedling palms, even using proper planting techniques, is difficult and fallen nuts rarely germinate to produce self-sown palms. In every sense these areas are marginal for palm growth, and without active planting and clearing by humans would probably have been clothed in a scrub of te mao (Scaevola sericea),¹ te ren (Messerschmidia argentea), pandanus and te uri (Guettarda speciosa) (see Fig. 3-5).

The "land of the living" is simply what its name implies; land from which a living can be gained. It forms a more or less continuous band on the inland margin of "the land of the dead". The land surface is lower and closer to the water table, although not close enough to be flooded at wet periods. Palms here grow and bear well under normal and wet conditions. They continue to bear in moderate droughts. In severe droughts the setting of fruit is affected and flowering may also cease. Extreme drought may kill palms and make replanting necessary. The lineations (see Fig. 3-4) evident in the vegetation of some areas in the "land of the dead" and "land of the living" are in fact land boundaries

¹ Botanical names are those used in Catala (1957).

Figure 3-5

TAMANA VEGETATION



separating planted and unplanted lands. The palms of the "land of the living" tend to be older than those on the "land of the dead" suggesting that droughts severe enough to kill palms on the former are less frequent. Many of the land plots in the "land of the living" were replanted in coconuts and fruiting pandanus after the severe droughts of the mid-1930s. Self-sown palms do occur here but are still not common. Untended lands support a scrub of te ren, te mao and te uri but more useful plants like the fig, te bero (Ficus tinctoria), pawpaw and the trees nimareburebu (Hernandia sonora) and te itai (Calophyllum inophyllum) also occur.

The "place of staying alive" encompasses the low-lying, wet lands towards the centre of the island. Here the water lens is close to the surface and water may lie in pools at the surface during excessively wet seasons. The baneawa fishponds of the past were dug in this area. It is probable that this area would be the only part of the island where coconut forest would grow unattended. As a consequence tetabo is largely pure coconut forest and a tangle of palms of all ages from seedlings to old and rotten palms too old to bear. Most other vegetation is suppressed except in temporary light gaps created by falling senile palms and little attempt is made to underplant because of the slow growth of the seedlings. Palms are said to bear poorly during wet years but in drier years bearing is improved and during serious and prolonged droughts these lands assume the importance which gives them their name. Here, in droughts as serious and prolonged as those in the 1870s, the palms continued flowering even though no fruit was set and the starving remnants of the Tamana population kept itself alive on fish from the sea and toddy cut from the palms of the tetabo lands.

While these land types reflect interrelationships between topography, soil moisture and vegetation response, human influence on vegetation patterns must not be ignored. Analysis of palm densities on 116 land plots showed no relationship between land type and palm density. Palm densities were as high on some land plots in the "land of the dead" as anywhere in the "land of the living" or "the place of staying alive". This emphasises the probable marginality of the environment to natural coconut establishment and secondly, the importance of planting histories in determining the vegetation density. The land types are not static insofar as planting might transform "dead" lands into "living" lands in the short-term, but it



Fig 3-6 Land type - The place of Staying Alive



Fig 3-7 Land type - The Land of the Living

Fig 3-8 Land type - The Land of the Dead



only takes the vagaries of the climate and a moderate to severe drought to reveal the true nature of the land. Over much of the island then the vegetation pattern and coconut forest distribution in particular is largely a reflection of the planting activities of the islanders.

The Soils

The soils of the island reflect its origin, both in its peculiar parent material (coral), and in the limited time available for soil development. All soils are extremely youthful; there has been some addition of humic material and solution of carbonates, but leaching and profile development is so minimal that if the normal soil profile terminology were to be applied they would be AC soils where the A horizon passes directly into the C horizon. As would be expected, calcium carbonate is the predominant compound present, calcium phosphate is also present to some degree from certain corals and crustacea and traces of most elements present in sea water are also found. However, important nutrients such as iron and nitrogen are in short supply and adversely affect plant growth. In pre-contact times crushed guano (kuana) and pumice (wan) were sometimes used as fertilizers at planting.

When discussing soils the Tamana people draw a distinction between soils on the basis of parent material character and humus content. Soils developed in sandy parent materials are called te tano (sand), gravelly broken coral te kirina, and on large bouldery coral material te atirababa. They also maintain that te atirababa and more particularly te kirina soils are preferable to te tano soils for growing coconuts and pandanus because they are "cooler". If any differences do exist they may reflect the differing water holding capacities of the soil. Catala (1957: 7) found that the water holding capacity of coarse soils was equal to or better than that of pure sand. Because of the sparseness of the vegetation and dry conditions at the surface of the soil in the "land of the dead" humus build-up is slow and the zone of humus enrichment almost non-existent. Litter accumulation in the upper horizons of soils in the "land of the living" is slightly better developed while in tetabo lands a thick layer of dark humus (te bon) overlies the gravel. Thus humus is gathered and used in other areas for babai and breadfruit cultivation.

A hardpan underlies some, if not all, of the island land mass. Because of the young age of the soils its origin cannot simply reflect alluviation and the formation of a substance comparable to "caliche" or "ortstein" (Catala 1957: 9). However, because some of the hardpan on Tamana occurs above present mean sea level it cannot be dismissed, as Catala does (1957: 9), as the extension of the rocky reef platform under the island. Stone (1951: 12) considers the strongly cemented sandstone one metre or so below the soil surface on Arno Atoll to result from secondary lime deposition. In the more elevated areas around the periphery of the island the hardpan is far enough below the surface to have little effect on plant growth, but in the centre of the island where the land surface is lower and the hardpan closer to the surface it may impede drainage, contribute to waterlogging in wet weather and prevent roots reaching water in long dry spells. Tamana people distinguish two types of hardpan of differing hardness: te ba is the harder material which sparks when hit with an axe, while te batano is softer, can be cut with an axe or mattock and hardens on exposure to the air. They also allege that the water under the te ba is more pure and less salty than that under te batano. This explains why babai pits are more common in the higher land where deeper excavations and the breaking up of the resistant hardpan is needed in construction while seemingly more attractive areas with softer hardpan requiring less excavation are ignored. The causative factor here may have nothing to do with the hardpan and simply reflect the interrelationship between the height of the land surface above to mean sea level and groundwater characteristics. The head of freshwater which can be held in the permeable material of the island and the thickness and hence potability of the freshwater lens depends on the height and width of the island. A preliminary survey suggests the interior of the island to be only slightly above high tide level and tests carried out by a United Nations water supply team during fieldwork did in fact show the water under the edges of the island to be less saline than that in the middle.

The Freshwater Lens

The freshwater lens underlying the atolls and reef islands is of critical importance to the island's terrestrial ecology and particularly to the ability of humans to colonise and survive in such environments. The primary hydrological characteristic of these islands is their extreme permeability. Any rainfall not intercepted by the vegetation strikes the soil surface and drainage by percolation is complete and almost instantaneous. Even on paths and roadways where the surface has been compacted, water travels for a short distance only before sinking into the ground. Standing water is rare, especially in normal to dry periods where it is found only in pits excavated to the water table. Some of the percolating rainwater is held in the capillary openings of the soil where it is available for utilisation by shallow-rooted plants. That not lost through evapotranspiration seeps downward to the basal groundwater, generally about 30 cm above sea level. Because freshwater is less dense than saltwater and because the permeable medium inhibits the rapid spread and mixing of the rainwater with the sea water which has infiltrated the porous rock below the island, a freshwater lens floating on the sea water results.¹ The characteristics of this lens depend on island size and incoming rainfall; usually the wider the island and the higher the rainfall the better developed the lens. Island width appears to be a critical factor and particularly narrow islands often lack freshwater lenses. Since freshwater is 40/41 as heavy as sea water each part of freshwater held above normal sea level will displace 40 parts of saltwater below. The freshwater level will thus fluctuate with the tide and in the longer-term its thickness will vary with the rate of recharge from rainfall. Mingling of fresh and saltwater at the lower margins of the lens results from these fluctuations and so the contact is a gradual transition rather than an abrupt break. During severe droughts the reduction in the volume of freshwater held in the lens due to evapotranspiration in the absence of recharge could allow the zone of mixing to rise, even to the point where the water would be too brackish for drinking and use by most plants.

¹ The principle involved here was recognised independently by Ghyben in 1887 and Herzberg in 1900 and has become known as the Ghyben-Herzberg theory and lens.

On Tamana the water in some wells on the seaward edges of the island is less saline than that in wells towards the centre, which is contrary to expectations. This suggests that the island may be underlain by a series of small discontinuous lenses rather than one large lens. The lens is tapped to obtain drinking water and washing water. Certain wells are known to be less saline than others and may at times be sought out for particular purposes such as clothes-washing and the preparation of certain handicraft materials. Pits are dug to the water table for the cultivation of the root crop babai while bananas, coconuts and the like are often specially planted in abandoned babai pits because of the more favourable groundwater conditions there. Pits were also dug for fish cultivation and to make soaking pits for the preparation of thatch. Folklore contains no reference to lenses in the past having become too saline to drink during droughts, but it is not clear how important water was at those times. Toddy may have provided a major part of the islanders' fluid intake and fresh water for washing and cooking may not have held the same importance then as it does now.

Climate

Tamana's climate is an oceanic equatorial one characterised by high, relatively uniform temperatures and a low yearly range of variation. The prevailing winds are the N.E. trades giving easterlies with only a slight seasonal variation. From January to April the winds blow from the N.E. and E.N.E. followed by a period of E. and S.E. winds during the northern summer. This is followed by a reversion to E., E.N.E. and N.E. winds from October to January (Sachet 1957: 1). However, the islanders recognise two main seasons only which relate, not to differences in the prevailing winds, but rather to presence/absence of winds from the westerly quarter which, though infrequent, bring squalls, heavy rain and uncertain currents and thus have important effects on deep-sea fishing. The westerly conditions result from the extension of the Australian monsoon into the area and its effect is felt more frequently in the southern rather than northern islands (Sachet 1957: 1).

The two seasons, named Aumeang and Aumaiaki, are delineated with reference to the movement of the constellation Nei Auti (Pleiades) and the star Rimwimata. On Tamana Aumeang is said to commence on 25 October when Nei Auti can be seen on the eastern horizon at sunset, while Rimwimata is just dipping below the horizon in the west. Nei Auti's coming is preceded by stronger winds which are said to be her shaking her hair dry as she comes above the horizon. The season which follows is characterised by intermittent westerly winds. Aumeang is further subdivided into nine subdivisions defined on the position of Nei Auti at sunset. Formerly these were recognised with reference to the kainta, the horizontal laths or beams in the roof, but now the position of the sun at particular hours of the day is used.¹ Thus the position of Nei Auti might be te moa kainta ("it is in the first beam"), "it is in the second beam" and so on. Each of these divisions is associated with particular prevailing physical conditions; the first being with the onset of rough weather and adverse conditions, the second with the beginning of really difficult times when the likelihood of falling out of trees, drifting away from the island and fighting is increased and this trend intensifies as the position of Nei Auti at sunset approaches the zenith. This marks onset of Tukabu, a season of great winds, waves and currents when particular care is needed when going on the water and climbing trees. It is also a time of sickness and a time when care must be taken to prevent fighting breaking out during such social activities as playing football, speaking and playing in the maneaba. Once Nei Auti is below the first beam below the ridgepole on the other side, stressful conditions recede until Rimwimata is visible in the east at sunset (25 March) and thus begins Aumaiaki, the season of settled weather, prevailing easterlies, less rain and more predictable currents.

¹ There are no living astronomers or tiaborau (literally "the one who works at navigation") on Tamana. The following information was given by Maemae on Tamana and is probably an amalgam gleaned from several sources while he worked as an L.M.S. pastor. The principles are broadly similar to those described by Grimble (1972: 223-225) although there are some differences in the names of divisions mentioned by Maemae and Grimble. Grimble does not use the season names Aumeang and Aumaiaki. This, and the fact that he states that the season dominated by Nei Auti begins on 29 November rather than 25 October may reflect the fact that his informant came from Butaritari.

Rainfall

The Gilbert Islands straddle the equatorial dry zone of the Central Pacific which extends eastwards from them to encompass the Phoenix, Line, Marquesas and Tuamotu Island Groups. Within the Gilbert Islands rainfall varies greatly; Butaritari in the north is the wettest island with a mean annual rainfall of 3115 mm¹ and from there totals diminish steadily southward. Abemama near the equator receives only 1488 mm per annum and Tabiteuea has the lowest mean annual rainfall of only 1125 mm. The trend to increasing rainfall southward is evident through the islands of Tuvalu with Funafuti, the wettest receiving a mean annual rainfall of 3677 mm. Tamana has a mean annual rainfall of 1141 mm with a tendency for the months from December to April to be wetter than the remainder.

Rainfall variability is characteristic of the region as a whole and affects even the wettest islands. However, it is in the drier islands to the south that periodic severe droughts become incidents of major ecological significance and, in the past at least, affected the very survival of the island populations. Tamana folklore contains the heroic but rather grisly saga of the heroine Nei Maningining who, being a nikiranroro or "free" woman with no man to fish or cut toddy for her, sustained her young children through a long drought by feeding them strips of her own flesh cut from her body. As fate would have it she lasted the entire drought and achieved lasting fame by dying as the drought broke. The early reports of whalers, missionaries, traders and government officials contain many references to the burnt-up condition of the island, to dead and dying coconut trees and starving islanders. The early 1870s, the early 1900s and the late 1930s appear to have been particularly severe and prolonged dry periods. The following comments from various sources give some idea of the frequency and severity of drought conditions although they do not give an adequate picture of their duration and intensity.

¹ Rainfall figures from N.Z. Meteorological Service, Climatological Observations Table of Averages Fiji, Tonga and WPHC Territories to end of 1970.

Table 3-2. Reports of Droughts on Tamana 1863-1968

1863	Drought on Tamana. "People in starving condition. One hundred and fifty natives taken to Hope Island" (Arorae) "Navy" Log 1857-1863.
1871	"Drought in evidence but food not lacking". Whitmee 1871.
1872	"Food scarce. Price of New Testaments reduced to something merely nominal". Gill 1872.
1874	"Famine not nearly as bad as it was last year. Coconuts that were not killed by the sun are again bearing." Turner 1874.
1872- 1985	Quoting Schumacher, a trader on the island: "during the last few years before 1875 there had been a long drought which caused famine and disease and 800 people had been carried off; ...all the southern islands had suffered more or less, but this one (Tamana) and Arorai were most severely visited." Maxwell 1881.
1877	Inferred drought. "Island much improved after last visit. Was all dried up with the sun." "The number of deaths from starvation last year [1877] were 216." Turner 1878.
1893	No rain for two years or more. Scarcity of nuts. Thurston 1893.
1894	"Long and continuous drought in the Southern Gilberts. Tamana not as badly affected as other islands but even here drought severe." Newell 1894.
1895	Drought continuing. Very little rain for some four years. Marriot 1895.
1899	"People have suffered because of long drought." Ffrench 1899.
1902	Worst drought in living memory. Oral tradition.
1909	Drought affecting production. Mahaffy 1909.
1910	Three year drought. Toddy and fish main source of food. No-one died. Government gave rice rations. Taxation introduced to pay for them. Oral tradition.
1916	Drought. Less severe than in 1910. Oral tradition.
1917	Drought to date more serious than that experienced in 1909-10. Government Report G. and E. Is 1917.
1918	Drought broke at end of May. Replanting of coconut and pandanus commencing. Colonial Report G. and E. Is 1918.
1924- 1925	Drought general in Gilberts. Sachet 1957.
1925	Drought broke December. Sachet 1957.
1926- 1927	Drought prevailed in the Gilbert Group for the whole of the period 1926-1927. Sachet 1957.
1932- 1934	"Bad years". Armstrong, Annual Colony Report G.I.D. 1937.
1937	Severe drought following dysentery outbreak (1936). Oral tradition.

- 1937 Rainfall during 1937 was below average and drought conditions were experienced in the central and southern Gilbert Islands. Sachet 1957.
- 1938-1939 Severe drought during 1938-1939. Sachet 1957.
- 1947 "Rainfall infrequent after March. Growth of nuts retarded, conditions improved December." Annual Colony Report G.I.D. 1947.
- 1949-1950 Drought in southern Gilberts. Eastman 1950.
- 1950 "Nuts small because of drought." Roberts Travelling Diary, January 1950.
- 1950 "Had rain in June. Not worried about drought." District Officer's Travelling Diary, June 1950.
- 1951-1952 "Copra production fell from 27 tons 1950-1951 to ½ ton 1951-1952." District Registrar's Travelling Diary, August 1952.
"Copra tax not collected because of drought". Assistant District Officer's Travelling Diary, February 1952.
- 1954 "Nuts scarce due to lack of rain. Whole island suffering from drought." Assistant Administrative Officer's Travelling Diary, December 1954.
- 1956 "Nuts not very plentiful. Tamana less severely affected by drought conditions than other islands of the southern Gilberts. Trees bearing but growth of nuts has been stunted." Co-operative Society Officer's Travelling Diary, June 1956.
- 1958 "Plenty of young nuts on trees. Copra should start coming in at end of year." Labour Officer's Travelling Diary, April 1958.
- 1958 "Only 60-70 percent of trees bearing." District Commissioner's Travelling Report, July 1958.
- 1960 "Coconut trees not bearing well." District Officer's Travelling Diary, April 1960.
- 1962 "Island has just begun to recover from short drought of six months' duration. Majority of the trees still bearing well." Assistant Administrative Officer's Travelling Diary, May 1962.
- 1964 "Coconuts bearing well." District Commissioner's Touring Report, April 1964.
- 1968 "Island lacked animation because of drought." Resident Commissioner's Tour Report, September 1968.

Some of the obvious inadequacies of this subjective material have been mentioned above: the quantitative data available also have limited usefulness in defining and assessing the full significance of drought in the region. Reliable rainfall data on Tamana have accumulated over the period since 1951 only and thus do not, as far as can be

assessed from the subjective reports, span droughts as severe as those in the early 1870s, 1900s or late 1930s. With the complete lack of reliable information on plant response to moisture conditions it is also difficult to interpret the significance of the rainfall figures.

The quantitative data underline the substantial variability in rainfall. The wettest year on record was 1953 with 2538 mm while 1968, the driest, received only 254 mm, less than one quarter of the mean and only one-tenth of that received in the wettest year. A more detailed picture is evident in Fig. 3-9 which portrays the deviation of monthly rainfall totals from the mean monthly rainfall (mean annual rainfall divided by twelve). It shows that substantially more monthly rainfalls fall below the mean than above (175-100) and that spells of lower than normal rainfall tend to be of longer duration. 1954 to 1956 and 1959 to mid-1963 stand out as periods of sustained lower than average rainfall. However, the correspondence of this data with the observers' comments is not particularly illuminating. For example, the Assistant Administrative Officer commented in December 1954 that nuts were scarce due to lack of rain which seems strange in view of the consistently above average monthly rainfalls during 1953 when the nuts which would mature in 1954 would have been setting. Similarly, it is difficult to assess the basis of the Assistant Administrative Officer's comment in May 1962 that the island had just begun to recover from a short drought of six months' duration. In the light of these difficulties it is impossible to define "drought" in this environment with any greater precision and it can be observed only that it is a persistent element in the environment. Tamana had been experiencing drought conditions preceding my first fieldwork visit but there appeared to be no shortage of coconuts or other foodstuffs. The breadfruit trees were showing the effects of moisture stress. The human response to drought will be discussed more fully in succeeding chapters.

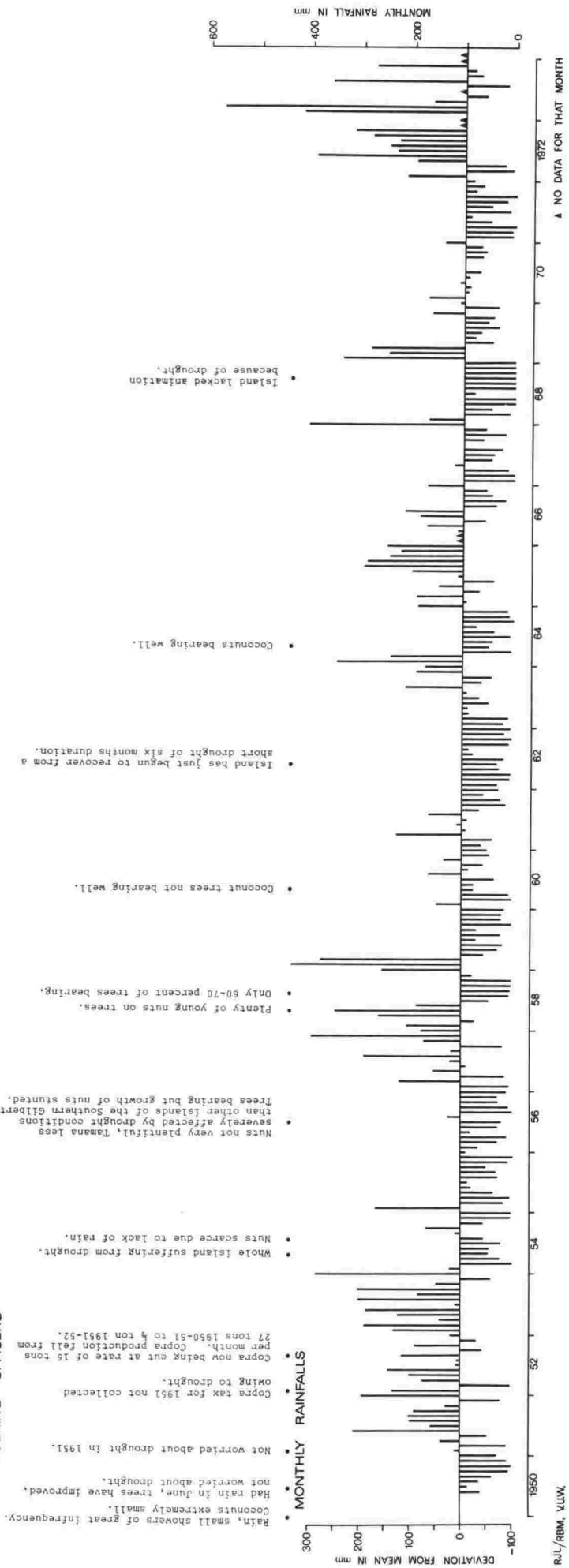
Vegetation

In no sense can the present vegetation be considered natural. Over the entire island the original formations have been thoroughly modified; some vegetation types have been severely reduced in extent

Fig. 3-9

TAMANA: DEVIATION FROM MEAN MONTHLY RAINFALL 1950-73

SUBJECTIVE ASSESSMENTS FROM
TOURING OFFICERS



while the range of others has been extended. Many new elements have been introduced. However, some useful general points can be made. Firstly, there are no plants which are endemic to the Gilbert Islands and the flora originally present would have been very much a strand flora common to much of the tropical Pacific. The small size of the islands, the limited variety of habitats present, the extremely rigorous physical environment, the isolation from major centres of plant dispersal and the relatively short time that the present islands have been above sea level all contribute to the lack of diversity in the flora. Of the 141 plant species collected by Catala from eight of the Gilbert Islands in 1951 (Catala 1957: 81-111) only 31 species are considered to have predated human occupation, 11 were ancient introductions and 80 clearly post-European introductions. The remaining 18 are of less certain origin; eight may predate human occupation or be ancient introductions while the remaining ten could be pre-European or more recent introductions. On Onotoa, in the southern Gilberts, Moul (1957: 1) identified 60 species of flowering plants of which about 15 were cultivated plants confined to the village area. The only edible plants present on the islands when man first arrived would probably have been te boi (Portulaca lutea), mtea (P. samoensis) and the roots of wao (Boerhavia diffusa) may have been eaten. The pandanus was almost certainly present and the coconut may have been so, but the arrival of man saw the introduction of some of the present sought after fruiting pandanus which can only be propagated vegetatively, the babai and if not the introduction of the coconut, a vast extension of its range.

The present vegetation pattern broadly reflects the differing land types. The drier exposed areas on the periphery of the island support a dense scrub of te mao (Scaevola sericea), pandanus, te ren (Messerschmidia argentea) and generally poor coconuts. In the inland areas the dominance of the coconut asserts itself. On the tetabo lands it forms a dense and continuous canopy suppressing almost all other vegetation. The "land of the living" supports a more open coconut forest with a shrub and herb layer, with te uri (Guettarda speciosa) being important here. Stands of the trees te itai, nimareburebu and kanawa (Cordia subcordata) also occur. In both the "land of the living" and the "land of the dead" irregular clearings occur which do not reflect any observable soil or topographic differences. Their general lineation

across the island (see Fig. 3-4) suggests that they may be related to land boundaries and simply result from differences in the planting histories of lands belonging to different owners.

Terrestrial Fauna

The lack of diversity in plant species present on the islands is also evident in their depauperate land fauna. No mammals were present in the islands before the arrival of man; rats, dogs, cats, pigs and fowls were all introduced following settlement. Land birds are generally few in species and uncommon (Wiens 1962: 404) and much the same can be said for insects. Several species of lizards are present. The most important scavengers on the island are the hermit and coconut crabs. The latter are relatively uncommon because they are a sought after delicacy.

Summary

The environmental factors described here must surely stress the precariousness and limited nature of the reef island environment as a habitat for human settlement. It lacks stone and mineral resources, the infertile soil consists mainly of little altered calcium and magnesium carbonates and is largely lacking in humus. The plant and animal kingdoms are characterised by a limited number of species capable of dispersing to and surviving in this environment; these factors are also severely restrictive of the number of economically useful cultivars which can be successfully established in the island environment. In contrast the ocean and reef fish resources are rich and varied; their exploitation is somewhat restricted by the limited length of shoreline and technological factors which inhibit the fisherman's ability to range speedily and widely over the open sea. Shellfish and lagoon fish are largely lacking. Surface fresh water is unheard of except in artificially excavated pits and wells. The rainfall does not have to fall much below "normal" before the vitality of breadfruit trees is affected. Frequent and prolonged droughts have a marked effect on the productivity of such plant staples as coconut and pandanus. Despite these

factors the environment is "home" to the Tamana people and was in fact the "world" to their forebears who settled these islands and in doing so evolved a unique though precarious way of life, successfully contending with the limitations imposed.

Chapter Four

THE PRE-CONTACT SOCIETY

In any society the way in which production and society are organised bear a reciprocal relationship to each other because in the first instance production affects relationships between people, and in the second, the pattern of social relationships has an important effect on the economy of a society because it determines an individual's membership of particular groups, his access to resources and the production, distribution and exchange of goods and services. In the I-Kiribati situation, as a result of missionisation and the incorporation of the village economies into larger and different production systems through overseas trade and the imposition of a colonial relationship, both the social structure and the production systems were profoundly reshaped. In order to identify the traditional and new elements in the present society it is necessary to establish some sort of baseline against which changes can be measured. To this end an attempt is made in this chapter to reconstruct the pre-contact society and its economy from whatever fragmentary diverse and incomplete sources that are available. This involves the identification of important social groups and relations, and the description of the material life processes of the society. It calls for an analysis of the economy as a function of society rather than as a structure in its own right; the description of what kinship groups and relations did, how production was organised, how access to resources was gained and how labour was organised and technology applied. This chapter will concentrate only on what can be gleaned of the pre-contact situation; change and the evolution of present-day society will be dealt with in Chapters 5 and 6 after the nature of the external influences to which the society was exposed are discussed in Chapter 5.

The Source Material for Reconstruction

The hopes of succeeding adequately in these aims must be tempered with reality. In no sense is it a matter of studying, or drawing on field studies of these societies, or even attempting a reconstruction of an only recently modified society where recollections of individuals could be used. These island societies have been subjected to considerable culture contact since the early nineteenth century as a result of the activities of whalers, beachcombers, coconut oil and copra traders, labour recruiters and missionaries as well as the influence of a paternalistic colonial government, and this contact preceded any systematic attempt to study the nature and culture of the society. Indeed, this began only in the second decade of this century with the observations of such interested government officials as Grimble, Maude and Kennedy. The first fieldwork by a trained anthropologist was probably that carried out by Goodenough on Onotoa in 1951 (Goodenough 1955). As was noted in Chapter 2 the lack of detailed archaeological sequences for the region precludes the discussion of cultural sequences and possible dietary changes based on the analysis of faunal remains from midden deposits. All available sources are less than satisfactory in accuracy, depth and completeness of detail; regional coverage is also uneven in that the larger islands which attracted the traders, missionaries and administrators tend to have had resident expatriate populations and a greater chance of being described in their writings. References to the smaller islands often resulted from fleeting visits. The relevant source material can be discussed in three groupings: the incidental reports of whalers, labour recruiters and reports of exploring expeditions, the missionary material and the writings of interested government officials.

By 1850 most of the islands of what is now Kiribati were being visited at least periodically by the whalers operating in the nearby whaling grounds. They came in search of fresh food, water, wood, women and curios. The surviving logbooks suggest that their keepers were not particularly well-educated or markedly interested in the people with whom they came into contact. (In many instances the whalers traded with the islanders well offshore because of the lack of safe anchorages close inshore or the fear of being attacked.) The very nature of the logbook as a brief day-to-day record probably also curtailed any desire on the

part of the writer to record detailed observations of other than whales and weather. Few private journals with more expansive descriptions appear to have survived. Much the same sort of problem relates to the logbooks of the labour recruiters who were active in the area during the latter part of the century. In contrast to both these sources, the reports of expeditions such as the United States Exploring Expedition 1834-42 under Charles Wilkes do contain more detailed descriptions by observant, interested and more scientifically-minded personnel, but even here contact was necessarily brief and not all islands were visited or described in equal detail. Tamana was not visited by the Wilkes Expedition. Despite their obvious limitations the whaling logbooks can, as is done in Chapter 5, be used to illuminate the nature and extent of early sustained contact; they are, however, less useful in reconstructing the pre-contact society.

Although the beachcombers, traders and missionaries had closer and longer contact, the legacy of descriptive material is surprisingly small. For the traders and beachcombers this probably reflects their interests and lack of scholastic background; for the missionaries it can only be attributed to the manner in which missionisation was achieved. Only the French Sacred Heart Mission (established in 1887) had a staff of resident European missionaries. Hiram Bingham established the first Protestant Mission for the American Board of Commissioners for Foreign Missions at Abaiang in 1857, spending several years in residence there and calling briefly at most other islands in the Group during his stay. However, the extension of activities to other islands was achieved with the deployment of mission-educated and trained Polynesian pastors from Hawaii. Similarly the London Missionary Society achieved the missionisation of the southern Gilbert Islands from 1870 onwards by installing Polynesian pastors from Samoa and Tuvalu who had undergone training at the L.M.S. training school at Malua in Samoa. The European missionaries made a once-yearly tour of inspection of the "outstations" in the John Williams. The first resident European missionary was not appointed until 1900. While the Polynesian L.M.S. pastors no doubt submitted annual reports to their superiors in Samoa, and extracts of these were included in L.M.S. official reports, none of this primary material seems to have survived. Similar material from the Hawaiian

pastors (in Hawaiian) does survive in the Hawaiian Evangelical Association Archives (held by the Hawaiian Mission Children's Society) and translations show that it deals mainly with mission administration and problems and current events affecting mission administration. The Polynesian pastors of both missions were obviously deferential to their European mentors, but seem to have considered themselves superior to their more benighted wards, which may explain their lack of interest in ethnographic detail and the culture of the communities among which they were abandoned. The European missionaries were clearly tarred with the same superiority complex but probably because of their education and interest in the sciences, did in fact take some interest in the strange world around them.

The diaries and journals covering the annual visits of such missionaries as Turner, Powell, Newell, Gill and Whitmee do contain many interesting and often tantalisingly incomplete observations of the more obvious aspects of I-Kiribati society, but because contact was so brief (a few days on each island each year) their writings cannot illuminate the full complexity of the social system. Such understanding could only develop from sympathetic observation over long periods of residence. In this the Sacred Heart missionaries, and Sabatier on Tabiteuea in particular, were better placed to contribute to our understanding of I-Kiribati culture, but the Roman Catholics never established mission stations on either Tamana or Arorae. The late date of missionisation in the span of European contact also means that considerable culture change could have occurred prior to the missionaries' arrival.

Sir Arthur Grimble's tremendously popular BBC radio talks and his best-selling books A Pattern of Islands (1953) and Return to the Islands (1957) have done more to bring the I-Kiribati people into the ken of the world at large than any other writings. They provide popular accounts of the culture, legends and personalities garnered during Grimble's term in the Colonial Service where he was based first in the Gilbert Islands (1916-20) and later on Banaba (1914-16, 1921-32). In addition to these popular works he published a series of articles on the myths, folklore and material culture of the I-Kiribati people in such periodicals as the Journal of the Royal Anthropological Institute (1921a), Man (1921b), Folklore (1922) and the Polynesian Society Memoirs (1933-4), as well as leaving a large collection of manuscript material,

some of which was arranged and published by his daughter (Grimble 1972) and the remainder is being currently prepared for publication by the Maudes. Grimble's writings, particularly his ethnographic notes and descriptions remain the single most important source of information on I-Kiribati culture. He obviously had a deep empathy with and understanding of the I-Kiribati people, as is evidenced in the fact that in 1918 he was adopted into the Tarawa sect of the royal and priestly clan of Karongoa (Grimble 1957: 26). His long stay in the islands gave him the opportunity of making detailed observations of social practices then current and of probing the knowledge and experience of informants particularly while at Banaba where islanders from all over the colony worked in the phosphate mining activities.

Even in his early papers written while still in the Gilberts, Grimble makes no claim that his observations relate to current social practice; they are descriptions of "now no longer living things". He regrets the fact that earlier European residents failed to record old manners and customs before the decay was too complete and suggests that in at least one of his observations Wilkes was seriously misled "by a wretched interpreter picked up in one of the islands" (Grimble 1921a:25). While Grimble had a wide knowledge of the islands, the regional coverage in his writings is somewhat uneven. The islands he knew best (Tarawa, Abemama and Banaba) feature prominently; the smaller more remote islands, like Tamana, figure much less frequently. As Maude observes (1963: 6), Grimble's later writings written after he left the Gilberts, show the influence of diffusionist thinking, particularly of Rivers, Elliot Smith and Perry, and a preoccupation with reconstructing early I-Kiribati migration routes through the detailed analysis of their legendary material.

Grimble's diligence in collecting oral traditions was continued by another officer in the Colonial Service, H. E. Maude who, over the period from 1929 to 1948, occupied various posts from District Officer to Resident Commissioner. Maude's keen interest in history led him to deal more circumspectly with oral tradition than Grimble did in his later writings and, drawing on Grimble's manuscript notes augmented by similar carefully collected material of his own, essayed an analysis of the origin and evolution of an important I-Kiribati culture trait, the boti, in The Evolution of the Gilbertese Boti which stands alone as the

single most authoritative, detailed and enduring piece of scholarship on I-Kiribati social structure and ably demonstrates Maude's skill in bringing his knowledge of oral tradition, written history, anthropology and linguistics to bear on a particular topic. This paper has proved an invaluable source of information for later anthropologists in their analysis of I-Kiribati social structure.

In the absence of more complete and detailed material all these sources, plus the recollections of informants from Tamana collected during fieldwork, must be carefully pieced together to create as full as possible an account of the pre-contact society of the Gilbert Islands in general and wherever possible of Tamana in particular. The result is necessarily incomplete and many questions have to be left unanswered, but under the circumstances it is the best that can be achieved.

I-Kiribati Social Structure

Kinship and Kin-based Groups

Descent and the mode of lineality are the essence of social structure because they define, among other things, the lines along which group membership is transmitted from one generation to another, group responsibility and the establishment of particular claims and rights within the society. In contrast to the predominantly patrilineal societies of Polynesia, I-Kiribati society is ambilateral, a term which describes a "mode of attachment in which both parents are feasible links in group membership" (Firth 1957: 6). Thus, in Firth's terminology (1957: 5) the I-Kiribati descent system is optative rather than definitive and it is possible for an individual to choose to affiliate with a descent group through either or both parents, particularly for residential purposes or to gain access to land. In a definitive system such as a unilineal society group membership is fixed at birth and restricted to descent through one line only. In discussing bilaterality in Tikopia social structure Firth interprets the unequal stress on the parental tie as being necessitated by the ordinary conditions of living and handling resources (1957: 6). It could be argued that such a system

is ideally suited to the reality of small islands where the restricted land areas call for flexibility in the rules governing access to land. An optative descent system could operate to maximise an individual's chance of gaining access to at least some land. If, in the I-Kiribati context, resources belonging to an individual's father's father's descent group became subject to pressure through population growth, the individual could activate rights through his father's mother's, mother's father's or mother's mother's descent groups. Such a system allows considerable scope for the redistribution of resources within society to an extent not possible in a unilineal system where group membership and available resources are fixed at birth. Adoption is also a common feature of I-Kiribati society and can function in a similar way to achieve the redistribution of resources within the community.

Three terms figure pre-eminently in literature on I-Kiribati kinship. They are utu, kainga and boti. The literature also shows little agreement on their precise meaning and significance. Maude (1963: 10) is obviously unhappy with some of the conclusions reached in Goodenough's paper "A Problem in Malayo-Polynesian Social Organisation" (Goodenough 1955) and despite the wide and continued reference to this paper Lundsgaarde and Silverman still thought it necessary in 1972 to "get straight certain crucial facts about the Gilbertese [I-Kiribati]" (Lundsgaarde and Silverman 1972: 95). Part of the confusion undoubtedly arises from the fact that in I-Kiribati as in many Pacific societies, the terms were used in a variety of ways and it was possible through this flexibility for the individual to manipulate the system of social relationships to their advantage in each particular situation. In addition, the meaning and significance of some categories has changed over time in response to changes in social organisation resulting from missionisation and the colonial system. Some changes are obvious and do not present great problems in suggesting the likely nature of the pre-contact situation; in others, as in the utu, the changes were probably more subtle and less obvious, making the reconstruction more difficult and conclusions more likely to be suspect.

The Utu

The term utu embraces two distinct aspects: that of common identity originating through connection by blood or adoption and secondly, a code of conduct linking kinsmen and certain other individuals which is distinct from the manner in which unrelated individuals are expected to act. Thus any collection of people related by kinship behaviour or kinship identity can be called an "utu" (Lundsgaarde and Silverman 1972: 99). Kinship identity embraces the aspect of relatives, kinsman, kinsmen, family and kinship; relatedness through blood and adoption. In this sense the utu could be a true bilateral kindred but the term utu when used in this way does not identify a significant social group because there is no "context free cut off point defined in simple genealogical terms, e.g. a degree of cousinship" (Lundsgaarde and Silverman 1972: 99). Utu identity becomes less strong with increasing genealogical distance giving rise to distinctions between "close utu", "utu but distant", "utu but adopted", "not real utu" and finally "not utu", and the boundary invoked will, in any one instance depend on the event or the nature of action required. The picture is further complicated by the fact that utu identity may not result in utu conduct, for example where kinsman or where the ties have become so weakened as to go unrecognised and not acted upon in a code sense.

In the code sense utuness can be extended to close friends, as in te bo ("the meeting") relationships where the bond of friendship between unrelated people or distantly related people is publicly recognised, the act of which is also taken as indicating that the relationship is not expected to die with those who formulated it. The te bo relationship allows people who are unrelated to act informally with one another in the manner of kinsmen. Marriage and co-residence are also modes of origin of the utu code for conduct. Kinship behaviour might be extended towards spouse's kinsmen or even unrelated individuals residing within the household and because of this behaviour the individuals come to regard one another, and be so regarded by others, as utu.

In discussing the ways in which the utu might have functioned in the pre-contact society it is essential to recognise that the utu then, as now, was a category of individuals "whose relationships are, in various ways, pre-ordained by the fact that they are cognates" (Freeman 1961: 202).

The utu did not and does not delineate a discrete corporate group with an enduring common purpose which united its members. It was and is brought together at the request of or on behalf of an individual and the composition of the group would vary with the individual, and also the nature of the issue requiring action; minor transgressions or celebrations required action only by close kin, more serious ones involved a much wider group of kin.

The Maudes (Maude and Maude 1932: 269) observe that on Banaba, the utu was the only regulator of marriage and it is probable that this also applied to some degree in the Gilbert Islands. Grimble (1921: 26) records the catchword for marriage as being "E ewe te ka-a-roro" (the fourth generation goes free) and that if three generations separated each of the parties to a marriage from the common ancestor then no ban of consanguinity rested upon them. According to Maude (1963: 62) common tibu toru or teru (great grandparents) defined the limits of kakira (incest), while common tibu mamano (great great grandparents) defined the limits te utu ae kan (the near kindred). More distantly removed is te utu ae raroa (the distant kindred) which could include anyone with whom any degree of consanguinity can be established. As relationships become more distant they tend to go unrecognised and remain dormant unless activated under special circumstances for special purposes.

There is no reason to believe that the present morality governing relationships between utu members as opposed to those between non-utu members did not apply in the past. Solidarity is and probably was an important ideal. An individual is expected never to openly criticise or speak disparagingly of a member of one's utu and to come to the defence of a member of one's utu if that person is slighted or spoken of insultingly by non-utu members. Maude (1963: 62) provides an interesting illustration which suggests that the morality governing relations between members of the same utu differed substantially from that governing relations with the wider society. He describes an instance where a man recounted seeing a woman and baby in difficulties in the water. His lack of feeling of mutual obligation and his failure to go to her assistance was explained by what seemed to him and his I-Kiribati listeners the perfectly reasonable reason that "tiaki kain au utu" (she was not a member of my utu). By the same token the utu

and to a lesser extent the boti accepted responsibility for offences committed by its members (Maude 1963: 47) with the utu being required to provide land and other goods in compensation for crimes of murder, theft, adultery and assault against individuals belonging to another utu.

The members of an utu would expect to assist and be assisted by each other in the preparation for and celebration of feasts and ceremonies marking such important life cycle events as birth, ritual hair cutting, a girl's first menses, betrothal, the initiation ceremonies ending in the acceptance of a youth into the warrior class, marriage and death. An individual's utu would play an important part in teaching the skills associated with dancing, composing of chants, fishing, canoe and house construction, weaving, food preparation and the use of weapons. Each of these tasks had their attendant magic and ritual to which the individual had rights through membership of his utu. The utu would also expect in such economic pursuits as house and canoebuilding, land improvement, fishing expeditions and any activities which could not be carried out by the nuclear family alone.

In no sense was the utu a landholding group but, because the buakonikai lands (bush, non-residential lands) were held and inherited individually by both males and females, the utu rather than the kainga or boti was the group most concerned with the ownership of buakonikai lands (Maude 1963: 35). Strict rules governed the manner in which these individually held landplots could be disposed of and the utu therefore defined the category of people through which the individual gained rights to bush land and hence coconuts, pandanus and babai. The utu was not primarily concerned with rights to kainga lands and hence residence patterns.

The Kainga

The kainga was the clan hamlet, a cluster of mwenga¹ (dwelling houses) providing the living quarters of the boti members. In the absence in I-Kiribati kinship terminology of a general term for clan (Maude 1963: 11) the term kainga was often extended to the group which occupied the site; an extension which gives rise to much of the confusion in writings on I-Kiribati kinship. On many islands the kainga clustered around the maneaba and were sometimes enclosed by fences or walls for protection and privacy. The overall impression to such

¹ Mwenga becomes more important in post-contact society and is discussed more fully on p. 175.

earlier observers as Wilkes (1845: V: 53) and Pierson (quoted Maude 1963: 32) was of a sizeable town or village.

Since the kainga was the residential site of the boti members the inheritance of kainga lands followed much the same pattern as the inheritance of boti rights. Married women normally lived in the kainga of their husbands, although cases of uxorilocal residence have been recorded (Maude 1963: 27-28). The preferred residence of sons would have been in the kainga of their father, with the eldest son usually inheriting the father's mwenga on the partition of his lands. Younger sons, if pressure of resources necessitated it, would be sent to take up residence in the kainga of other grandparents; the order of preference after that of his father's father's being: father's mother's, mother's father's and finally mother's mother's kainga. If there were not room in any of these kainga a new settlement or kawa might be set up in the bush land.

As well as control to residence sites clan ownership also extended to other rights and property such as fishponds, flotsam and jetsam and fishing rights. All clan gatherings were held in the kainga, disputes between boti members heard and settled and here also were the clan anti, or tutelary deities, worshipped. The affairs of the kainga would have been presided over by the atun te kainga (head of the kainga) or te ikawai (the old one) or te batua (the venerated one) who also held the same position on the boti (Maude 1963: 33). The atun te kainga organised the distribution of work and generally regulated affairs within the kainga, he represented the kainga in its dealings with other kainga, arranged marriages and adoptions, negotiated with other atun te kainga for the services of specialists in such matters as canoebuilding, housebuilding or medicine and led his kainga in meetings and ceremonies organised on a district basis (Bate, Tiata et al. 1979: 20).

The Boti¹

Maude (1963: 11) describes the maneaba or communal meeting house as being the focus of the whole social life of the community. It was the

¹This section necessarily draws heavily on Maude's 1963 paper which it should be remembered draws heavily on southern, particularly Beru, tradition and does not deal with all possible variations of boti structure and function. This applies particularly to the culturally peripheral islands of Little Makin, Butaritari, Banaba and Nui (Maude 1963: 9).

venue of discussions concerning peace and war; it was the court of law where offenders against customary norms were tried and disputes heard and arbitrated upon by the Old Men; and the centre for many ceremonies and feasts of a formal character, as well as the more dignified community recreations and dances. The boti is a fundamental element in maneaba organisation because it determines how kinship units are aggregated within the meeting house and from this what their rights and duties in the community organisation were. The boti was literally the place in the maneaba reserved for the clan and, by extension, the clan itself. Rights to sit in a particular boti were reckoned in much the same way as residence rights in the kainga. It was predominantly patrilineal with sons normally sitting in their father's father's boti and daughters having the choice of either their husband's or father's boti. However, in particular instances, such as overcrowding, or for other reasons an individual may elect to sit in another ascendant's boti, or even that of his adopter. The maneaba and its boti divisions provided, in Grimble's words, "a tabernacle of ancestors in the male line; a sort of social map, where a man's group or clan could be recognised the moment he took his seat, his totem and ascendants known, and his ceremonial duties or privileges discovered" (quoted Maude 1963: 11).

In this way the boti had functions related to most aspects of I-Kiribati life; social, economic, political, judicial and religious. It had no connection with access to non-residential land since this was owned individually and inherited through the utu. On the islands to the south of Abemama where there were no dynasties of secular chiefs each maneaba formed an independent political group, "a gerontocracy which managed its own affairs and which only joined with neighbouring groups for special purposes, the principal being war and dancing" (Maude 1963: 45-6). Maude (1963: 46) states that there were eight such districts on Nonouti, nine on Tabiteuea, three on Beru, six on Nikunau and three on Onotoa, and that the majority were the Tabontebike-type maneaba (the type first established at Tabontebike by Tematawarebure) with Karongoa Uea (chiefs from the Karongoa clan); the uea being the individual who initiated and presided over the affairs of the maneaba and who was of the clan of the settlers (allegedly from Samoa) who established the original partition of the maneaba into boti divisions. Since then these have been supplemented by repartition, conquest, fission

invitation or permission, each boti having a designated function and responsibility for a particular aspect of maneaba proceedings and a particular place in the order of speaking rights.

The community thus functioned without a secular chief or organised executive authority but at the same time managed to enforce compliance with its decisions and generally maintain the peace. Maude (1963: 48) attributes this in part "to the sanctity of the maneaba and the decisions reached in it...and partly to the well-known fact that persistent trouble-makers were apt to be deserted by their kindred, whereupon they could be dealt with without difficulty, a popular procedure being to tie the offender to a log and let him float away. Any conduct, in fact, which tended to disrupt the community, and thus weaken it vis-à-vis its neighbours, was regarded with particular abhorrence."

The maneaba system and boti organisation disseminated from Beru to most of the islands in the Group; being spread northward as far as Marakei by the invasions of Kaitu and Uakeia in about 1650 (Maude 1963: 10). The political and social organisation of the northern and central islands exhibit some important differences which are associated with the emergence of dynastic leaders and the development of a stratified society with aristocratic and commoner classes. In the southern islands individual war leaders may have assumed temporary overlordship by virtue of conquest, but this did not give rise to dynasties of secular chiefs. Tamana appears to have had neither a fully developed boti system nor the might to invade any of its larger neighbours, although it may have taken part in some of the invasions led by Kaitu and Uakeia.

The Kainga, Maneaba and Boti on Tamana

The Kainga on Tamana

The pre-contact social system and settlement pattern on Tamana appears to have differed in several respects from the general pattern described above and may have had some features in common with Banaban society, which is not unexpected given the traditions of migration between the two (Powell 1871).

Unlike the other islands, Tamana had only one main maneaba and the settlement pattern was dispersed rather than concentrated in villages. At

the time of missionisation the houses were scattered all over the island (Powell 1879) and today there is abundant evidence in the bush of former house sites in the form of coral foundation slabs and gravel brought to the site to keep the house sites clean and warn the occupants of any intruder's approach. The kainga were thus dispersed and presumably located on the kainga lands. The dispersed character of settlement could be explained as a response to the absence of conflict between rival maneaba districts which removed the advantage in or necessity for clustering around the district maneaba for mutual protection. However, in the light of oral tradition citing Banaba as the source of Tamana settlers (see p. 34), the similarity between the dispersed pattern of kainga settlements on Tamana and the kawa settlements on Banaba should be noted.¹

Oral tradition is no longer precise enough to delineate the original kainga divisions made when Tamana was first settled. Maude (pers. comm.) suggests there may have been only three or four; the number being increased by subdivision with junior branches of the clans establishing on unoccupied land. Conquest, colonisation, migration and intermarriage probably increased the number of clans represented and gave certain clans lineage relationships with boti on other islands. It is also impossible to establish whether the clan kainga and buakonikai lands at one time ran in strips across Tamana as they do on lagoon islands, thus giving each group access to the major land types, "the land of the dead", "land of the living", and "the place of staying alive". However, the fact that there is a traditional custom allowing all people to cut toddy on "the place of staying alive" lands during drought suggests that access to these differing land types may always have been unequal. Figure 4-1 shows that today several kainga may lie in the one strip across the island. As far as can be established, land rights do not appear to have extended across the reef flat as they did on some other islands.

At the time of the Land Settlement on Tamana in 1950 there were 116 named localities (see Fig. 4-1). At some point in time these are presumed to have been associated with kainga, although all 116 may not have been occupied contemporaneously. After considerable disruption and depopulation in the contact period there were, in 1881, 24 leaders in the Tamana

¹For a description of the kawa on Banaba see Maude and Maude (1932: 269).

Fig. 4-1

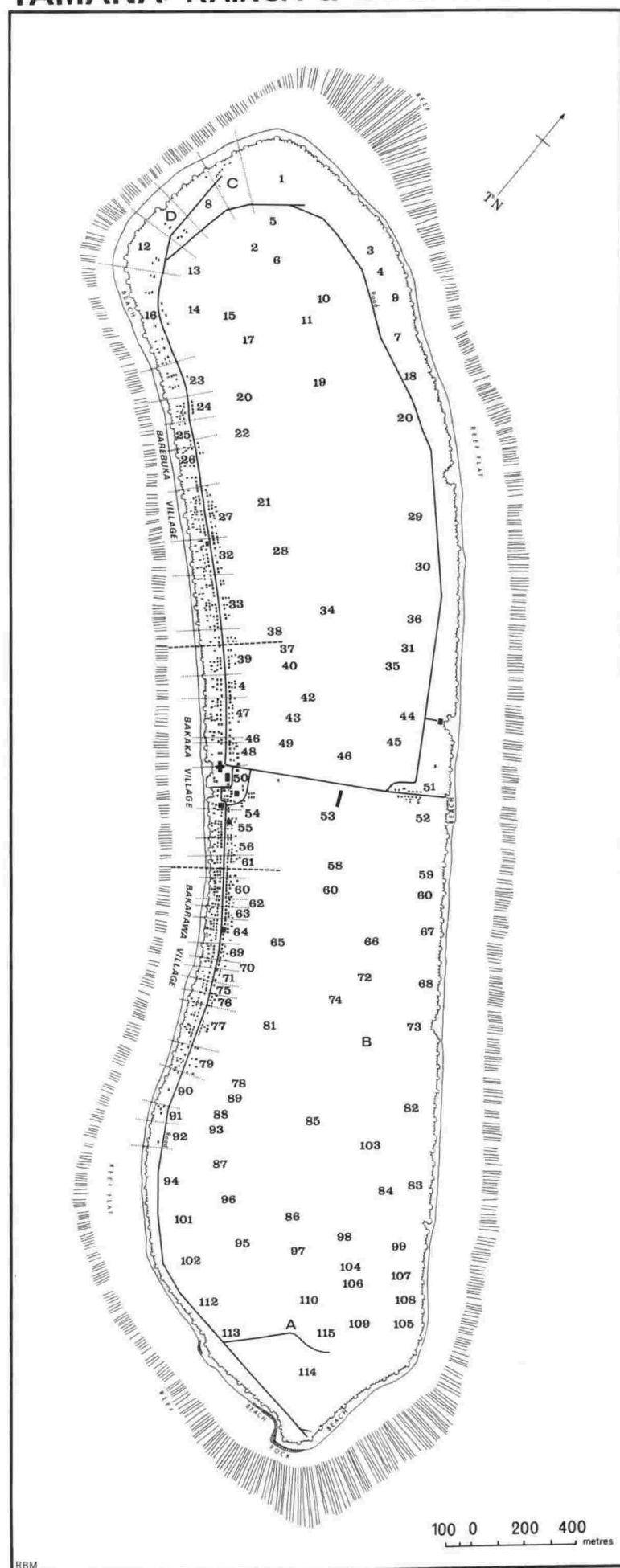
TAMANA: KAINGA & LAND NAMES

1	TARAMARAWA	68	ARORAE
2	ABAORA	69	BAREKOROA
3	KAUAKE I NANO	70	MOROTUABINE
4	KAUAKE I ETA	71	TENENEBO
5	AON-TE-NA	72	ATIEU
6	BUTAENIMAN	73	TAINÉ
7	TAMANITIBA	74	TEKIRIKIRI
8	ANREN	75	TENAIMOA
9	TEATIRABABA	76	TEKAITARA
10	TARAWA	77	TERAWA
11	KAITU	78	KAINRO
12	NANIMONE	79	TEKARARA
13	TERIRIE	80	TETURUMA (NOT LOCATED)
14	TEWATI	81	BANERAKE
15	TENIBAORAO	82	TEBUE
16	AONTEKATEI	83	BANGANAI
17	TENEINIBANEAWA	84	TEKABANGAKI
18	TERERE	85	TENENEBO I ETA
19	TEONIKIMOA	86	RIRIBA
20	TENAWA	87	TEMAKITANA
21	AONIMAN	88	RORO
22	TUMAIRANG	89	NIMANOHANO
23	MAOTANE	90	BAKEARIKI
24	MATAREI	91	TEBAKARAWA
25	NAKIBAINA	92	TEBWENABWENA
26	TEBU	93	OREABA
27	BAREBUKA	94	TEBWE
28	TEBARO	95	TEINATI
29	KOROTONGA	96	AORAEKE
30	AUTERIKAWA	97	BABANIMAN
31	TENIKATONGITONG	98	TAWANA
32	BAKAOTI	99	RUATOA
33	MANRIKI	100	TANEA (NOT LOCATED)
34	KAEARIKI	101	KIMAI
35	AONTEKERI	102	AONNATI
36	TAKIRUA	103	TENGUINIWAUI
37	TAIKU	104	TOUA
38	AONTEBUATAE	105	KOROBUNGU
39	TEMARAA	106	NIMANINGINING
40	BANGANAI	107	TEITERANRAKAU
41	TEIRIMATOA	108	RUARUANIMOINA
42	TEMANEKATEAINA	109	NEINTEBUARIKI
43	AONTEBON	110	KOTOA
44	KARAKIBOI	111	TEWINIBORAU (NOT LOCATED)
45	TEMAIWAIRIETA	112	BAREATIA
46	TENEINEI	113	TEMBAI
47	TEKAUAKE	114	TENIKABOBO
48	TEARABUNGEA	115	KARIMATANG
49	AROBANGAKI		
50	BAKAKA	A	TEKARANG
51	MOTOIA	B	TABITI
52	RETAKI	C	KABOBO
53	TAUBOBO	D	TEBAURINE
54	TETOKI		
55	KATIMAU		
56	TEAI		
57	TEO (NOT LOCATED)		
58	TENAEREKE		
59	KONIBA		
60	TEBAKI		
61	TEBARIBARI		
62	TABOTARI		
63	BAKARAWA		
64	UMANTEBUKE		
65	TEKAWA		
66	TEKOBUKOBU		
67	TANGINIMAKE		

A TEKARANG
B TABITI
C KABOBO
D TEBAURINE

LAND NAMES
NOT IN
REGISTER

KAINGA LAND BOUNDARIES WITHIN
VILLAGE AREA ESTABLISHED FROM
LAND BOUNDARY MARKERS. POSITION
OF OTHER LANDS FIXED WITH REFER-
ENCE TO THESE NUMBERS REFER TO
LANDS LISTED IN THE TAMANA LAND
REGISTER. LANDS TANEA, TEO
TETURUMA AND TEWINIBORAU LISTED
IN REGISTER WERE NOT KNOWN TO
PRESENT RESIDENTS. LETTERS A-D
REFER TO LAND NAMES IN CURRENT
USE NOT LISTED IN THE REGISTER.



government (Phillips 1881) and these were presumably the atun te kainga. Following any period of depopulation, resulting from drought, warfare or in the post-contact period outmigration, some kainga would have been abandoned once the population was too small to maintain a viable settlement; its members reactivating latent residence rights in other kainga. This may not have been more than a temporary expediency with fission taking place again once population levels built up again and pressure on resources increased. In the interim the land presumably kept its name and the individual's or their descendants their rights to it.

The only contemporary description of Tamana land-holding in the pre-colonial period is a statement by Turner (1878) which could only have been based on a very superficial knowledge of Tamana society. He states:

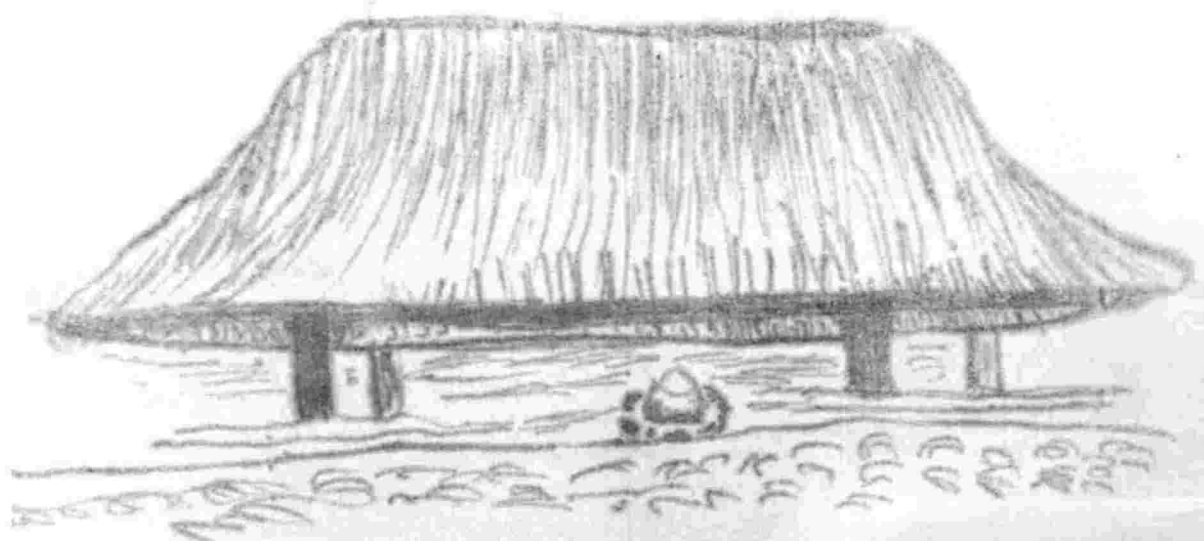
...members of one family dare not make common use of family lands. When a man's sons are grown up he divides the family lands giving the largest plot to the eldest son and so on. During his lifetime it is the duty of all sons to share the produce of their lands with the father. But a brother dare not go to a brother's lands and take the nuts off it, even when he has no nuts of his own.

This indicates quite clearly that lands were held and used individually, but also suggests that all lands were inherited patrilineally through the clan and thus the distinction between kainga land usually inherited patrilineally and buakonikai lands inherited through the utu may not have applied on Tamana. In some respects this would appear consistent with the dispersed character of settlement on Tamana where the kainga settlement was located within the buakonikai lands which would have once belonged to the clan. From this it could then be argued that the distinction between kainga and buakonikai land came as a direct result of post-missionisation resettlement which, it could be argued, broke the close association between residence and land rights. However, there are several difficulties in accepting Turner's statement and the arguments based upon it. If land were only inherited patrilineally, one would have to argue that the mwini mane ("through the male") and mwini aine (through the female) categories of transfer in the Tamana Land Code (and common to all the southern Gilberts lands codes) are not traditional and have assumed importance only in the post-missionisation era and result from a misinterpretation of the traditional land tenure system by

the colonial administration. By using genealogies and details recorded in the Land Registration 1950 it is possible to establish that individuals receiving lands from distributions made in the early part of this century gained rights to lands in several kainga, which suggests a wider access to land than simply through patrilineal descent. It is also interesting to note that on Banaba, which also had a dispersed settlement pattern, "formerly the inhabitants of a hamlet owned all the land around it, but through the marriage of women of the kawa to outsiders, much of the land has come, as the years have passed, to be owned by people who actually reside in other kawa and often in other village districts" (Maude and Maude 1932: 269).

The discrepancy between the inheritance of kainga (and boti) rights as opposed to buakonikai rights is now of less significance on Tamana because of the wholesale relocation of people resulting from missionary and government pressures. However, how the difference arose is something of a puzzle. It is clearly older than the recent changes in residence patterns and may in fact reflect previous culture contact. Maude (1963: 35) argues that it could result from the grafting of Samoan elements brought by Tematawarebwe and with their emphasis on patrilineal descent onto the autochthonous system where land was held by both men and women on an individual basis.

Thus, despite the dispersed nature of settlement on Tamana the pattern of inheritance of residential and bush lands probably followed the same pattern as that on the larger islands. The basic dwelling unit was the mwenga occupied by the nuclear family and a cluster of these together formed the kainga settlement. The preferred place of residence was in the kainga of one's father, although other locations may have been chosen for particular reasons. The kainga served as a centre for ceremonial observances relating to the clan and offerings were made to clan idols (Powell 1871 and see also Fig. 4-2). Bush land was owned individually and inherited through both males and females, thus giving an individual rights to land plots in the districts of several kainga. From Matatia's account of the settling of Tamana (see p. 34) it seems that the act of planting land (with coconuts, pandanus and other useful plants) expressed the essence of land



*The god Tapuremai
as seen in front of a house
at
Taurua.*

Oct 31st 1871

Fig. 4-2 Powell's Drawing of House and Idol on Tamana



Fig. 4-3 Powell's Drawing of Maneaba on Tamana

ownership.¹ In return for rights to land an individual was expected to provide food and other produce for the atun te kainga and to assist other kainga members in the carrying out of duties and obligations connected with maneaba ceremonial and feasting. He would also be expected to join with co-residents of his kainga and his wider utu in the performance of the various life crisis celebrations of its members and to assist in such large scale endeavours as house, canoe, babai pit or fish weir construction which required the cooperation of more than one household. Common residence in the kainga undoubtedly provided the basis for recruitment of companions in day-to-day work, and communal work such as deep-sea fishing and the preparation and storage of some foods.

The Maneaba on Tamana

Maude (1963: 10,14) states that both Tamana and Arorae were too small to allow the development of a full maneaba system and that the boti associations claimed by individuals on these islands were derived indirectly from lineage relations on other islands. He even suggests (1963: 14) "that there were apparently no customary maneaba built on Tamana or Arorae". However, Powell (1871) clearly describes the large temple to the goddess Eiteweinei (see Fig. 4-3) which was complete with suspended shrine containing relics of sacred ancestors (Vivian 1871-2). While the island had only one main maneaba called Terobung located at Tearabungea on the western shore near the site of the present church (see Fig. 3-2) informants say that the island itself was divided into two districts, north and south, each having a smaller "maneaba for waiting"; one at Anren and the other, probably that drawn by Powell, at Umantebuke (see Fig. 4-1). The latter appear to have been predominantly secular rather than religious and provided an informal meeting place where the elders of kainga within each district met to settle disputes between individuals or groups within each district. Disputes between districts were taken to the central maneaba. The "maneaba for waiting" provided bange or sanctuaries for members of opposing districts fleeing retribution. It is impossible to say whether Tamana had a functioning boti system. The sole contemporary reference to the system of government comes from the missionary Phillips in 1881, well

¹This attitude is still evident today in the unwillingness of individuals to plant lands other than their own, their wife's or their immediate kin's because such an act would imply ownership and the infringement of the rights of the true heirs to the land.

after the disruption of the population by missionisation, the 1870s drought and labour recruitment, when he states that there were 24 leaders of the native government, one of whom was the European trader Schumacher.

One further characteristic of Tamana social organisation should be mentioned here, and again, it is a feature which points to culture contact with Banaba. Each of the island districts had, as well as a "maneaba for waiting", a settlement for its young unmarried men. These were known as uman roronga (bachelors' house or young men's house) and at these the young men underwent religious training and initiation before being accepted into the rorobuaka or warrior class, after which they could marry and set up a household in their chosen kainga. The young men's house was also the place where the district's tame frigate birds were kept and it thus functioned as a social centre for the island's men as well.¹ Grimble makes no mention of young men's houses in his exhaustive "From Birth to Death in the Gilbert Islands", and it seems from his description that the common practice was for young boys at the age of ten to leave the parental household for that of his paternal grandfather or grandfather's brother to prepare for initiation (Grimble 1921a: 37-8). However, the Maudes (Maude and Maude 1932: 268) describe young men's houses on Banaba.

The absence of rival maneaba districts on Tamana and the endemic civil war which characterised relations between them on other islands meant that the Tamana people were probably always a relatively homogeneous group who thought of themselves as Tamanans. Not even Arorae, which is nearest to Tamana in social and political structure was quite so unitary (Maude, pers. comm.). This characteristic of unity, and the cooperation which can be engendered from it, persists and is important in Tamana people's approach to life even to the present day.

Under the onslaught of missionisation, colonial administration, the disruption caused by depopulation after the severe 1870s drought, and labour outmigration, the character of many of these institutions changed substantially. Under the new order new and different elements were introduced into the social organisation and the populace was forced to

¹ The site of two such houses at the back of the beach on Korotonga and Taine lands are still known to Tamana people today and youths still favour these sites for training frigate birds. Two or three youths kept frigate birds in 1973.

re-evaluate and adapt existing social relationships. The agents bringing these changes and the new order which evolved will be discussed in Chapters 5 and 6 and 10.

The Pre-Contact Economy

Reconstructing Tamana economic activities, or even the general characteristics of I-Kiribati economic life in the period before European contact was not, as Salisbury claimed to find for the Siane, a relatively simple task (Salisbury 1962: 39). Information on the pre-contact economy is even more sparse than that on social structure, and nearly 170 years (rather than 20 in Salisbury's case) separates the present study from the beginnings of Tamana's contact with the alien western world. However Salisbury's descriptive definition of an economy as "those activities in which people engage, and in which they appear to organise their behaviour in terms of a rational calculation of the quantities of goods and services produced, exchanged or consumed, in such a way as to allocate scarce means to competing ends" does provide a useful starting point around which to organise a description of the Tamana pre-contact economy. For various reasons, particularly the small size of the island, its relative remoteness and its severe and limited environment, as well as its lack of secular chiefs or organised executive authority, and individualised land tenure, some of the production nexus identified by Salisbury in the Siane economy were probably not developed to the same degree on Tamana. The subsistence nexus was, and still is, clearly of vital importance. However, the literature contains no reference to complex and well developed ceremonial or trade exchange systems or systems for the production of luxury goods. These may have been better developed or more extensive in the central and northern islands which had stratified societies and dynastic leadership. They may also have been more fully developed on the southern islands in the past with their focus being usurped on missionisation by the church, but evidence either way is non-existent. In the late nineteenth and early twentieth centuries church collections and building programmes without a doubt absorbed a large part of the island's cash surplus.

Subsistence Resources and Activities

Limited though the Tamana environment was, it provided, under most conditions, a sufficient range of resources to meet the food and shelter needs of its people. For the most part the food plants and marine resources were harvested with minimum regulation. Tree crops predominated. Coconut, pandanus, breadfruit and ficus were planted to augment existing resources in quantity, and in the case of pandanus and possibly breadfruit, in variety. The aroid babai was the only crop cultivated in the strict sense of being planted in a prepared site and tended throughout its entire growing period. Most livestock now raised on the island are recent introductions although the baneawa fish (Chanos chanos) was reared in specially stocked fish ponds.¹

Coconuts

Three subsistence commodities figure pre-eminently in the pre-contact economy: coconut, pandanus and fish. Without the coconut it is difficult to imagine permanent settlement of these islands being possible. The fruit of the coconut was utilised at many stages of development. At the green stage (moimoto) the water was drunk and the jelly-like flesh fed to infants. Despite being prized, the moimoto was not widely drunk and people drinking moimoto generally were frowned upon for the waste of resources involved and were accused of "living like rats because they are too lazy to cut toddy". Two other stages in nut development were named which reflected the increasing development of the kernel flesh and acidity of the water. Amakai was an intermediate stage when the nut was yellow and still had to be picked from the tree and ben applied to the fully mature, fallen nut which was eaten in slivers or grated and provided a source of ranniben (coconut cream) used in cooking and the preparation of coconut oil for cooking, lighting and, with further refining and added perfuming agents, on the body as protection against

¹ The importance of other livestock is questionable. The pig was unknown before its introduction by Europeans, the dog was known from ancient times but appears to have become extinct 5-6 generations ago (Grimble 1933-4: 28-29). Chickens were claimed to have been on Nonouti in pre-contact times (Koch 1965: 71), and this is supported by Grimble's observations showing hens as totem creatures (Grimble 1933-4: 21, 28).

the weather and for ceremonial anointing. The embryo of the germinating nut (te bebe) was also eaten and was a particularly prized infants' food. The immature husk of the te bunia (sweet husked) variety was sometimes eaten. The keeping qualities of the ben nuts enabled them to be stored in special storehouses (okai) as food reserves against drought.

Te karewe, or the coconut palm sap toddy, provides half of tore, the habitual eating of fish and drinking, and has always been a fundamental item in the Tamana diet. It too must be regarded as a drought standby, because the palms continue to flower during droughts even though no fruit may set, and thus karewe can still be cut. In severe droughts the population was supposed to have survived on a diet of fish and karewe. The toddy was tapped from the immature flower spathe of the coconut palm which was bound to stop it opening and cut transversely to expose the ends of the flower branches. Twice daily cutting of this surface maintained the sap flow which was collected in a coconut shell suspended beneath the spathe. An elaborate system of rules surrounded the selection and preparation of palms for toddy production. The trees were best sought on kareao te bong ina i mwin te itibong, which was the eighth day after the first and third quarters of the moon, when water in the sea begins to flow towards the island as the tide changes from neap to spring, when the sap begins to flow more freely (and, incidentally, when women become more fluid, soft and amenable to requests). The toddy flow was supposed to reach a yearly peak when the constellation Na Kumete (Quadrilateral of Dolphin) is at its zenith at sunset. The karewe was drunk either fresh or boiled down to a brown syrup-like fluid which could be stored and used diluted as a drink or as a sweetening agent in the preparation of other foods. In a diet chronically short in variety of vegetable foods and fruit the karewe provided a major source of vitamins for the island population.

The uses of other parts of the coconut were myriad. The trunks provided timber for various construction purposes. The dried fronds were used as flares for night fishing; green fronds woven to make baskets, trays, mats, screens and thatch; the thin outer film on the leaflet was used in grass skirts and fine weaving; the immature leaves for garlands and feast decorations; individual leaflets were used as caulking between canoe planks and the midribs were used extensively in building. Husks

provided fibre for sennit used in house and canoe construction, fishing lines, weapons, fish traps and many other handicraft productions as well as the spectacular armour used in warfare. The shells were used as vessels for collecting toddy and storing fluids, as cups, ladles and other utensils, while the husk and the shell were used as fuel and in the production of charcoal.

Pandanus

If Grimble's (1933-4) ascription of the I-Kiribati as "a pandanus-eating people" is justified, then the pandanus must have figured more prominently in the subsistence of the people in the past than it does now, which is not unexpected.¹ While the pandanus is endemic to the area, the fact that it is dioecious (i.e. male and female flowers are borne on separate plants and only the female bears fruit), wind pollinated and does not breed true to the parent means that the presence of a great number of recognised fruiting varieties can only be explained as the result of vegetative reproduction and conscious selection, introduction and dispersal by human agents. The importance of pandanus as a food source to the I-Kiribati lay firstly in its ability to survive and grow successfully in the severely limiting atoll environment, but also in its nutrient value, having a high vitamin C content (Catala 1957: 58), and in the fact that it could be processed and stored, thus providing a suitable food for canoe voyages, as a drought standby or to supplement normal food supplies on feast occasions.

The fruit was eaten raw, or finely sliced across the fibre and mixed with coconut cream. As te tuae and te kabubu the ripened fruit could be processed and stored for long periods. Both preparations began with the roasting of the juicy section of the drupe in an umu or earth oven. With te tuae the fruit was scraped, producing a somewhat fibrous pulp which was then spread thinly on te uri leaves and sundried. The dried sheets were then stored until needed, being soaked in coconut cream

¹ It is interesting to note that Grimble (1933-4) claims that there appears to be no I-Kiribati word for pandanus generally. He estimates there to be more than 160 varieties differentiated by the I-Kiribati, each with a distinctive name. Both Sabatier (1971) and Catala (1957) use the word kaina for pandanus generally. The word tou is applied to the whole pandanus fruit.

before being eaten. For kabubu the fleshy ends of the roasted drupes were pounded to a fibry pulp, sundried in thick cakes and further dried on hot stones before being pounded to a coarse flour which could then be stored in cylinders made from coiled pandanus leaves. The flour was added to other dishes or simply mixed with toddy and drunk.

All the food-associated activities revolved around the specially selected and propagated fruiting varieties. The self-seeded riki ni beti pandanus had its major uses in construction and handicrafts. These, being self-sown tended to grow in clumps and rarely bore fruit (some informants claim they never bear fruit) and the combination of these factors meant that the riki ni beti trees were often taller, straighter and less branched than the fruiting varieties, which made them much more suitable for house and maneaba construction. Pandanus leaves provided materials for a large number of other uses. Dead leaves were collected, processed and used as thatch. Green leaves were cut, dried, beaten and shredded to weave mats in various grades for house furnishing, also baskets and canoe sails and for hats and the ceremonial mats worn by men on ceremonial occasions.¹

Several other crops were tended or cultivated, but it is difficult to gauge their importance. The rootcrop babai has, and presumably always had, a very special place in the festive and ceremonial life of the community and the time devoted to its cultivation and particularly the excavation of the pits in which it was grown far exceeded that devoted to any other crop. However, it is highly probable that babai on Tamana was never the frequent item of diet or achieved the same pre-eminence as it did in the wetter, lower islands to the north where pit excavation was not such a major undertaking and where the crop grew more successfully in the higher rainfall conditions.

Pit excavation with only wooden and shell implements must have been a major undertaking, both in terms of the volume of material removed and also the fact that the hardpan and old reef pavement had to be

¹For the most part hats and shell necklaces seem to have been main clothing for men on everyday occasions, going naked except for these (Log of Nautilus, 16 Aug. 1835; Log of Margaret Scott, 19 Feb. 1853). Girls went naked until puberty after which they donned the riri or grass skirt and after marriage wore a hood of matting when in public (Grimble 1921: 33, 41).

penetrated to expose the top of the water lens thus creating conditions suitable for babai cultivation. Often extensive stone walls had to be constructed to prevent the friable sand and gravel walls collapsing into the pit. The soil at the base of the pit then had to be enriched with compost. Two groups of babai varieties were cultivated: the ikaraoi group which was carefully planted and nurtured to produce large tubers for presentation purposes (and to demonstrate the grower's skill), and the katutu group which was grown with much less attention along the edges of the pit and used on much less auspicious occasions. The young ikaraoi plants were planted in specially prepared compost with the junction between the stalk and rhizome of the cutting just above water level. The plant was then surrounded by a length of plaited pandanus leaves which kept the compost around the plant. Once growth started the plant was fed with specially selected and prepared composts of dead and green plants. The plants reached a reasonable size in about two years but the very large plants kept for special occasions may have been kept for six or more years. Prestige accrued to individuals growing babai of enormous size for presentation at special events. Luomala (1970: 495) describes babai contests on Tabiteuea where public weedings were held and the aim was to produce the heaviest corm and in so doing destroy one's rivals and diminish their prestige. The competitions were halted by the colonial government because they were supposed to generate anger and a waste of food. Babai cultivation was surrounded by considerable lore and this was the property of individuals and passed on only to chosen members of his utu.

On many islands abandoned babai pits are everywhere in evidence. These have been appealed to variously to indicate larger former populations or the declining importance of babai in recent years. However, it should not be assumed that these were all in use contemporaneously. Geddes (1975: 69) suggests that non-use related to flooding or salinity changes and these meant that certain pits had to be abandoned, some of them permanently.

It is very difficult to establish how important breadfruit was in the pre-contact economy. It was clearly present when Powell visited the island in 1871 (Powell 1871-2) but presumably grew only in the damp, low-lying areas or more probably only around the kainga sites where then, as in the villages now, it would have been kept growing only by careful

and continuous mulching. In any case no trees have survived to the present in either the low-lying sites or former kainga sites, and breadfruit are found now only within the confines of the village area. This suggests breadfruit was exceedingly marginal to the Tamana environment and was never as important a part of the vegetable diet as it was in some other parts of Micronesia. The small fig te bero and te non were also eaten and may have been intentionally planted around the kainga sites. Two species of portulaca (te boi, P. lutea and te mtea, P. samoensis) were also eaten in times of food shortages, but because both plants are shallow rooted it is dubious that they would survive severe droughts and thus constitute a standby food.

Fishing

The sea, in the pre-contact economy as now, provided the major or even only protein source for the island population and its exploitation involved people of all ages and both sexes. The method used and persons recruited depended on the ecological zone being exploited and the equipment available.¹ Women, children and older men scoured the reef flats and pools at low tide for shellfish, small fish, eels, octopus and the like. Stone fish traps were also built on the reef flat to intercept and trap fish moving along the coast with tidal currents. Fish poisons from baireati seeds (Barringtonia asiatica) washed up on the beaches and various holothurians (sea slugs) were also used. Various fish traps and nets were set in the shelf below the reef flat and young men with spears dived from log floats to seek fish among the coral heads on the shelf. By far the most elaborate and exciting techniques involved the pursuit of deep-sea fish. These were sought from canoes, either with very large composite wooden hooks (Fig. 4-4) or trolled for with pearlshell or stalactite lures (Fig. 4-5), the latter coming from the deep caves on Banaba (Lampert 1968: 10). Flying fish were caught with a float line and gorge (Fig. 4-6) anchored in about five fathoms of water and left overnight (Grimble, British Museum Eth Doc 1092). The fishing lines

¹Table 9 -1 provides an exhaustive list of fishing techniques known to the present population. It was not possible to establish whether all of these were used in pre-contact times. Some clearly were not.

Fig. 4-4 Composite Wooden Fish Hooks



BRITISH MUSEUM 1921-2-21-23 MM 800369

BRITISH MUSEUM 1921-2-21-23 MM 800369



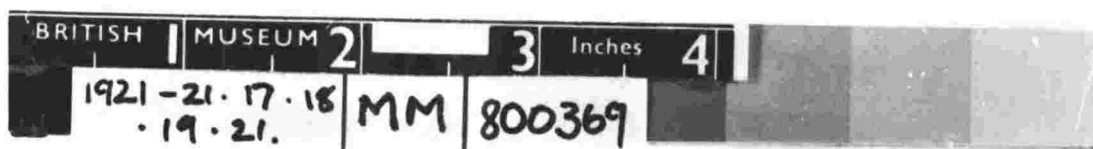
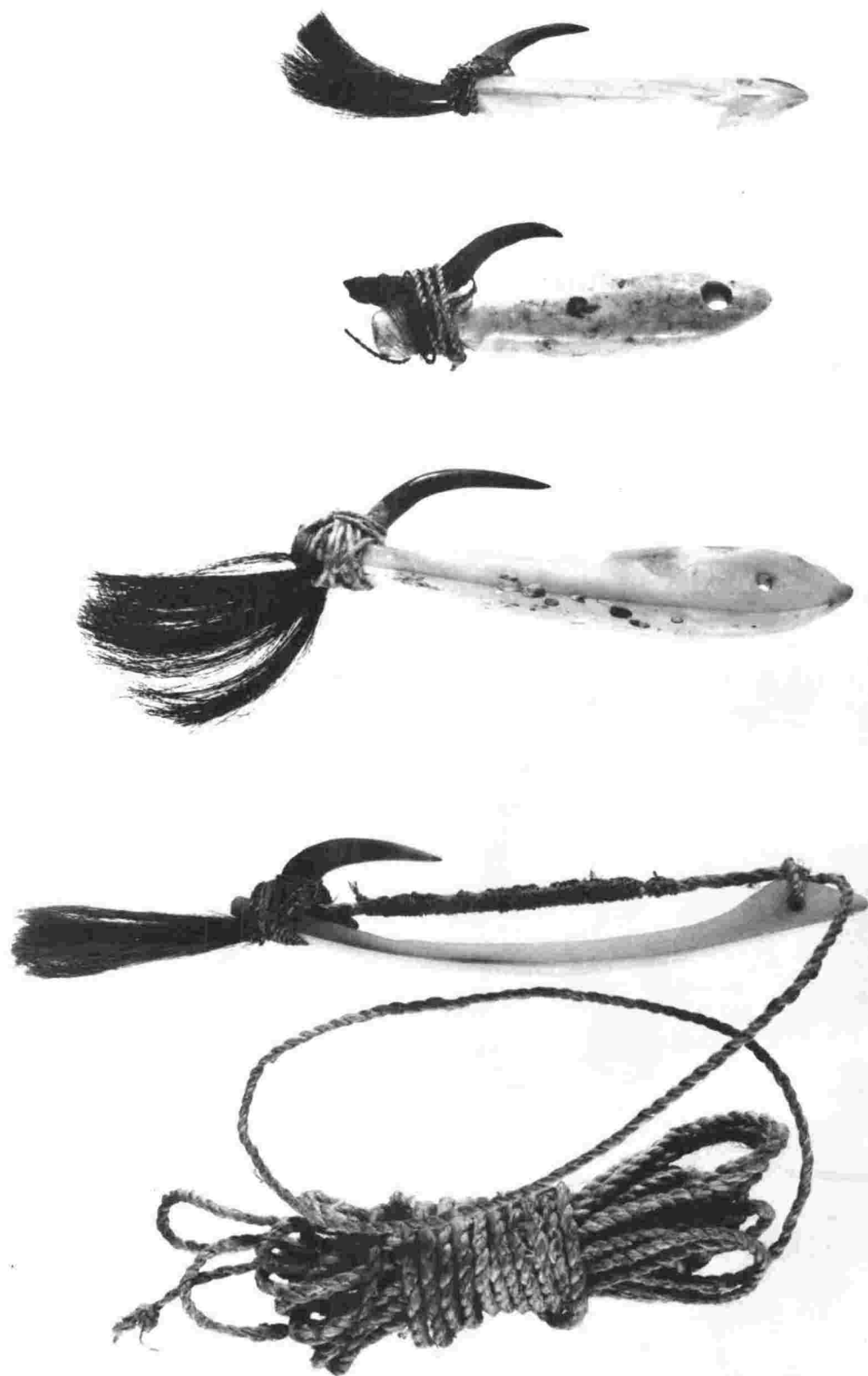


Fig. 4-6 Flying Fish Float and Gorge

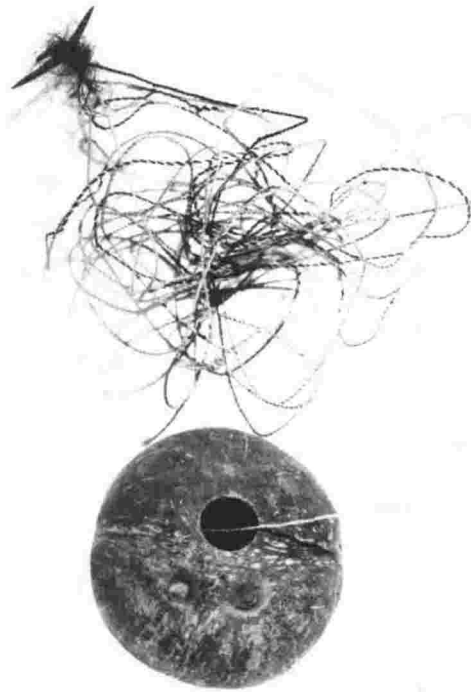


Fig. 4-7 Clamshell Adze



Fig. 4-8 Pearlshell and Wood Coconut Grater



were made of sennit, fibre from the inner bark of Ficus obliqua (presumably Ficus tinctoria) (Grimble, British Museum Eth Doc 1092), and human hair or a combination of these materials.

Fishing activities were probably controlled by an elaborate set of regulations stipulating the type of equipment to be used, the localities in which particular types of fishing were permitted and the number of boats allowed to chase a school of fish once sighted. Some of these regulations have now, through persistent pressure from the islanders, become codified in the Tamana Island Council Fishing By-Laws. Access to marine resources by people living in inland kainga was no different from that of shore-fronting kainga. Stone fish traps were built, owned and operated on a kainga basis and not necessarily built on the reef flat adjacent to kainga lands. They were built in areas where there was an adequate supply of coral debris and beach rock for their construction. The inland fish ponds were apparently operated on an island-wide basis with people from all kainga assisting in stocking them. The activities were supervised by the people of Teneinebaneawa kainga within whose land they stood, with the harvesting being carried out by members of several kainga and the catch shared among all people.

Goodenough (1963: 339) suggests that the intensity with which deep-sea resources were exploited has changed as a result of culture contact with the western world. He argues that the number of people engaged in and the time spent in deep-sea fishing increased markedly once imported North American redwood and iron tools became readily available; canoes were built more easily and were more numerous than previously. While canoes may be more numerous now, it is obvious that Goodenough vastly underestimates the number of canoes possessed by islanders in the pre-contact and early contact period.¹ The early whaling accounts, in the period when hoop iron and axes were only just beginning to replace shell adzes, show that flotillas of 30 to 50 canoes were not uncommon sights, even on small, dry islands (like Tamana)

¹ It is also possible that Goodenough overestimates the importance of large timber to canoe construction. Vivian (1871-2) describes a canoe seen by him on Arorae where the largest plank was less than 33 cm long, only 6.5 cm wide and 1 cm thick.

lacking forests of large trees (Log of Harvest, 24 March 1831; Log of Nautilus, 16 Aug. 1835; Log of Margaret Scott, 19 Feb. 1853; Log of Abigail, 13 Jan. 1850; Log of Prudent, 25 Jan. 1852).

This suggests that there was always a capability for quite intensive use of the deep-sea fish resources. To suggest that the islands were mainly dependent on inshore fishing also raises the question of whether these areas were able to support the intensity of exploitation given the likely size of the island populations (see Table 4-1). This applies particularly to Tamana which lacks lagoon resources and has only 12 km of coastline surrounded by a narrow reef flat and shelf. It is doubtful that these areas alone would have been able to supply the protein requirements of a population of 1000 and deep-sea fishing was probably always an important part of Tamana economic life.

The Storage of Food

Before going on to consider the organisation of production, brief mention should be made of the preservation and storage of food. Several examples have already been mentioned. Coconuts were capable of being stored for several years in okai or special storehouses. The last of these okai on Tamana was broken up in 1961 and sold for copra. It was alleged to contain 30 bags (about 1.5 tonnes) of copra. Toddy was boiled down to make kamaimai which could be stored. Babai was grated and dried. The pandanus fruit was prepared for storage in a number of ways producing kabubu and te tuae and even the small fig te bero was sundried and stored. Breadfruit was prepared for storage by slicing, soaking in saltwater and sundrying. None of the living residents had knowledge of pit fermentation of breadfruit cited from eastern Polynesia and some parts of Micronesia by Golson (1972: 19). Fish was sundried or salted and sundried; sharkskin, octopus and shellfish were also sundried and stored. These preserved foods were presumably stored in special receptacles in the lofts of houses. It is tempting to regard them as a response to the need for food reserves during droughts, but given the frequency, intensity and duration of droughts in the southern Gilberts it is, with the exception of coconuts, doubtful that enough dried food could have been stored to make a significant difference

to survival chances. In any case, fresh fish and toddy from the tetabo (the place of staying alive) lands probably remained the most important foods during droughts. The stored foods were probably to augment normal food supplies and enable the household to respond to the need to supply short-term needs for extra food, particularly for feast and other special occasions.

The Household Structure, Ownership of Capital and the Organisation of Labour

Because of the radical changes in residence patterns and household structure which accompanied the missionary-directed resettlement of the Tamana population in 1879 in the present village area (Powell 1879), it is very difficult to suggest how labour and production in the traditional economy was organised.

Clearly, the main residential unit was a collection of separate dwellings (mwenga) aggregated into kainga, and rights to residence therein were traced through either parent, but with a preference for continuing residence within the father's kainga. Where pressure on residence sites within the kainga prevented this the eldest son would eventually inherit the father's mwenga and younger sons would be sent to set up their households in the kainga of other grandparents. Married women normally lived in the kainga of their husbands. Thus a kainga would contain households of: (1) the head of the kainga, his spouse, unmarried children who have not been adopted, unmarried adopted children and possibly the eldest son and his wife and children if married. In the absence of male descendants the husband and children of the eldest daughter might live with her in her father's kainga; (2) the additional mwenga of however many sons and their families as might be accommodated and in exceptional circumstances the families of daughters or other kin. Men usually married soon after completing initiation (about 28 years of age) and women soon after reaching puberty, setting up a mwenga in whichever kainga they could establish themselves in.

In some aspects at least the mwenga must have functioned as an independent unit because the bush lands (and hence access to land-based

resources) was vested in the individual and not the clan and it must have been the individual rather than the clan who took decisions on the management of land and the planting of coconuts, pandanus and probably even babai. Because most agricultural production was concerned with slow-maturing, long-producing tree crops,¹ decisions on land management would, in all probability, have had little emphasis on immediate consumption needs, but rather on the necessity to secure adequately productive lands for one's descendants.

However, at levels beyond the management of bush land and the consumption of its produce, the distinction between the mwenga and wider social units such as the kainga and utu is less clear-cut because of considerable interaction between various kin, both resident within the same kainga and outside it. The gifts of food to the head of the kainga have already been mentioned. Common residence and kinship obligations provided the basis for cooperation in the organisation and celebration of feasts, in everyday activities, such as deep-sea or net fishing, where the participation of more than one active individual was required and also in such major capital-creating tasks as housebuilding, babai pit construction and canoebuilding. The complex overlap between mwenga, kainga and utu is nowhere more evident than in the individual's changing responsibilities and even residence with age. For long periods at specified ages males in particular were resident in other mwenga, or spent long periods in the young men's house. With women, even when resident in the mwenga, there were long periods when they were required to be non-productive and constantly attended by other members of their kin group. Under these circumstances it is doubtful whether the mwenga could be regarded as an independently functioning economic unit.

The Division of Labour

The basic division of labour was that based on sex and age. According to Grimble (1921a:37) young boys were separated from their mothers, sisters and the fellowship of girls their own age from five years

¹Even ikaroï babai takes several years for the tuber to get to a size suitable for presentation purposes.

old and from then, until the beginning of his initiation some 18 years later, he would be expected to assist his father in the hard manual labour of food-getting on land and sea. From various members of his utu he would learn skills in dancing, chant composition, fishing, canoebuilding, housebuilding, weapon use and so on. From the age of ten onwards a boy would be likely to spend a great deal of time in his grandfather's household and there learn the jealously guarded traditions of the family relating to ancestors and ancestral spirits, star and weather lore etc. In return the boy provided companionship, labour and sustenance for his aging relatives and for which he might in return inherit aba n tibu (land of the adoptive grandfather) directly. On some islands young males undergoing preparation for initiation were segregated with their tibu for periods of up to five years and supported during this time by their kin. It is not certain that this applied on Tamana because of the presence of communal young men's houses. After initiation into the rorobuaka class a male was expected to marry, set up household in his father's kainga and begin the cycle anew. With age the individual would become less active and take an increasing interest in the affairs of the kainga and maneaba, eventually becoming a member of the unimane, the highest and most privileged status position in I-Kiribati society. Thus age was probably the most important determinant of a male's activities during his lifetime and he would have been expected to participate skillfully in the whole range of male activities: fishing, babai, coconut and pandanus cultivation, construction, warfare and so on. There appears to have been no great degree of specialisation in production although Powell (1871-2) records the presence of a class of boat-builders called Tiamokuru (probably Tia makuri, a general term for artisan, more especially a supervisor) and certain groups were recognised as possessing particular skills in babai cultivation, toddy cutting and the like, but these skills remained the exclusive property of the kin group.

In contrast to the heavy manual work allotted to boys, large parts of a woman's early life seem to have been spent in enforced idleness. At the onset of their first menses Tamana girls were shut up (Powell 1871-2), presumably in the ko or screened bleaching house described by Grimble (1921a:42) in preparation for marriage. While in the bleaching house (which may have been for a period of a few to as long as 18 months) a girl was attended only by her parents and grandparents who were responsible

for anointing her with coconut oil and feeding her. The enclosure was evidently so dark that it was impossible to do any manual work while in the bleaching house (Grimble 1921a:43). Her adoptive grandmother was usually her constant companion who, during the seclusion, taught her spells connected with love, healing and the culinary arts. On Tamana the period of seclusion ended with a dance in honour of the god Diki, marriage and renewed incarceration until pregnant¹ (Powell 1871-2). Girls often received a gift of land from their mother on marriage. Once pregnant the woman lay apart from her husband in the care of her mother, mother's sister or husband's mother and from the seventh month of pregnancy onwards was in the constant care of two kinswomen (Grimble 1921:35). It was not until the baby was weaned, which occurred perhaps after 18 months that the mother cohabited again with her husband and spent any long period out of doors (Grimble 1921a:36). Women's main activities centred on cooking, making handicrafts, thatch, mats and blinds for the houses, spinning cord for canoes, weapons, fishing lines, some phases of babai tending, fishing on the reef flat and preparing preserved foods and coconut oil. Many of these activities would have been carried out in cooperation with other women within the kainga. Present-day informants claim that the airiri groups which are now important elements in organising cooperative work between essentially unrelated households were also operative in pre-contact periods but it is impossible to verify this claim. The airiri groups will be discussed more fully in Chapter 9.

Land, Capital and Resource Access

Land was clearly the most enduring "property" in the island society and as well as providing access to a means of livelihood it also provided a means by which individuals identified as groups and by which identity could be demonstrated through the generations. Because bushlands were inherited by individuals from individuals it also specifies

¹ Grimble (1921a:32) claims that on Banaba the bride and groom were, after marriage incarcerated in a specially built house until the girl became pregnant or it was evident that she was barren. The same may have applied on Tamana, although evidently not on the other islands described by Grimble.

social relations and underlines an individual's rights and obligations toward certain people. Land "ownership" in the I-Kiribati context is akin to an entailed estate where the title-holder is in the position of the trustee with rights to control use of the property during his lifetime but no freedom to dispose of it other than in ways set down in the customary land tenure system. A parent could not disinherit his or her children unless it could be demonstrated that they were guilty of neglect. Title-holders were also expected to maintain the lands in a productive condition for the benefit of their descendants.

The customary tenure system has been codified with the present Gilbert and Phoenix Island Lands Code which represents the accumulated experience of such Native Lands Commissioners as Grimble, Maude and Townsend in adjudicating tens of thousands of land disputes (Maude 1963: 34). The general rule governing the inheritance of bush lands was that individuals had rights to inherit land from both parents with all children receiving approximately equal shares except that the eldest son received more than his other siblings and that sons received more than daughters. When the transfer actually took place was probably a matter of individual circumstance with adult children using lands belonging to parents while the latter were still living. On Banaba the land was divided among children when they became old enough to fend for themselves with the parents reserving aba ni kare for their own maintenance in their old age (Maude and Maude 1932: 288). Illegitimate children were covered under provisions for the aba n nati n tama (land of the bastard child) where the bastard child was entitled to one land, one babai pit and five niba (small holes each taking one babai plant) from his father. Where an individual died without issue his lands were divided among his siblings, half siblings or more distant kin in the absence of close kin. When lands were distributed it was evidently the practice to subdivide all lands and thus ensure that all recipients got lands within each of the different ecological zones and were thus better placed to cope with the vagaries of the climate.

Several forms of non-biological transfer also occurred. They were probably not numerous but may have had some significance in allowing for the redistribution of land between more distant kin groups. They included: te aba n tabetabe or te aba n natinati (the land of the adopted child where a child could inherit land from either or both of his adoptive

parents; te aba n tibutibu (the land of the adopted grandchild) where the child could receive land from a grandparent in return for caring for the grandparent in his or her old age; te aba n kuakua or te kaburebai (the land of nursing) where a non-relative or distant relation could receive land in return for caring for a benefactor during a long illness or old age if the recipient of the care had been neglected by his immediate family; and finally te aba n akoi (the land of kindness) where land could change hands in return for a kindness shown to the owner. The guiding principle governing all these latter forms of transfer seems to have been the recognition that the transfer could only take place if it did not leave the immediate kin of the donor in hardship.

Land also figured prominently as compensation for such crimes as murder, theft, breaking of betrothal, and adultery. Two plots of land, one from the murderer's male ascendants and one from his female ascendants formed part of the te nenebo compensation for murder and under te bain ira (literally the "thing of theft") land was conveyed as compensation for theft (Maude 1963: 47). Silverman (1971: 74-5) suggests that these payments represent the substitution of land for life or substance in a continuation of the blood and land theme played out in kinship relationships.

Land boundaries were marked in a variety of ways before the present system of Land Court-established boundaries, set with marker stones, was established. Because of the small size of many lands and the lack of distinctive topographic features some artificial system of demarcation had to be employed and this often took the form of distinctive marks on trees, or where these were absent trees were planted along the boundary with two nuts being planted in each hole. Title did not give the owner the right to deny others movement across his land. He had rights to most of the produce growing on it; to the wood, fruits and leaves of living trees, but not to dead leaves, firewood and plants used for compost. Because land suited to babai pit excavation and babai cultivation was restricted in distribution an individual could approach another landowner for permission to excavate a pit on suitable land. The owner of the land had no claim to produce from the pit and on the owner's death the pit was inherited by the excavator's offspring.

Thus the individual gained rights to the use of land and babai pits by virtue of his membership of the utu and unless he failed to

honour his responsibilities to his ascendants he could not, in theory, be denied land and hence sustenance. Ownership and access to the other capital items necessary to work the land and fish the sea are less well documented, but given that the agricultural system was based predominantly on tree crops which were inherited with the land, the equipment necessary to organise production was probably neither complicated nor difficult to procure. When a girl married she was given a coconut grater (see Fig. 4-7), grating mats, and a mallet used for pounding pandanus leaves (Bate, Tiata *et al.* 1979: 25) and with these she would have been able to manufacture most items of household necessity. Similarly, many of the items used in construction and fishing such as adzes (see Fig. 4-8), hooks, lines and small nets were manufactured from freely available raw materials and readily accessible to all individuals. Major capital items such as houses, canoes and babai pits were constructed with assistance from utu members but remained, as far as can be established, the property of individuals. The raw materials required for these were gathered from the individual's land, or if lacking on these, were cut after permission was sought from other kin's land. In most instances pandanus and coconut timber and thatch were widely available. Since canoes were of small plank construction similar to those of the present day the scarcity of large timber on Tamana because of its small size and dry climate may not have been a limiting factor. The small fishing canoes were probably owned individually, but the large baurua and ruarua¹ (canoes and boats 10-20 metres long and capable of taking many people on inter-island voyages were probably owned communally, probably on a kainga or even district basis.

Society and Environment

Given the limitations of the Tamana environment, its small size, poor soil and unpredictable climate and its isolation from extensive cross-

¹One of these was presumably the native "boat" with 23 men on board seen off Tamana by Vivian in 1871 (Vivian 1871-2). Bingham (1908: 152) identifies the ruarua as "a wide canoe without an outrigger" and Lundesgaarde (1966: 56) argues that it was an aboriginal I-Kiribati watercraft and notes that it was said to have been used on Tamana prior to World War II. However, Matatia, an informant on Tamana, says that these were in fact copies of whalers' boats and built only after hoop iron and metal axes were introduced.

cultural contact, the very persistence of the society over time and the maintenance of its cultural identity is a matter of wonder. Its success in this must have depended to a large degree on the society's technological ability to exploit the more stable and productive elements of the environment, particularly the resources of the open sea, but success can also be attributed to the inherent flexibility of the social system. As Goodenough (1955: 80) points out the overlapping membership inevitable with unrestricted descent groups make them an excellent vehicle for keeping landholdings equitably distributed throughout the community and in addition resource manipulation through consolidation of property within a kainga or the direction of its redistribution feasible. If pressure on one descent line's resources threatened the survival of its members, rights in other groups could be reactivated, or if clashes of personality between members threatened the successful cooperation of members in everyday economic activities residence could be sought in another kainga. Fosterage, adoption and the placing of married children on somewhat more distant family estates ensured that each residential unit had adequate personnel for the successful utilisation of its resources and that all available resources were utilised and thus alternate modes of residence and kin group composition provided security for members of all generations. In theory no individual, unless by personal choice or asocial behaviour could be denied access to at least some land and thus sustenance. He could also expect the assistance of his kin in the construction of his house, canoe and babai pits as well as food and labour for the celebration of important events in the life cycle of his household. In return the individual was required to honour certain obligations to his ascendants and render similar assistance to his wider kin group. Without such reciprocity existence would undoubtedly have been far more precarious.

Both within the utu and in relations between kin groups the status hierarchy based on age and sex was of prime importance. The unquestioned acceptance of elder and male authority stressed the efficacy of tradition in meeting the demands of survival. The affairs of the wider society were managed by the unimane; a gerontocracy whose activities were concerned mainly with the regulation of conduct and the control of any activities which might weaken and disrupt the community. These were dealt

with severely, with death or banishment being the penalty for severe or persistent transgression. If the present-day value system¹ reflects the traditional value system rather than an amalgam of traditional and post-missionisation Protestant values (and there are no real reasons to believe that it does not), then in pre-contact times, as now, it stressed equality, cooperation and conformity with the social norms of hard work, skill in fishing, generosity and humility rather than self-aggrandisement and the accumulation and consumption of increased wealth. Special skill and abilities were only valued if they benefited the society as a whole. In a society where resources were scarce and very existence precarious, there would have been no room for other values without hardship, conflict and social disruption.

Pre-Contact Population and Resources

The final expression of the relationship between a society and its environment must be in the size of the population it can support given the physical resources of the environment and its technological ability to exploit them. In this, Sauer's (1941: 7) distinction between the "physical" and "cultural" environment and Rappaport's (1963: 159) distinction between "operational" and "cognized" environments could be important. The "physical" or "operational" environment encompasses the whole structure of interacting physical and biological elements affecting the ecosystems of which the humans are a part; the "cognized" or "cultural" environment is composed of the sum of the phenomena ordered into meaningful categories by a population; in short, resources as cultural appraisals. In some environments the two may differ substantially, but in the context of the atoll environments of Kiribati the distinction may not have great validity because the two overlap substantially. The young, low, calcareous islands do not provide the same potential for ecosystem development as larger land masses with more varied relief, lithology and microclimate and where long spans of geological time have enabled the development of considerable biological diversity. Thus it is probable that the "operational" and "cognized" environments of the

¹See Chapter 6.

atoll dwellers were not greatly different and presented little scope for action in the elaboration or development of novel approaches to expand or intensify the community's resource base in the manner postulated by Boserup (1965).

The impossibility of Tamana's limited environment to supporting a human population without some form of regulation was obvious, even to the missionary Marriot who recognised that the success of Christianity in outlawing old methods of population control would soon necessitate government action to resettle the surplus population (Marriot 1898). The size and dynamics of the pre-contact population (at which time most communities could be regarded as operating as entities in small and clearly delimited ecosystems) becomes a question of considerable interest and begs the question as to whether an equilibrium between population and resources did exist, whether population growth led automatically to the exhaustion of resources and crisis and finally what was the nature of mechanisms operating to maintain equilibrium or to restore the balance once a crisis point was reached.

Bayliss-Smith (1975: 292) identifies two ways in which the population/resource nexus might be achieved. The first is by the practising of direct cultural checks on fertility whereby a stable equilibrium population could be maintained at a level below that where resources would become a limiting factor. On Tamana this could have been achieved through infanticide, abortion and delayed marriage. The second nexus is a crude and fluctuating balance which relies on "Malthusian mortality" to reduce population levels once it exceeds the capacity of the environment to sustain it. On Tamana death from malnutrition or emigration because of drought would have achieved this effect. Thus these mechanisms on Tamana would not have been mutually exclusive; both would have come into operation at different times in response to prevailing environmental conditions. The practising of infanticide, abortion and delayed marriage may have been effective in preventing the base population becoming too large to be supported by available resources when conditions were favourable, but they could do nothing to avert the impact of droughts as severe as those experienced in the early 1870s (see p. 61). The question is really one of whether these events were infrequent enough to necessitate the implementation of cultural checks in the intervening periods, or alternatively, whether

equilibrium-seeking measures could keep the population levels below levels where recurrent crises would exert an overriding influence on population numbers. Given the frequency of severe droughts on Tamana, the whole concept of an equilibrium population or of "carrying capacity" may have little relevance.

Unfortunately, there are insufficient data on pre-contact populations to even hazard a guess at what the equilibrium population was (if in fact one existed) and what the frequency and intensity of operation of any regulating mechanisms might have been. Reliable population figures relate only to the period commencing about 1870, long after recruiting was known to have reduced island populations. Randall, a trader on Butaritari with wide experience in the Group (though not of Tamana) estimated that the 1861 Tamana population was around 3000 although the figure is probably much too high (Bedford *et al.* 1980: 202). The first reliable population count took place in 1872 when the population stood at exactly 1000 (Pratt 1872). The latter figure would have shown the effects of further recruiting and possibly some mortality resulting from drought in 1862, but it is unlikely that the combined effect of these would have accounted for 2000 people. All that can be said from these figures is that the island was capable at some time of supporting populations in excess of 1000 people. Events in 1863, 1872-75 and 1877 suggest, however, that at this level the island population was at a critical level where any fluctuations in island productivity were translated into changes in mortality patterns. In 1863 the whaler Navy called at Tamana and finding the islanders in a starving condition, shipped 150 of them off to Arorae (Log of Navy, 17 Jan. 1863). In 1881 Schumacher, a trader on Tamana, told the captain of HMS Emerald that, in the years 1872-75, 800 people had died of famine and disease (Maxwell 1881), although this is probably an exaggeration. In 1877, and despite the reduction in population pressure due to deaths in 1872-75, a further 216 people died of starvation according to the resident native pastor (Turner 1878). From this it is clear that even at population levels around 1000, the ability of the island to support its population during drought was exceeded. If, as is likely, measures were taken to keep population levels down, such measures did not succeed in keeping the population below a level where recurrent crises such as the droughts in 1862, 1872-5, and 1877 would have had no effect.

Table 4-1. Estimated Island Population Densities, 1860

Island	Estimated 1860 Population ^a	Land Area ^b	Density per km ²
<u>Gilbert Islands</u>			
Makin/Butaritari	2000	20.3	99
Marakei	1600-1800	13.6	118-133
Abaiang	2700-3000	16.0	169-188
Tarawa	3000-3300	23.2	129-142
Maiana	1700-2000	15.9	107-126
Abemama	2500-3000	27.8	90-108
Kuria	800-1000	12.3	65- 81
Aranuka	800-1000	15.5	52- 65
Nonouti	3400-3700	29.2	116-127
Tabiteuea	5200-5500	38.0	137-145
Beru	2300-2500	14.7	156-170
Nikunau	1800-2000	18.2	99-110
Onotoa	1600-1800	13.5	119-133
Tamana	900-1100	4.8	187-229
Arorae	1200-1400	9.5	126-147
<u>Tuvalu</u>			
Namumea	500	3.9	128
Namumanga	300	2.8	107
Niutao	450	2.6	173
Nui	300	2.9	103
Vaitupu	400	5.6	71
Nukufetau	250	3.0	83
Funafuti	300	2.8	107
Nukulaelae	300	1.9	158

^afrom Bedford, R., Macdonald, B., Munro, D. (1980: 236) Population Estimates for Kiribati and Tuvalu, 1850-1900: Reviews and Speculation.

^bin sq km from Table I 1973 Census Report.

Table 4-1 presents Bedford et al.'s (1980: 236) estimates of island populations in the Gilbert Islands and Tuvalu in 1860. These figures suggest that Tamana had a higher population density than any other island, even the wetter and supposedly more productive islands in the north. The Tamana figure is all the more surprising when it is remembered that Tamana is a reef island lacking the readily accessible resources of a lagoon. There appear to be no cultural or epidemiological reasons for the difference in densities. As far as is known abortion and infanticide were practised as a means of population control in the Gilbert Islands and Tuvalu well before European contact. The practice of late marriage for men and restrictions on intercourse between husband and wife for up to 18 months while preceding infants were suckled may also have had some effect in reducing fertility (Bedford et al. (1980: 207-8) but there is no reason to suggest that these applied other than equally to all islands. Yaws was the only widespread endemic disease in the Gilbert Islands and the population was probably a uniformly healthy one. The small size of Tamana and the homogeneous character of its society may have reduced the frequency and intensity of inter-group warfare which Bedford et al. (1980: 208) considered to be a major cause of mortality among adult males in the Gilbert Islands. There is also no reason to suggest that Tamana was any less affected by the depredations of recruiting ships than other islands. In fact, it is probable that recruiting affected the southern islands more severely than those to the north. However, these questions remain of somewhat academic interest because the arrival of the whalers, traders and missionaries heralded the beginning of the integration of the islands into a larger and more diverse system where the rules of the game were substantially changed and through culture change and the introduction of new cultural elements the meaning of the island environment to Tamana people and its relationship with other islands in the Group and the outside world changed irrevocably.

In the pre-contact context the southern islands were largely unaffected by the inter-island warfare, conquest and struggles for dominance which seem to have been associated with the emergence of dynasties of secular chiefs in the northern islands and while linkages between clans on different islands did result from intermarriage, colonisation and previous conquest - as far as can be established no island or district exercised power over another's people or resources. In the southern islands at least, all islands were in much the same situation and the concepts of core and periphery had at that time no relevance. The

arrival of whalers, traders, missionaries and government administrators, all part of the expanding industrialisation and imperialism of the west, fundamentally changed this and the islands became part of the periphery of the industrialised world. Because the impact of the new forces was not the same on all islands certain centres within the Group began to emerge for differing reasons at differing times as local "cores" within the island context.

Chapter Five

CONTACT

The islands of Kiribati first came into the ken of Europeans as a result of Spanish activities in the Pacific with Flint Island being sighted by Magellan in 1521 (Maude 1968: 47), Christmas and Nonouti by Grijalva's crew in 1537 (Maude 1968: 50-51) and Butaritari in 1601 by Quiros (Maude 1968: 77). Neither these, nor early British incursions into the area (beginning with Cook in 1777 and increasing in frequency after the setting up of the convict settlement in Port Jackson in 1788), had any great impact on island society. The earliest surviving record of a landing on Tamana by Europeans was in 1804 when George Cary of the American ship Rose en route from Port Jackson to Canton spent two days there bartering "wire hoops for beads and coconuts" (Log of Rose, 4-6 March 1804).

Such early incursions into the region were, by their very nature, necessarily fleeting and their impact on the islanders' lives unknown. However, with the expansion of the mercantile and industrial economies of Western Europe and America and the growth of imperialism and the development of plantation economies in Queensland, Fiji, Samoa, Tahiti and Hawaii, the search for new raw materials, new trade outlets and cheap labour, the frequency and intensity of contact increased. It is possible to distinguish several distinct phases within the contact period, each focussed on the exploitation of different resources. The earliest emphasis was on whaling but as the whale herds were decimated and the industry declined, emphasis shifted first to coconut oil (which with its need for casks and its marketing was an easy adjunct of the whale oil industry) and later to copra. With the development of plantations and the generation of a demand for cheap labour, the island trade extended to deal in human commodities, first with "blackbirding" and later in a more regulated form setting up a pattern of circular migration between the islands and the plantations which was subsumed in the early 1900s into the phosphate extraction industry on Ocean Island (Banaba) and later Nauru. The opening up of trade in the area was followed closely by the penetration of American, British and French missionaries into the area and, as the imperial powers

saw the need to regulate their nationals' activities in the area. In April 1886 Britain and Germany signed the Anglo-German Convention in Berlin which placed the Gilbert Islands within the British sphere of influence and resulted in Great Britain's reluctant declaration of a Protectorate over the Gilbert Islands in 1892 (Morrell 1960: 272-4).

For various reasons the impact of these new associations did not affect all islands in the Group uniformly. Whaling activities tended to concentrate in the area to the southwest and probably had the greatest impact on the southernmost islands which responded to the new opportunities by engaging in a provisioning trade exchanging pigs, fowl, coconuts and womens' favours for tobacco, iron and fish hooks. With the development of the coconut oil and copra trade the emphasis shifted to the central and northern islands where coconut productivity was higher and pressure on land resources (because of warfare and conquest) lower. Similarly, the impact of early mission activity and colonial administration was greatest where trading activities were already concentrated and served by better transport linkages, services and other amenities than the more remote, less developed islands.

In most instances the early culture contact does not appear to have produced the traumatic and far reaching effects experienced in Tahiti, Hawaii and New Zealand (see Moorehead 1966). The local communities seemed to be highly receptive to the assimilation of immigrants and despite violent incidents such as that at Nonouti on 19 January 1848 when the islanders led by a Spaniard attacked the Alabama (Log of Alabama, 19-24 Jan. 1848) relations between the whalers and islanders seem to have been remarkably good. The introduction of weapons probably substantially increased the efficacy of inter-island warfare particularly in the central and northern islands, and Nauru (Log of Zone, 25 Sept. 1856) and aided the emergence of secular dynasties such as that of Baiteke and Binoka on Abemama (Maude 1970) and Kaiea I and Kaiea II on Abaiang (Macdonald 1982: 29). On Tabiteuea early attempts at missionisation led to conflict between groups and the final attempts of the Protestants with their Hawaiian pastors to crush the Tahitian-led, quasi-Christian Anti-n-Tioba (probably meaning "Spirit of Jehovah") movement resulted in the crushing defeat of the Southern Tabiteueans and many deaths (Geddes 1975: 17, Nalimu, Hawaiian Gilbert Islands Church Reports Tabiteuea 1870-92). However, these instances appear to have been somewhat isolated and, in

the Southern Gilberts at least, the communities showed a remarkable facility to assimilate change. The "Swords of Gabriel" incident on Onotoa in 1930 appears to have been the only recent messianic movement, but this was short-lived and based in sectarian jealousies between the Roman Catholics and the LMS (Maude 1967).

The Whalers

The first major impact began with the growth of the whaling industry in the Pacific. Whaling began in 1788 and early attention was focussed on the "on-shore grounds" off the South American coast, the "Japan grounds" and "on-the-line grounds" which stretched along the equator from the Line to Gilbert Islands and were first fished in 1819. By the 1840s the Kingsmill (Gilbert) Islands and particularly the areas off the southwest of Tamana and Nikunau were important whaling fields. American, British, French and Australian whaling interests were active in the area, but abundant records survive only for American whalers. Maude (1968: 122) notes that the British logs, almost without exception, have been destroyed. A study of over 80 of the surviving American logs¹ suggests that the ships followed definite routes through the area and often spent several years in the Pacific fishing the grounds off Japan and in the Sea of Okhotsk in the northern summer, coming down through Guam, Nauru and Ocean Island on to the equatorial grounds during the northern winter, sometimes going on to New Zealand and Antarctic waters. Since the ships were away from port for long stretches and had no shore bases in the islands, the captains were keen to procure provisions, water, firewood, women, and replacement crew where feasible and it is clear from Table 5-1 that particular islands were visited more frequently than others. Whaling activities appear to have diminished substantially in the 1870s, presumably as a result of overfishing.

On many islands the trade which developed was probably infrequent, insignificant in volume and had little impact on the islanders' lives. It resulted in exchanges of coconuts, curios, hats, mats, firewood and

¹ Copied under the two New England Microfilming Projects of the Pacific.

Table 5-1. Shore Contacts by American Whalers and Traders in the 19th Century

Years	Makin/Butaritari	Marakei	Abaiang	Tarawa	Maiana	Abemama	Kuria	Aranuka	Nonouti	Tabiteuea	Beru	Nikunau	Onotoa	Tamana	Arorae	Ocean Is.	Nauru	Nanumea	Niutao	Nui	Vaitupu	Nukufetau	Funafuti	Nukulaelae	Niulakita	Nanumanga
1800-1809														1												
1810-1819																										
1820-1829						1				3	1	3	3	5	6			1		1	1	1	1			
1830-1839					1			1			2	6	2	2	5	5	8	1						1		
1840-1849	4				2	4	5	2	12	7	9	23	6	22	22	34	35			1	5	3	1			
1850-1859	27	1	20	4	6	22	17	9	13	13	15	41	12	45	44	53	44	1		1	1		1		1	
*1850-1859	16		1	1	4	11	16	9	13	12	15	39	11	43	40	52	43	1		1	1		1		1	
1860-1869	1					2	2	1	2	4	8	13	3	17	15	37	21	1	1	1		3			1	
*1860-1869	1					2	2	1	2	4	8	13	3	17	15	36	20	1		1		3			1	
1870-1879	1	1				1			1	3	4	3		2	3	7	8	1								
1880-1889																1										
1890-1899						2						1				2										
Total contacts excluding those of Belle	22	1	1	1	7	20	23	13	28	29	39	88	27	92	91	137	114	5		4	7	7	3	1	2	

Source: Langdon, R. E., ed. (1979), Thar She Went: An interim index to the Pacific ports and islands visited by American whalers and traders in the 19th Century which applies only to material copied by the Pacific Manuscripts Bureau's New England Microfilming Projects which encompassed between 2000 and 3000 log books. The figures presented here must represent the tip of the iceberg because they relate only to surviving American logs. It is clear from these logs that other, often American, whalers were in the same waters at the same time although no records survive. There is no reason to suspect that the movements of the latter would have been substantially different from those of ships for which logs survive.

*Excluding visits by the ship Belle under Captain Handay which appears to be the second ship in the area to engage in organised trade for coconut oil. The Herald was probably the first, calling at Abemama, Kuria, Nikunau, Beru, Arorae and Tamana where it left 50 barrels on-shore for oil. The Belle spent several months in the area in 1851 and 1852 leaving a supervisor, empty casks and trade goods on each island, returning later to collect the full casks. From the figures it is obvious that she was more active in the central and northern Gilberts.

women's favours most frequently for tobacco, but also for hoop iron, wire, nails, fish hooks, knives, hatchets and whales' teeth. The Nauruans were very keen to get muskets from the Zone in 1856 for use in a civil war then raging on the island (Log of Zone, 25 Sept. 1856). Some islanders volunteered, or were recruited as crew to work on the whalers. Parties of islanders used the whalers as a means of travel between islands. Later the trade developed to include local products such as kamaimai (called by the whalers "brown stuff" or "molasses") and possibly babai or tuae (depending on whether the word tauew used in the Martha log was in fact "taro" and hence babai or tuae, preserved pandanus) (Log of Martha, 24 Nov. 1853). Pigs, pumpkins (on Ocean Is) (Log of Canton, 8 Sept. 1853) and squash and watermelon (on Nauru) (Log of St George, 15 Jan. 1852) were all presumably introduced by the whalers. Jarman (1838: 169) records that the ship Juno when in the vicinity of Tamana had its decks loaded with live pigs brought from the Navigators Islands [Samoa] and coconuts were used to feed them. In 1851 the crew of the St George gave a goat to the people on Arorae (Log of St George, 20 Dec. 1851).

Nauru, Ocean Island and Tamana appear to have been pre-eminent in this vegetable and livestock trade but the reasons for this are not obvious. The better soils and more dense forest of the raised atolls (Nauru and Ocean) may have provided more scope for vegetable growing and timber-getting and the location of these islands and Arorae close to important whaling grounds between them may be important factors. However, the response of individuals to the prospects for trade was also important. Munger on the St George notes that the Tamanans "appear more anxious for trade and bring off articles of more value than their neighbours. Poultry and hogs were sold very cheap here. These I think are not raised on Hope Island [Arorae]." (Log of St George, 9 Jan. 1852).

For the islanders' part trade was actively sought, even on islands not raising pigs and fowl, and flotillas of up to 40 canoes are recorded sailing up to 12 miles out from an island to trade with a whaler (Log of Rose, 5 March 1804; Log of Martha, 27 Oct. 1847). On Onotoa four Europeans resident on the island in 1853 were very active in the trade (Log of Canton, 19 Aug. 1853), but the islanders were also active and at Nauru when the Navy called there in 1871 the islanders were actively competing with the Europeans for trade (Log of Navy, 1 March 1846). Tobacco seems

to have been the predominant item of exchange. In 1846 the Lucy Ann gave five to six pounds of tobacco and one hatchet for five fowl and 1,200 coconuts (Log of Lucy Ann, 1 March 1846); in 1850 the Abigail was giving two heads of tobacco per fowl (Log of Abigail, 14 Jan. 1850) and in 1856 the going rate for a pig was five pounds of tobacco (Log of Zone, 15 Sept. 1856). Poor grade tobacco cost 13 cents a pound in 1855 (Maude 1968: 244). The importance of tobacco to the I-Kiribati cannot be overestimated; Hudson of the United States Exploring Expedition (Wilkes 1845: V: 62) gives a colourful description of the I-Kiribati use of tobacco in 1841: "they are truly disgusting for they eat it and swallow it, with a zest and pleasure indescribable. Their whole mind seems to be bent upon obtaining this luxury and consequently it will command their most valuable articles".

On Tamana contact with the whalers was infrequent before the 1840s. In 1827 the Independence called in and traded for coconuts and women leaving a shovel to aid in well-digging (Log of Independence, 2 Sept. 20 Oct. 1827). The Harvest called in 1831 and "found the natives friendly but nothing on the island but coconuts" (Log of Harvest, 24 March 1831). By 1834 the first Europeans were resident on Tamana, having been left there by the William Penn (Log of Nautilus, 15 Aug. 1835). One islander sported the tattoo "Japan S. Chase" on his chest suggesting he may have served on the Japan which was in the area in 1826 (Maude 1968: 124). The first reference to trading in fowls is in the log of the Fortune which called on Tamana in 1843 (Log of Fortune, 19 March 1843). The William and Eliza bought 200 fowls on Tamana on 24 May 1845 and on a return call in January 1846 managed to purchase only 20 fowls (Log of William and Eliza, 29 Jan.-2 Feb. 1846). The trade in fowl seems to have reached a peak in the years 1850 to 1854. Between the 17th and 25th November 1853 boats from the Martha purchased 455 fowl from Tamana. In 1854 two ships, the Commodore Morris and the Canton, got more than 200 chickens at a visit (Log of Commodore Morris, 10 Oct. 1854; Log of Canton, 10 Aug. 1854).

Pigs first appeared as items of trade at Nauru in 1849 when both the Alpha and the Milton bought pigs there (Log of Alpha, 9 Feb. 1849; Log of Milton, 1849). The Mohawk bought pigs on Tamana in 1856 (Log of Mohawk, 11 Nov. 1856) and the Zone from Abemama in 1856 (Log of Zone, 15 Sept. 1856). Pigs were probably never obtained in large numbers, although the Massachusetts records getting about 40 pigs from Tamana in

1859 (Log of Massachusetts, 1 April 1859). On Arorae pigs were first mentioned in 1863 when the Europa got pigs there (Log of Europa, 28 Dec. 1863). The reference to buying beef on Tamana by the Lion in 1856 is not repeated in any other log (Log of Lion, 19 July 1856).

Kamaimai was purchased by the gallon or the barrellful and evidently appreciated for its anti-scurvy qualities.

There appear to have been two nadir points in the provisioning trade, both probably associated with severe droughts in the area. In the early 1860s the Maria Theresa and Young Hector record islanders coming off with very little trade and very few coconuts (Log of Maria Theresa, 2 Feb. 1860; Log of Young Hector, 9 Feb. 1860). It was in 1863 that the Navy took about 150 starving islanders from Tamana to Arorae (Log of Navy, 17 Jan. 1863). When the Live Oak called at Tamana in 1870 the captain was surprised to be met by only one canoe bringing a few coconuts and one chicken rather than the large numbers which normally came to meet the boats (Log of Live Oak, 6 Sept. 1870). Ocean Island was obviously in a bad state when the Triton called in 1873 and was met by several canoes bringing only a few fowls. The captain recorded (Log of Triton, 29 Jan. 1873) that:

the natives here are in a starving condition, everything is dried up. They have neither coconuts or anything else and live principally on fish and the bark of trees, they came on board begging for bread but would not sell any chickens for it, pipes and tobacco were in better demand.

The ethos of trade for tobacco was firmly ensconced.

The Impact of the Trade with the Whalers on the Island Community

The provisioning trade disappeared with the decline in whaling in the area and the subsequent loss of demand. It is difficult to estimate the impact of the trading on those islands which actively engaged in it. It certainly led to the introduction of pigs, new crops and new technology, particularly the substitution of iron for shell and wood in knives, adzes, shovels and fish hooks, but there is no evidence to suggest that this radically changed the economic life of the people. Iron and brass were used in the construction of fish hooks, pump drills, coconut graters and

the like without altering the basic design of the implement (see Fig.4-5). The canoes constructed with iron adzes still appear to follow the same basic design, although construction may have involved less time and effort. Despite this canoes did not appear to become more numerous. The Rose was met by 40 canoes when it visited Tamana in 1804 and traded what was probably the first hoop iron seen by the islanders for beads and coconuts. No later accounts report seeing substantially larger numbers of canoes in the water at any one time. At present, as the result of employment at Ocean Island and Nauru and the purchase of imported wood there, most households have at least one canoe and there could be as many as 280 canoes on Tamana but only a small proportion of these are in use at any one time.

The introduction of iron tools must have made babai pit construction enormously less arduous. However, it is impossible to ascertain whether the introduction of iron tools resulted in either the construction of a greater number of babai pits or less time being devoted to babai cultivation in a response similar to that described by Salisbury (1962: 219-20) among the Siane in the East New Guinea Highlands following the introduction of steel axes there.

The cutting of firewood for trade may have changed the vegetation pattern on some islands and led to a loss of valuable resources. The vegetables introduced by the whalers did not become permanent or important elements of island agriculture. It was, however, in the livestock field that the most important changes occurred and the speed with which pig and chicken-raising was adopted by a people with no tradition of animal husbandry is quite remarkable. The product seems to have been more important as trade items rather than contributions to local diet. Pigmeat is, and presumably was, an important feast food, but chickens were not used for food except in Butaritari, Makin and Ocean Island where their consumption may have reflected western influences (Grimble 1933-34: 28). Grimble (1933-34: 28) surmises that the avoidance of chicken flesh may have originated from its connection with the spirit Tabuariki, the ancestral deity of a local totem-sib and god of thunder and tempest.

Contact resulted in many islanders being able to speak at least broken English; some, probably those who crewed on the whalers, became

quite fluent. The trading also brought the islanders into contact with new diseases, particularly venereal disease and possibly smallpox. The captain of the Navy records that one of the crew had "gone off duty sick with the vernearial (sic), having purchased it in Honolulu" (Log of Navy, 20 Jan. 1863). Smallpox broke out on the Stephanie in 1864 four months after the boat visited Tamana (Log of Stephanie, 18 May 1866). The impact of such diseases during this period is unknown. No logs record epidemics among the island populations but the whalers' contacts were brief and superficial. Precise evidence on mortality from epidemics in the region is lacking and its effects probably restricted to individual islands (Bedford et al. 1980: 210).

By far the most interesting outcome of the interaction between whalers and islanders was the provisioning trade. It developed surprisingly rapidly and, while it may have been stimulated by resident Europeans on some islands, on others it was a purely indigenous response. The islanders saw the possibilities and actively sought the trade by taking their wares to the whalers and producing what the whalers wanted even to the extent of engaging in completely new activities such as raising chickens and rearing pigs, a completely new animal to the island people. Tobacco was the main commodity sought in return from the whalers. The trade lasted for some thirty to forty years, tempered by drought-induced fluctuations, and finally disappeared as a result of the decline in demand which accompanied the demise of the whaling industry in the area. For Tamana's part its location near one of the major whaling fields and the willingness of its people to pursue the trade gave the island a core position in the new economic order, a position which it lost with the demise of whaling. It never regained this position in the coconut oil and copra economy which began to develop in the latter stages of the whaling boom.

The Coconut Oil and Copra Trade

The land and inshore resources of the islands in the Group are so meagre that it is hard to imagine the development of a trade, with visits from the merchant vessels of America, Europe and Australia being focussed

on them. However, the Gilbert Islands were visited by the trading ships which combed the Pacific in the early nineteenth century in search of sandalwood, pearl shell, bêche-de-mer and tortoise shell. The two latter products were the only products available in the Group, and even then not in substantial quantities although a bêche-de-mer drying and curing station was in operation in 1835 at Abemama (Maude with Leeson 1968: 241). The trading potential of the islands changed substantially in the early 1840s when the development of new techniques in soap and candle manufacture created a demand for coconut oil. The trade developed initially as an adjunct to the whale oil trade where the whalers left a supply of barrels onshore to be filled and collected on their return (see footnote Table 5-1). The product was already manufactured by the islanders for their own culinary and toilet use from existing coconut resources but did not appear as an item of trade because it was considered of minor use to the European and therefore unsaleable. Maude with Leeson (1968: 242) records that the coconut oil trade was immensely popular with the I-Kiribati from its inception because it enabled them to get coveted European goods without any real change in their traditional way of life. The same productive techniques were used and the trade simply encouraged the islanders to produce a surplus which was then bartered. The development of new technology in Europe created a market for the islands' major resource, the coconut palm, and first coconut oil and then copra became the dominant export of the Group and remained so for many decades.

The coconut oil trade began as a sideline to whaling, possibly as early as 1842 on Butaritari (Maude with Leeson 1968: 244). The oil was either purchased directly from the islanders by the captain in ibu or coconut shell bottles, or accumulated on the island by agents appointed by the captain for which they received a commission. European beach-combers were often appointed agents although native agents, often individuals of high rank, were appointed in later years. Captain Handy of the Belle appointed the High Chief of Abaiang oil agent in 1849 (Maude with Leeson 1968: 244, quoting Pierson 1855). In either instance the oil was usually exchanged directly for tobacco.

Combined whaling-coconut oil trading soon gave way to trade centring on the resident trader. Richard Randall and George Durant established the first trading station in the Central Pacific Islands at

Butaritari in 1846 (Maude with Leeson 1968: 245). By 1852 Randall was a partner in the Sydney-based firm of Smith, Randall and Fairclough and had appointed agents on Abaiang, Tarawa, Maiana and Tabiteuea. Randall's trading station on Butaritari was described by Gullick (quoted Maude with Leeson 1968: 249) as being a thriving centre with storehouses, coopering, blacksmithing and ship repair facilities as well as provisions for watering and provisioning ships. The Butaritari and Makin stations were the only centres with stores; at other stations oil was exchanged for tobacco on a direct barter basis. The ships from Sydney called first at Butaritari and then spent several months trading among the islands; landing relief traders, trade goods and empty casks, and taking on time-expired traders and oil in casks. Randall's was probably the most successful trading establishment in the Group. Robert Towns of Sydney attempted several times to establish agents in the islands. During 1853-4 he appointed agents on Marakei, Tabiteuea, Nonouti and Tamana; establishing stations on Butaritari, Makin, Abaiang, Tarawa and the Marshall Islands in 1867 (Maude with Leeson 1968: 267).

By the end of the 1860s several important changes were taking place in the industry. First was the switch from coconut oil to copra (the dried flesh of the coconut), pioneered by Weber of J. C. Godeffroy and Son of Hamburg. The switch resulted in the establishment of bulk-handling facilities for copra in Apia, Samoa, and Sydney and the reduced need for elaborate diversified trading stations with blacksmithing and coopering facilities such as Randall had on Butaritari. The same period saw the entry of large scale businesses, such as Godeffroy, Messrs Henssler and Co, On Chong and Company and Henderson and MacFarlane into the industry. The trend away from tobacco as the only or major item of exchange, evident in the latter stages of the oil trade and suggesting increasing sophistication of demand, was intensified. The range of goods now available to the islanders included tobacco, pipes, firearms cloth and sewing goods, axes, knives and fishing equipment as well as soap, combs, looking-glasses and cooking utensils (Maude with Leeson 1968: 277).

By 1922 Stewart's Handbook of the Pacific Islands for that year records that On Chong and Company had stores on Butaritari, Abaiang, Tarawa (two), Nonouti and Tabiteuea; Burns Philp and Co. on Butaritari, Marakei, Abaiang, Tarawa, Abemama, Nonouti, Beru and Nikunau. The

Nanyo Boyeki Kaisha Company of Japan had a store on Butaritari and there were independent traders on Makin (1), Abaiang (2), Tarawa (3), Maiana (3), Kuria (1), Nonouti (1), Tabiteuea (3), Onotoa (2), Beru (2) and Nikunau (2). The handbook makes the comment that on Arorae and Tamana no traders were allowed ashore by the natives (Allen 1920: 153). With the onset of World War II all trading ceased and private trading concerns did not re-establish after the war. Their place was taken by the government and the cooperative movement it sponsored.

The regional impact and response to the coconut oil and copra trade has thus never been uniform; the early trade focussed on particular islands, especially Butaritari, Abaiang and Abemama while others such as Beru, Tamana and Arorae appear to have been relatively unimportant. These differences reflect in part the influence of the physical environment and population factors. The drier islands of the south appear to have had higher population densities (see Table 4-1) and this, coupled with the lower productivity of the palms under drier climatic conditions would have meant that the surplus available for trade was correspondingly smaller and the islands less attractive as trading prospects. It is also possible that the stratified societies of the northern islands permitted certain individuals within the community access to more land and labour, thus enabling more of the available resources to be diverted into copra production. Even if not actively producing copra for trade themselves, the High Chiefs of Butaritari, Abaiang and Abemama all endeavoured to become the principal trading agents for their islands or to levy a duty on all copra exported (Maude with Leeson 1968: 258-9). No trader could afford to alienate such chiefs.

Tamana and the Coconut Oil Trade

Tamana never achieved the same level of importance in the coconut oil trade as it did with the provisioning trade for whalers. This was in part due to its small size, dry climate and dense population leaving little surplus for trade which must have limited the islanders' ability to respond to the newly created demand for coconut oil. They had previously demonstrated their ability to respond to a similar stimulus by supplying the whalers with chickens, pigs, kamaimai and coconuts.

The whaling logs show that a small number of Europeans were resident on Tamana from 1834 onwards. In 1850 the Herald left barrels on Tamana for oil. In 1855 Robert Towns appointed J. A. Manich agent for his company (Maude with Leeson 1968: 265) while in the same year Mrs Morey of the Phoenix noted that a Frenchman, his European wife, and four others were also on the island collecting coconut oil (Log of Phoenix, 22 March 1865). Over the remainder of the century traders came and went but the island never managed to support more than one or two traders at any one point in time. The German company of Godeffroy appointed its first trader to Tamana in 1869 (Maude with Leeson 1968: 282) and in 1878 McArthur and Company had a trader on the island (Turner 1878). However, by 1881 Henry Schumacher trading for Godeffroy was the only European on the island (Maxwell 1881: 7). Schumacher, or "Tumeka" as he became known to Tamans was the longest residing European on Tamana and resided there with the exception of a 10-year spell on Marakei until his death around 1911. By 1881 he had become a member of the native government and one of its 24 rulers (Phillips 1881), a deacon of the church and teacher of arithmetic in the church school (Newell 1885). About this time he also dynamited a reef passage to improve landing facilities on the island (Phillips 1884). In 1892 he was trading for Crawford and Co. of San Francisco and there was one other trader, Frank Thomas (British and trading on his own account) on the island (Davis 1892: 48,81). Like many resident traders he married an I-Kiribati woman and became assimilated into the island population. In the period up until World War I several Chinese traders and the Englishman George Carter traded on Tamana, but after the war there were no resident traders on the island and the islanders had to trade directly with schooners belonging to Burns Philp and On Chong and Company which called at the island periodically and this situation continued until the setting up of the cooperative stores by the Colony Government after World War II.

While there are no surviving production figures for this period, permitting a comparison of copra production levels between islands, it is probable that Tamana played a very peripheral role in the coconut oil and copra trade of the Group. Even under the best conditions the surplus produced on Tamana would have been small compared with the wetter and less densely populated islands in the north. During droughts

no surplus would have existed and the island thus had no basis for trade. This and the island's remoteness from the main centres of the trade in Butaritari, Tarawa and Abemama meant that the island was poorly served by traders, and the island was without resident traders in the years between the two world wars. The non-availability of trade goods for most of the year must have had a further dampening effect on the incentive to produce and further stressed Tamana's peripheral position in the Group's monetary economy.

The changes resulting from the growth of the coconut oil and copra trade on Tamana were not fundamental. The main items of trade could be produced on the islanders' part without conflicting with traditional production and did not call for a major reorganisation or reallocation of productive resources. The enhanced importance of the coconut as a trade item may have encouraged more planting, thus extending the area covered by coconut groves at the expense of other vegetation types and thereby creating the present pattern with its characteristic checkerboard of coconut and bare land or scrublands which owes its origin to planting histories rather than any underlying physical factors. In the early period of the trade, before expanded plantings became productive, it is also possible that the growth of the coconut oil and copra industry compounded the devastating effects of periodic droughts. The islanders may have been tempted to exchange good year surpluses for tobacco and trade goods rather than committing them to storage in okai against drought years.

The resident trader and his trade store must have further increased the islanders' access to such imported goods as tobacco, axes, knives, fish hooks, firearms and cooking utensils. The implications of such technological changes as the replacement of shell and wood implements by iron ones has already been discussed. As Tamana was a unified society without conflict between rival maneaba districts or dynasties within the society, the introduction of firearms (if in fact they were introduced) appears to have had little impact on Tamana and certainly did not add to political instability as it did on Tarawa, Maiana, Nonouti and Tabiteuea or inter-island conquest as with Baiteke and Binoka, High Chiefs of Abemama who established dictatorship over Kuria and Aranuka. The islanders' addiction to tobacco has already been discussed. Despite the importance of such trade goods to the people the traditional

government was still sufficiently strongly organised to be able to enforce bans or "taboos" on the trader which forbade the islanders to deal with the trader (Maxwell 1881: 7). Maude with Leeson (1968: 276) considers that there is also independent evidence to support the I-Kiribati tradition that sour toddy manufacture and consumption was also introduced by the European. By the late 1850s drunkenness on some islands had become a major social problem despite efforts by the chiefs, village councils, missionaries and some traders to suppress it. However, when Gill called at Tamana in 1872 only one year after the first missionary had been placed there and before the pastor had widespread influence in the community, he found that there was a law on the island forbidding drunkenness. Punishment for the first offence was 100 nuts, for second the cutting down of the offender's trees and banishment for the third (Gill 1872: 21). On Tamana sour toddy may have had a more practical and socially acceptable use. Eastman (1941: 23) notes that Tamana people drank sour toddy in times of famine because it "gave them a sense of satisfaction and allayed their hunger".

Because there was never a large community of traders on Tamana they never formed a distinctive entity instead becoming assimilated, as Schumacher did, into the Tamana social system which was already changing under the impact of missionisation. This assimilation meant that the traders on Tamana left no elite or dynasties behind them which were outside the traditional system, distinguished by racial origin and wealth and spurred on to innovate because of being "different" or less restricted by traditional values and outlook. At no time on Tamana did an entrepreneurial class emerge similar to the Smiths and Brechtefelds on Abemama (Watters 1977: 131). Despite the trader's apparent integration into the society and the fact that some of the commodities provided by him came to be regarded as everyday necessities, the community still at times resisted the impact by placing a taboo on the trader which prevented the islanders trading with him. Schumacher was occasionally placed under a taboo but did not suffer greatly because he had no competitors (Maxwell 1881: 7).

Blackbirders, Recruiting and Overseas Labour Migration

Although a few I-Kiribati men were engaged as crew on the whalers and may have spent several years away from the islands with their ships, the first formal recruiting of I-Kiribati labour to work overseas began in 1847 when Benjamin Boyd's ships, the Portenia and Velocity recruited some 65 Pacific islanders to work on his cattle and sheep stations in New South Wales; 17 of these recruitees came from Tamana and five from Arorae (Maude with Leeson 1968: 268). Boyd turned to the Pacific as a source of labour after the final failure of plans to bring coolies from India (Parnaby 1964: 6). The scheme was a failure and some, if not all, were eventually repatriated. Although early attempts at developing the labour trade were not successful, between 1857 and 1862 Byrne, an Irishman of French citizenship had imported 3000 Pacific island labourers into New Caledonia. Shineberg (Pers. comm. in Bedford et al. 1980: 213) notes that French recruiters active at this time took I-Kiribati to Reunion and probably New Caledonia. Byrne expanded his activities in 1862 and began recruiting for Peru and by the end of 1862 eighteen or twenty vessels were engaged in bringing labourers to Peru. These raids resulted in 250 of an estimated population of 300 being taken from Nukulaelae and 171 of 300 being taken from Funafuti (Maude pers. comm. in Bedford et al. (1980: 213). Islanders of both sexes were engaged for a period of five years and were to be returned at the end of that period, if they so desired, at the expense of the purchasers of the contract (Parnaby 1964: 13). It appears that few were returned. The 161 I-Kiribati taken to Peru by the Ellen Elizabeth had the added misfortune of arriving after the Peruvian government agreed to stop the traffic in 1863. On being refused permission to land they were taken on Penryhn Island in the northern Cooks from where some were subsequently hired to work in Tahiti (Maude with Leeson 1968: 268 and Maude pers. comm. in Bedford et al. 1980: 213). Of the 1,200 Pacific islanders known to have been taken to Peru fewer than 100 arrived back in the islands (Parnaby 1964: 14).

In the years that followed a somewhat more regulated and sustained trade in labour developed with I-Kiribati labourers being recruited for employment in Fiji (1864-1895), Tahiti (1867-1885), Samoa (1867-1895),

Hawaii (1877-1887), Mexico (1891), Guatemala (1892) and Queensland (1895). Instances which amounted to kidnapping were still not uncommon. In theory the recruiting agreements should have given rise to a regular circulation of islanders between overseas work and their home islands, at the end of this contract, but in practice it very much depended on the willingness of governments and planters to adhere to repatriation agreements, and the ability of the planters in economically difficult times, such as the financial crisis in Fiji 1873-1874, to pay wages and meet the cost of repatriation (Parnaby 1964: 181). Many of those taken to Tahiti never returned (Bedford et al. 1980: 215).

Under the Fiji ordinances of 1887 a labourer was paid at the rate of £3 per annum (paid in kind at the end of the contract). The term of service was usually five years during which time the planter was required to provide the labourer with food, clothing and shelter comparable to that of a Fijian native (Parnaby 1964: 31,184) as well as meeting the cost of the labourer's return passage which in the case of the Gilbert Islands was £8-10. This made the Gilbert Islands a less attractive recruiting ground for Fiji than the New Hebrides. Rates paid in Queensland were higher at £6 per annum and the contract period was only three years.

Bedford et al. (1980: 213-221) have attempted to gain some measure of the number of I-Kiribati involved in the overseas labour trade. Between 1864 and 1895 more than 3000 adults were recruited for the Fiji plantations with the high points in the migration coinciding with drought years. The southern islands, which are more drought-prone appear to have been important sources of migrants, particularly the islands of Tabiteuea and Beru. The Gilbert Islands were a major recruiting area for the German plantations on Samoa. These authors refer to Firth's analysis of recruitment of Pacific Islanders to Samoa which indicates that around 2500 I-Kiribati adults worked in Samoa between 1867 and 1895 (Bedford et al. 1980:215). Bennett's (1976) study of migration to Hawaii between 1877 and 1887 suggests that 1500 adults and 300 children left the Gilbert Islands for Hawaii. Some of these were stranded in Hawaii when repatriation came to an end in 1881 and were not returned to the Gilberts until Bingham and other missionaries intervened on their behalf (Loomis 1970: 343-47). Of the remaining destinations about 850 recruits went to Tahiti between 1867 and 1885

and of these a majority did not return; a further 1000 went to Central America between 1890 and 1892 with only 230 of these being known to have returned, and in 1895 190 went to Queensland. Bedford et al. (1980: 217) stress that the effects of this labour migration on the nature of population changes were not the same throughout Kiribati.

Recruiting on Tamana

Despite the fact that the earliest records of recruiting in the Pacific relate to Tamana, references to the labour trade on the island between 1847 and the 1870s are very fragmentary and it is difficult to assess its impact on the island population. By 1870, when the L.M.S. missionaries arrived, islanders' attitudes had hardened to resentment and the mission ship John Williams was met by a populace "armed with every kind of weapon they could find" (Whitmee 1871: 31). The missionaries were told that when a Tahitian vessel called in the previous year, the crew fired on the people, killing four of them, and took over 100 away. As a result of this encounter the islanders intended to attack the next Tahitian vessel which called (Whitmee 1871: 31). It seems that the recruiters became somewhat less blatant in their dealings with the islanders once missionaries were established on the island. Gill (1872: 65) reports that one recruiter, calling during the first year of mission presence, threatened to blow Tamana to pieces unless a stolen piece of rope and the culprit were surrendered. He (1872: 64) also notes that once the captain of another recruiting boat realised a missionary was established on the island, he took up a more circumspect position two miles offshore rather than near the customary anchorage opposite the missionary's house. For the recruiters' part, one captain is recorded as advising the islanders to have nothing to do with the teacher or the Bible (Gill 1872: 66).

However, despite the pressure brought to bear by the missionaries and island elders, and the islanders' resentment of certain recruiters' activities, recruiting continued. In the first ten months of missionary Samuelu's residence on Tamana beginning in October 1870, 80 people were recruited or otherwise taken from the island (Gill 1872: 64) and in 1876 a further 60 were "kidnapped" (Turner 1876). In 1877, 121 left the

island to work in Fiji and Samoa (Turner 1878). This last number must have provided a large proportion of the fewer than 100 people known to have gone to Fiji between 1875 and 1895 (Bedford *et al.* 1980: 215) and it is significant that both these large totals coincided with severe and prolonged droughts. In 1877 the population was also reduced by 216 deaths from starvation (Turner 1878). It is hardly surprising that the recruiters took advantage of the islanders' plight to assure them that there "was plenty to eat in Fiji and no work" (Pratt 1872).

Recruiting and Population Change in the Nineteenth Century

It is very difficult to assess the impact of recruiting on the demographic history and structure of the Tamana population because this one factor cannot be analysed separately from other influences (such as higher death rates during droughts and possible changes in natural fertility resulting from social change and missionisation) which might have been also affecting the population at the same time. It is clear that recruiting removed considerable numbers from the Tamana population; in earlier times this was permanent as few recruits ever returned, but in later years when the trade was more regulated and repatriation more common, the absence was only temporary. However, when placed in the context of the other influences impinging on the Tamana population, it could be argued that recruiting had an insignificant effect on Tamana population in the long run and even operated to ameliorate the effect of other negative influences on the population. Even though the population resident on Tamana was reduced by recruiting, the population remaining still exceeded the ability of the island to support even its reduced population during the severe droughts of the 1870s and possibly also during the drought of 1863.

The surviving data allow only guesses to be made as to the magnitude of these influences. In 1872 Pratt (1872) tells us that the Tamana population was exactly 1000 and this appears to be a reliable figure. During the years 1870-77 missionary reports refer to 261 persons¹ leaving the island to work overseas with reference only to 22 persons returning. These figures are not necessarily complete and must be regarded as minimum estimates. It is known from Turner (1878) that the Tamana population was reduced to only 282 in 1878 and Turner also

¹No indication as to sex or age is given.

states that deaths due to starvation in 1877 amounted to 216. This leaves at least 479 individuals to be accounted for. Some or all of the remainder could have left the island unrecorded but this is unlikely since the population grew by only 298 between 1878 and 1887 (Marriot 1887) and this increase would have been comprised of repatriations and natural increase less any further recruitment. Powell (1879) notes that many of those gone to Fiji and Tahiti returned in 1879 and more labourers returned in 1882 (Davis 1882). The 1880's were, according to Bedford et al. (1980: 221) characterised by repatriation and a much lower incidence of recruiting and so it is unlikely that the small 1887 population could be explained by further recruiting. As an extreme estimate it could be suggested that the Tamana population declined by at least 47 percent during the years 1870-1877 and most of this decline can be attributed to death during the severe droughts. The total number of people involved could be in the range of 450 to 500; still however, considerably below the 800 deaths due to famine claimed by the trader Schumacher (Maxwell 1881: 7). Known recruiting at any one time may have reduced the population temporarily by as much as 20 percent and even here the death rates of the migrants, variously estimated at between 4.8 and 14.6 percent (Bedford et al. 1980: 219) were well below those experienced in the population remaining on the island. From this it could be argued that the recruiting, by temporarily reducing population pressure on the island, actually reduced the severity of impact of the droughts and aided the recovery of the population by adding to it on return considerable numbers in the reproductive age groups.

It is also doubtful that labour migration had any great impact on fertility levels of the populations remaining on the islands. This distinguishes the Gilbert Islands from other areas such as the Solomon Islands and New Hebrides where males made up between 90 and 95 percent of recruits (Corris 1973: 45-6) which must have had considerable effect on the sex ratios and fertility of the remnant population. Bedford et al.'s study of recruiting from the Gilbert Islands to Fiji, Hawaii, Tahiti and Central America led the authors to suggest that family migration was not uncommon (1980: 220); of the 2662 migrants to these destinations for whom records survive 49 percent were male, 35 percent were female and 16 percent children. The figures quoted by the same

authors for migration to Queensland (p.135) show that these movements were male-dominated with 166 of the 190 Pacific Islanders being males. However, since the total numbers going to Queensland were small it could be concluded that any imbalance in sex ratios resulting from labour migration may have been small.

The increased mobility of the islanders brought more frequent contact with alien diseases. Powell (1871) mentions deaths on Nanumanga due to dysentery and in 1884 an outbreak occurred on Niutao (Newell 1885). Dysentery may have first appeared in Tuvalu during the 1840s (Turner 1876). The mission ship Morning Star and a labour vessel brought measles to the Gilbert Islands in 1891 and they spread rapidly to all islands. Walkup (quoted Bedford et al. 1980: 240) claims that over 1000 died either from measles or other effects, 500 on Tabiteuea, 250 on Nonouti, 110 on Tarawa, 101 on Abaiang, 30 on Marakei and a few on Butaritari. Lambert (1975: 22) refers to the death of at least 85 people in an epidemic on Butaritari during the 1860s. However, oral tradition and written records give no indication of massive, group-wide depopulation as a result of epidemics and missionary reports make no reference to epidemics on Tamana.

From the above discussion it could be argued that the labour migration had relatively little impact on long-term population dynamics on Tamana. Even so, it must be stressed that this conclusion relates only to Tamana and similar small dry islands in the south, and arises simply because other factors had a much more devastating effect on the island's population. Tamana represents a special case where population densities were high, drought severity in the 1870s evidently extreme and the resultant mortality large in comparison with losses through labour migration, including individuals not repatriated, and mortality on ships and at the work place.

The Economic and Social Impacts of Labour Migration

The less tangible social and economic effects of employment overseas are even more difficult to assess. While it is clear that many I-Kiribati were keen to leave their home islands to work overseas, particularly during difficult drought years, for most it was a circular migration and the commitment to return home never diminished. Some may

have enlisted for several terms but few if any became sufficiently wedded to wage employment and the cash economy to want to stay permanently, even in Hawaii where conditions were good and labour migration was encouraged as a matter of policy in the hope of stimulating the declining native population. "Nostalgia, satisfied curiosity and disenchantment with working on strangers' plantations caused the vast majority to take advantage of the promised return passage" (Bennett 1976: 22). The genealogies collected during fieldwork suggest that many recruits never returned or died overseas, but a substantial number finally returned home, some even after having been left on other islands or after visiting newly-made friends, establishing te bo relationships, marrying or adopting children in the process. Returning workers brought new planting techniques, new plants, tools, goods and money back with them. Powell (1879) refers scathingly to 80 workers returning from Tahiti having brought the "Mormon delusion" back with them. The development of regularly spaced coconut stands provided superficial landscape changes and, in the southern Gilberts at least, no new crops of economic importance were able to be established in the harsh dry conditions. It is probable that the missions and trade stores quickly absorbed the cash and the goods dispersed through the extended family by the traditional redistributive mechanism of bubuti. This period also saw the introduction of recipes such as biti or "man of Fiji", using imported flour. Te biti is a gruel of flour, water and grated coconut. By far the most important influence of the labour trade was the fact that it established as normal a pattern of circular migration between the islands and overseas work places which was to become, with the development of phosphate mining on Ocean Island in 1900, an essential characteristic of the economic life of the islands and the Colony for the next 78 years.

On Tamana the temporary absence of labourers coupled with depopulation meant that the uneasy and fluctuating balance between population and resources which prevailed since the original settlement of the island was altered forever. It also meant there was insufficient manpower to maintain the traditional political structure and settlement patterns which in turn facilitated the L.M.S. mission in its drive to take control of the society and instigate far-reaching social changes which fundamentally changed the character of the society and the island.

The L.M.S. Mission

Mission activity began in the Gilbert Islands in 1852 with the arrival of members of the Protestant American Board of Commissioners for Foreign Missions in Butaritari and Makin. Hiram Bingham Jnr and his wife took up residence on Abaiang in 1857 and, with the assistance of Hawaiian missionaries began the evangelisation of the Gilbert Islands. By 1868 A.B.C.F.M. activities had extended southwards to Tabiteuea and in 1870 the London Missionary Society began placing Polynesian pastors, trained at Malua in Samoa on the islands of the southern Gilberts. The activities of the Roman Catholics began somewhat unofficially in about 1880 with the attempts of Betero and Tiroi, two I-Kiribati converted to the faith in Tahiti, to convert the people of Nonouti (Etekiera 1979: 59).¹ The first French Catholic priests, belonging to the Sacred Heart Mission, arrived in Nonouti in 1887 and spread from there to most other islands in the Group. Tamana and Arorae are unusual in the Gilbert Islands in that missionisation was achieved by one denomination only and the islands have thus escaped the disruption of interdenominational antagonism.

Whereas the whalers, traders and labour recruiters may have contributed indirectly to social change, direct attempts to change certain characteristics of I-Kiribati society were the avowed aim of the London Missionary Society. Superficially at least, the process on Tamana was rapid and complete and succeeded in altering the face of Tamana society in a very short space of time. Kirisome, a teacher from Nui was left on Tamana on 19 October 1870 to begin the process of conversion and in the following 10 months he met with, in the Rev Powell's words "only moderate success, having converted only 20 families encompassing nearly 100 people in all" (Powell 1871). Samuelu, a teacher from Tutuila replaced Kirisome in 1871 and conversion proceeded apace. By August 1872 Gill could claim "that only one family adhered to heathenism" and that "150 persons could read the New Testament in their own language and are now beginning to write" (Gill 1872).² By 1875 the children were in

¹The Anti n Tioba movement on Tabiteuea began in 1855 with the attempts of two Tahitian deserters to convert the island population to what became a blend of Christian religious ideas and indigenous practices (Geddes 1975: 17).

²The first statement is clearly an exaggeration. Phillips claimed that in 1884 conversion was "all but complete" (Phillips 1884).

schools with night schools being held for adults (Gill 1872). Annual examinations, on the basis of which candidates for the mission training school at Malua were chosen, were held in Samoan (Phillips 1884).

However, the success and rapidity with which Tamana people were converted to Christianity was, if similar to the other islands, more apparent than real. Despite a zealous start in 1872 when Samuelu, the Tutuilan pastor busied himself in the island's interior demolishing the numerous stone idols to Taperariki [Tabauriki] while the islanders were being harrassed by labour recruiters (Gill 1872), progress was in reality very slow. When Rev Goward reviewed the fruits of 30 years' work in 1902 he could only conclude that it showed:

...sad signs of both slothfulness among the pastors, and indifference among their people....The general work and character of our Samoan Missionaries is not and has not been what it should have been....The Church members are exceedingly ignorant of spiritual matters, and the majority cannot give an intelligent reason, or satisfactory explanation as to why they are in the Church at all, and it is the same with the Catechumens. Their answers to the simplest questions are generally exhibitions of the saddest ignorance, hence we cannot wonder that they attend God's house irregularly and are careless in dress and behaviour while there, that they are often under Church discipline.... The village schools are very sparsely attended, the work has been of a most intermittent character and the ignorance among the children is very great....There is no law to compel attendance, hence very few attend.

(Goward 1902: 2)¹

Irrespective of their ecclesiastical shortcomings, it is clear that the Samoan pastors managed to assume virtual control of the communities in which they were placed. Supervision by their superiors was minimal and restricted to the latter's brief annual visits to the "outstations" in the mission ship John Williams. Few of these visits to Tamana lasted more than one or two days. Goward, the first European L.M.S. missionary resident in the Gilbert Islands gives a surprisingly critical and detailed account of the situation which developed, and

¹ Goward was stationed on Beru for two years before making this report and appears to have travelled widely among the islands where the L.M.S. was active. His report is taken to apply generally to mission work in the Tokelau, Ellice and Gilbert Groups.

for which the L.M.S. was directly responsible. This was the situation which met the first Resident Commissioner on his taking charge when the British Protectorate was declared in 1892 and formed the basis of conflict which was to characterise relationships between the L.M.S. and the Colonial Government for many years. Goward's report merits quoting at length:

The Resident Commissioner found the pastors ruling their people, not in his capacity of pastor of a Church, and minister to a community, but as the head of the island ruling by means of the chiefs, and kaupure (Kaubure, a member of island council, village chief) whose position was purely civil and in no way ecclesiastical, although individual chiefs might be Church members. This state of things Mr Campbell would not permit for a moment, and the local rulers were quickly made to understand where a pastor's duties began, and were also duly informed where they ended, at any rate that they did not touch Government affairs, as such, and that they had no authority to legislate, or to impose their wills and desires upon the people.

At first the people being unaccustomed to Mr Campbell and British authority, were inclined to stand by the old system, and to hearken to the voice of the pastor only and be guided by him....Unwisely some pastors thought that it was a simply (sic) matter to defy the new power. At length, however, as the people began to understand the authority now given into the hands of their rulers, and as moreover Mr Campbell, obtaining information of the many doings of the pastors aforetime, was able to give the people ease from the burdens¹ they had imposed, a reaction set in.

(Goward, 1902: 3)

How and why the Samoan pastors were able to get such a hold over the communities in which they were placed and were apparently so readily accepted is by no means clear. It may have had something to do with the personalities of the Samoan pastors and their attitudes towards their flock and the reaction of the I-Kiribati to them. In this respect the association of Tamoia, the traditional spirit homeland of I-Kiribati folklore with Samoa (see p. 33) may have had some influence on their ready

¹The burdens referred to included levies towards the pastor's salary (Newell 1885), charges of 3 cash for a marriage fee, 500-1500 coconuts for a burial fee (Goward 1902: 4), food levies for the pastor (Gill 1872) and the sale of timber (to be donated back to the church as furniture) at prices higher than those at which it could be obtained through a trader. (Extracts, Report by Res. Comm. G.E.I.P. 9 Feb 1900, L.M.S. Samoan District Correspondence with Pacific Islands 1877-1947).

acceptance. However, the importance of Samoan qualities should not be overemphasised; they were not infallible and when Elisaia offended the people of Tamana in 1887 by manifesting a "low covetous spirit" the islanders ordered his removal (Marriot 1887). Consideration must also be given to the other influences which were affecting southern I-Kiribati society at the same time as the beginnings of mission activity. As a result of labour recruitment and deaths during the severe droughts in the early 1870s, the Tamana population was reduced from over 1000 to only 282 in 1878 (see p.137) and this must have been associated with substantial social disruption and the weakening of the traditional political structure, thus making it easier for the Samoans and the new influences they represented to gain a foothold. After Goward's appointment in 1900 the Samoan pastors were steadily replaced by I-Kiribati and Tuvaluan pastors trained at Malua.¹ While these may have achieved greater ecclesiastical success among their flock the mission retained much of its political influence over and paternalistic attitude towards the island communities.

Whatever the religious shortcomings of early L.M.S. activities on Tamana missionisation resulted in some drastic changes in the Tamana social system and settlement pattern. These changes were fundamental, far-reaching and permanent. By 1876 the islanders were being encouraged to build "pandanus sided houses 40 feet by 20 feet with eaves 6 feet from the ground instead of the low hovels of heathenism" (Turner 1876) and by 1879 "it had been determined to form one good village instead of scattering about to different parts of the island. Accordingly two long parallel rows of houses were being erected with a frontage to each of many feet and a wide road between them" (Powell 1879). By 1883 the road extended the length of the new village and Marriot (1883) found the island looking more civilized than any other island he had yet visited. The process towards village settlement and uniform regularly spaced housing was further reinforced by the Protectorate Government (Mahaffy 1909: 4) especially as the result of George Murdoch's efforts (Geddes 1975: 19). By these changes the island settlement pattern became substantially what it is today.

¹There were still nine Samoan pastors in the Group in 1910 (Goward 1910).

Relocation had basic repercussions for the community social structure. It was achieved, according to my informants, by directive from the pastors and no landowner with land within the new village confines was permitted to stop other, even unrelated people taking up residence on this island. Land exchanges were supposed to have been made in compensation but it is not certain that these did take place. In this one action the tie between residence and kinship was broken and the whole significance of the kainga changed. It was no longer the residential estate of the descent group, and to confuse matters further the kainga land names within the village area were retained, even though the people living within the area were no longer necessarily linked by common descent. The areas delineated by village kainga boundaries are now often used as a means of delimiting groups for certain cooperative group activities, particularly those related to church activities, building and community projects. Relocation and restrictions relating to frontages, spacing of houses and the number of houses permitted on the one village plot meant the descent group could no longer reside together and function as the basic unit of economic cooperation. The result of this was the decline in the importance of the kainga as a unit of economic organisation and the emergence of the mwenga or the household as the most important economic unit. The loss of the bond of common residence for the descent group must also have substantially weakened the maneaba organisation. By substantially weakening the cohesion of its constituent groups. In any case the maneaba was associated by the pastors with "heathenism" and appears to have been destroyed. Its site was usurped for the church. According to my informants Tamana was without a maneaba from the time shortly after the arrival of the missionaries until the Protectorate Government directed them to build one in 1904.¹ Despite the rebuilding of the maneaba the traditional maneaba organisation was never revived and new forms of organisation based on the village or divisions within it developed to take its place.

¹ My informants' accounts are in fact inaccurate. While the L.M.S. may have had the maneaba destroyed, its reappearance predated the Protectorate. Davies mentions the maneaba on Tamana in the Royalist Report of his visit in 1892 (Davies 1892: 11). The rebuilding of the maneaba may have resulted from L.M.S. engineered changes of the system of island government where, while the traditional island councils and the maneaba were retained, they were independent of the church for their authority (Macdonald 1971-2: 281).

Missionisation also saw the demise of other important social customs. One of these was the custom of tinaba where a concubitant relationship was permissible but not obligatory between a man and the wives of his brothers' sons, or conversely, between a woman and the brothers of her husband's father. The relationship required, in addition to the granting of sexual favours, the provision of anointing oil, garlands and other attention during maneaba ceremonies and formal dances, in return for which the girl could expect to receive one land from each male. Such a relationship would strengthen ties between the wider kin group. Maude (1963: 60) suggests that Christianisation weakened the emphasis on such sex relationships and probably as a result of mission pressure, the practice was outlawed in the Native Laws Ordinance 1917, although it appears no prosecutions took place under it and the law was rescinded in 1941 (Maude 1963: 60). The missionaries rigorously opposed dancing which was regarded as being "if not actually indecent and lewd in the performance (although they have these dances also), were such that they led up to all kinds of licentiousness and immorality" (Goward 1902: 8). The Samoan pastors evidently introduced batare as an alternative to the indigenous dancing but this also in Goward's view created an intense excitement which tended towards "lewdness and immorality" and was discouraged (Goward 1902: 8). Again pressure from the missions led to restrictions on dancing being embodied in the Native Laws Ordinances. Marriot's (1898) observations relating to overpopulation suggest that the missions also opposed indigenous practices of birth control. On the other hand the missions reinforced traditional values of equality, self-sufficiency, and penalties for drunkenness, theft, adultery and injury to others.

Incidentally, the mission also appears to have provided a sink for much of the new-found wealth of returning labourers and from copra sales. Contributions to the central administration, the pastor's stipend and building programmes were solicited.¹ From the scant data available

¹In 1900 a dispute developed between the L.M.S. and the Resident Commissioner, Telfer Campbell, because he objected to the fact that the L.M.S. requested its converts on Tamana to contribute to the furnishing of the church and sold the islanders redwood at 21/- a hundred feet for the purpose. Campbell claimed it could be obtained elsewhere in the Group for 20/- and that it was cheaper in Samoa, from where the L.M.S. brought it (L.M.S. Samoan District Correspondence with Pacific Is 1877-1947 P.M.B.141).

annual church collections rarely netted less than \$200 (U.S. dollars were then in use); in 1878 donations, book sales and levies for the pastor's stipend totalled \$684.95 (Powell 1879), an astonishing sum from a total population of somewhere around 500 people.

The schooling system introduced by the mission may, in theory, have benefited the islanders and increased their ability to participate in the new economic order which was emerging, but the mission schools were poor when Goward made his assessment in 1902 (Goward 1902: 2) and were still poor in 1960 (F34/4/15, Assistant Commissioner's Travelling Diary, 4-7 May 1960), shortly before the L.M.S. took the decision to withdraw from the field of education. As Appendix 2 shows the school syllabus was slanted heavily towards religious studies and was mainly concerned with the preparation of a select few of the better performers for training as pastors. A small number of Tamana people were trained as pastors and an even smaller number after training at the L.M.S. school at Rongorongo on Beru rose to occupy positions of some importance in the colony administration.

While missionisation irretrievably altered the character of Tamana society, it is probably to its everlasting good fortune that the island came under the influence of one mission agency only (which in the experience of most other islands in the Group was atypical), and meant that the island escaped the sectarian divisions of society which on other islands form a constant source of conflict. Thus Tamana was a unitary entity prior to missionisation and came through the process to face the changes to come still able to maintain a strong sense of unity and island identity and an ability to cooperate which is still characteristic of the society today. The iron rule of the Samoan pastors no doubt also prepared the people well for the authoritarian and paternalistic rule imposed upon them with the declaration of the British Protectorate over the islands in 1892.

The Colonial Era

In no sense could the Gilbert and Ellice Islands have been regarded as a colonial "plum" by any of the nineteenth century imperial powers. They were small, isolated, densely populated islands. They lacked large land areas and obvious raw materials of interest to the imperialists. They also lay within a climatic zone where permanent residence by white men was popularly believed to be impossible. However, despite these limitations and because of problems arising from the heavy indebtedness of islanders on Butaritari and other northern islands to traders, drunkenness, disorder, inter-island warfare, the need for control over labour recruiting and obligations under the Anglo-German agreement of 1886 concerning spheres of influence in the Pacific, Britain finally moved, somewhat reluctantly, to declare a Protectorate over the Group in 1892. Sir John Bates Thurston, the High Commissioner for the Western Pacific, showed little enthusiasm for the new acquisition when he wrote in his journal after his tour of inauguration in 1893: "Thank God we now leave the Gilbert Group which presents some difficult questions to be solved" (Thurston 1893). The lack of enthusiasm was also mirrored by the Colonial Office which seems to have been concerned to ensure that the Gilbert and Ellice Islands were in no way to form a charge on Imperial Funds (Macdonald 1971-2: 282). This penny-pinching attitude ensured that the initial impact of the new colonial administration was limited. It concerned itself with the collection and codification of island laws in the hope of preparing a simple local government constitution to fit all islands and the High Commissioner introduced "simple laws and regulations for the better conduct of their [the islanders'] affairs" (quoted in Macdonald 1971-2: 283). Touring by administrators was also severely limited by lack of funds and staff. Mahaffy, reporting on a visit to the Islands in 1909, claimed that:

since the proclamation of the Protectorate, I very much doubt whether any Government official has ever spent twenty four hours in one visit to any island in that [the Ellice] Group... but even there [the Gilbert Islands] save in the northern islands and Mr Murdoch's district, visits from Government officials have been rare and confined to a few hours at any one time.

(Mahaffy 1909: 3)

Administration and Local Government

The new administration resulted in few changes on Tamana and tended, if anything, to formalise and further entrench changes already initiated by the L.M.S. In other words the new "constitution" in the southern islands dominated by the L.M.S. "was quickly adapted to the pre-protectorate situation" (Macdonald 1971-2: 285). The island governments on islands without hereditary High Chiefs were headed by a Chief Magistrate who was appointed to a position of sole responsibility for judicial decisions and who was "usually picked as the most intelligent native whose services can be secured" (Mahaffy 1909: 5). The Chief Magistrate was assisted by the island scribe, chief policeman, village police, gaolers, wardresses and hospital orderlies, all paid from land tax. The Chief Magistrate was also assisted by a council of Kaubures¹ who were unpaid members of the "native parliament" and were "advisors" or "talking men" (Mahaffy 1909: 5). In the southern islands the islanders adapted to the situation by electing all the unimane to the council of Kaubures (Macdonald 1971-2: 285), thus forming an island council not too dissimilar to that existing in pre-protectorate times, and forming in Mahaffy's words "a considerably argumentative body although they were loyal enough once they were convinced and they had a considerable amount of authority with the natives who have the respect of a primitive people for the opinion of the 'old men'" (Mahaffy 1909: 5).

However, with time the situation changed and the influence of the unimane vis-à-vis the administration was weakened; firstly by the first Resident Swayne's action in reducing the number of Kaubure who could serve on the council (Macdonald 1971-2: 285), and secondly because the Kaubure were recruited from among the younger men. The latter were in Mahaffy's eyes:

supposed to be more progressive, less dilatory and less wedded to ancient customs and methods, but who are certainly less interesting and have less authority among the people. It is, I fancy, a rare thing for any of the modern Kaubure to differ from the opinion of any Government Officer, or if he differs to have the courage of his opinions and the ability to explain and maintain them.

(Mahaffy 1909: 5)

¹Significantly a term derived from the Samoan "faipule" or councillor.

By this process the power and control exerted by the Resident and his staff increased. The pressuring of the Island Governments to accept a standardised set of Island Regulations in 1908 and the fact that after 1917 Island Regulations could only be made with the approval of the District Officer (Macdonald 1971-2: 286-7) meant that control was extended to most aspects of island life. This authoritarian trend in administration reached its peak in 1930 with the bringing down by Grimble, the then Resident Commissioner, of the Regulations for the Good Order and Cleanliness of the Gilbert and Ellice Islands which sought to legislate for, among other things, the control of dancing and obscene gestures during dancing, adoption and the bringing up of children, the hours of fishing, the days on which an individual must work on his land, eating in sleeping houses and vice versa and the rolling up of mosquito nets, as well as imposing a ban on inter-island travel and a night-time curfew. The regulations also formalised existing regulations whereby able-bodied men and women between the ages of sixteen and sixty were required to work for up to one day a week on designated public works. The Kaubures were responsible for enforcing such regulations and fines could be levied for non-compliance; the fines being paid into the Island Fund.¹

The same process of increasing control by the administration meant that the unimane were early and effectively eased out of the local government of Tamana and while they have to some degree maintained their identity as a social group, their influence has diminished progressively and they now occupy a somewhat ambiguous position in society.

Thus the policies initiated by the first Resident Commissioner and pursued by his successors until just before World War II tended to reinforce the authoritarian approach of the L.M.S. mission and succeeded in stultifying any initiative on the part of the local populace. In fact the island governments became little more than extensions of the central administration and despite efforts by the administration to curb mission influence,² local government remained heavily influenced by the pastor

¹In the immediate pre-protectorate times fines replaced traditional punishments and these were usually divided among the pastors and deacons (Macdonald 1971-2: 281).

²Under the Ordinance of 1917 non-native persons were forbidden to attend meetings of the native governments (Macdonald 1971-2: 287).

and the mission. The attitudes engendered by the overbearing and paternalistic administration of the missions and the early colonial government are still significant in Tamana people's response to issues relating to independence and self-reliance, to taking initiative in programmes of economic and social development and to government-sponsored development programmes.

The period from 1936 onwards saw firstly attempts to remove the more offensive regulations and reduce the degree of control formerly deemed necessary to maintain the proper functioning of an island community. Progress was slow particularly because of the disruption caused by World War II but even this may have had some significant positive effects insofar as expatriate government officials were withdrawn from the islands in 1942 and the efficiency and authority of existing island governments declined. The horizons of the islanders widened because many were recruited into the labour corps of the American army and experienced the higher wages, generosity and seemingly limitless wealth of the Americans as well as their superior technological equipment and efficiency.

1948 saw the implementation of the new Native Governments Ordinance of 1941 which was the first of a continuing series of attempts to reform local government by setting up meaningful island councils and ultimately to pave the way for self government. Progress was impeded by a variety of factors including the initial failure to decentralise power to local authorities and the inadequacy of attempts to explain the significance of the proposals to the island populace.¹ The situation was aggravated by the increasing prevalence of "whistle-stop" touring by District Officers and their lack of familiarity with the language and local customs. Despite efforts to the contrary, the amendments also failed to entice the unimane, who were the only real authority on the crucial land issue, back into the fold of local government and because of this it remained the preserve of younger, less experienced and less respected men. Public apathy towards an essentially foreign institution, unattractively low salaries for local officials and the inadequate education system² meant that few men of sufficient calibre could be

¹ Four years after publication the Local Government Ordinance 1966 was still not available in the Gilbert or Ellice languages (Macdonald 1971-2: 18).

² The missions were still largely responsible for education in the Colony until replaced by government schools in the late 1960s.

encouraged to stand for election to the Island Council or serve in the local government administration. The funding required to meet the salaries of all the new officials was also beyond the existing revenue-raising capabilities of the island governments. In short the pace with which the responsibilities of the island governments were increased took insufficient consideration of the ability of the island's human and financial resources to support such rapid developments and while the island councils set up under the Local Government Ordinance 1966 "have made considerable progress in some directions, their overall achievements have fallen considerably below expectations" (Macdonald 1971-2: 17). The implications of this local government reform were still being worked out during fieldwork in 1972-4.

In 1965 the Island Courts Ordinance saw the separation of judicial and executive function in local government and the removal of the Native Magistrate's executive power. The Islands Councils set up under the Local Government Ordinance 1966 were, for the first time an entirely elected body with an elected president and vice president. Franchise extended to all residents over the age of 21 years. The council was to be assisted in its duties by an Island Executive Officer trained under a special local government training course.

The functions of the new councils were no longer restricted to petty administrative tasks such as those concerned with preserving order, health, cleanliness and the maintenance of birth, death and marriage registers. Their activities were supposed to expand to include the provision of social and other services as well as acting as a catalyst for community development. Whatever the good intentions of the Local Government Ordinance 1966, at the time of fieldwork in 1972-4, after five years of implementation and only five years before the colony was to gain independence, the legacy of many years of authoritarian paternalistic control was still all-pervasive. In the attitude of the islanders the "Government" was still "Tarawa"; the Governor, the Resident Commissioner, the District Officers, Magistrates, police, the Island Executive Officer, all other administrative officers, and only less surely the Legislative Council and their Member. The sole purpose of the Island Council was seen to be to work for the government, in contradistinction to the much neglected unimane, whose purpose it was said, was to work for the island. The people still retain pride in their unity and their

willingness to cooperate with government-sponsored programmes, but their view of the world and their inability to take the initiative for development into their own hands still bears the imprint of years of stultification under a paternalistic administration.

Social Change

The colonial era saw the continuation of a process of social change initiated by the missionaries which substantially changed many facets of the social and political organisation of the islands. Important economic changes also occurred; not the least of which resulted from the beginnings of phosphate mining on Ocean Island by the Pacific Islands Company in 1900. The colonial administration grew to play a significant role in the phosphate mining activities and "assumed responsibility for labour relations and relations between the company and the Banabans" (Maude quoted Silverman 1971: 100). By 1908 the activities on Ocean Island had become sufficiently important to the protectorate economy that its headquarters were transferred there in 1907 thus increasing the difficulties of servicing an already dispersed and fragmented entity. Because of an agreement by which the British Phosphate Commissioners (a corporation owned by the British, Australian and New Zealand Governments which took over the interests of the Pacific Islands Company in 1920) were exempt from payment of all licences, fees and duties (except on liquor and tobacco) in return for making good the shortfall between revenue from other sources and approved expenditure, the BPC was able to exert considerable influence on the financial policies of the Colony with respect to expenditure (Schutz and Tenten 1979: 114). From the Tamanans' point of view the labour opportunities generated by the phosphate mining were crucial; the pattern of circular migration which developed between employment on Ocean Island, Nauru and home on the various Gilbert Islands and the remittance economy it generated has had a major impact on the lifestyle, expectations and economic behaviour of the outer-islanders which persists to this day.¹ Recruiting for the Pacific Islands Company and the B.P.C. always favoured the southern Gilberts as a matter of policy because of

¹ Mining operations on Ocean Island ceased in late 1979.

the high population densities and low unreliable rainfall on those islands (Goward 1915: 49).

In other areas of economic activity Government involvement was less obvious. At least as early as 1909 the Government attempted to stimulate coconut planting and encourage the islanders to store coconuts against droughts (Mahaffy 1909: 7). The purpose of the designation of Friday as the day for working on lands in the Regulations for the Good Order and Cleanliness.. was presumably to ensure and enhance the continued productivity of agricultural land. Other attempts include the setting up of island Agriculture Committees to stimulate the clearing and planting of lands (Assistant Administrative Officers Travelling Diary, 12 December 1954), the Coconut Campaign of 1966-8 and, finally, the United Kingdom aid funded Coconut Subsidy Scheme which began in 1969 and provided substantial financial incentives to landowners to carry out the systematic thinning and replanting of outer-island coconut groves. The anticipated result of this programme is a substantial increase in annual copra production and export earnings going directly into the rural economy and which is hoped to go some way towards making good in remittance incomes with the cessation of phosphate mining on Ocean Island.

Government activities promoting the development of cooperative societies also had an important effect on the development of the cash economy on many outer islands. This applied particularly to the small, remote islands like Tamana and Arorae which were unattractive to permanent traders and were in the period after World War I visited only infrequently by the trading ships of the larger companies. The first cooperative was established in 1921 on Nauru (Watters 1977: 132) and others quickly followed; by 1934 some 34 societies were operating on all islands except Tamana and Butaritari although all of these seem to have traded through the established firms like Burns Philp and On Chong (Schutz and Tenten 1979: 118-9). With the onset of World War II these firms withdrew from trading in the area and in the immediate post-war period the copra and retail trade was pre-empted by the Government Trade Scheme which was set up to facilitate the distribution of goods and collection of copra. The trading firms did not, or were discouraged from returning after the war and the Government Trade Scheme evolved to become the Colony Wholesale Society which supplied the Island Cooperative Society outlets whose establishment the government actively encouraged. On most

islands the monopoly conditions created continue to the present day. While it could be argued that the government action was effective in that it ensured that goods were readily available to all islanders in the immediate post-war period and that this effectively stimulated a boom in copra production as well as removing the locational disadvantages of the more remote and less productive islands, the long-term benefits of the government's action are less certain. Youngjohns completed an assessment of the Cooperative Societies in 1969 and concluded:

the amount of dependence on the department seems to me to be excessive, and to indicate that there is something radically wrong with the management of the cooperatives themselves. It is possible that the lack of initiative on the part of the managements is partly explained by the peculiar history and by the monopoly situation. The cooperatives have expanded to fill a vacuum, on the instigation of the Government and consequently the officials and members have got into the habit of depending on the Government and in particular on the Cooperative Department and Registrar (Youngjohns 1969: para 22).

Yet another manifestation of the results of years of paternalistic control. While the Cooperative Society stores do, on most islands, ensure a ready supply of goods like flour, sugar, rice, tobacco and kerosene which have become essentials in island life, they have tended to remain an essentially conservative element in island life, following closely to the directives of the central administration and failing to take the initiative to capitalise on new possibilities to expand island economic activity, such as stocking a wider range of goods, developing sales of local produce to the urban market and the like. In terms of economic and social development the cooperative, even where they have been financially most successful have not really acted as an agent of economic development and this can be traced directly back to over-centralised control. In contrast, the indigenously-developed mronron enterprises (discussed more fully in Chapter 10) show the capacity of individuals to see and pursue new economic possibilities. The Cooperative Society remains, in the view of Tamana people, part of the government and it is their duty to cooperate with the government.

On the more positive side, through the highly centralised control of such services as shipping, marketing of copra and distribution of goods the administration was able to remove or ameliorate many of the infrastructural and locational disadvantages of the small and more remote

islands through differential freight rates, and common pricing policies for copra and store goods regardless of distance from the collection or distribution point or the volume of goods produced or consumed. This enabled an island like Tamana to participate more fully in the economic life of the colony than it had been able to in the pre-war situation where its small size and remoteness made it an unattractive proposition for the trading firms.

The role of government in shaping development policy and promoting development programmes will be discussed more fully in Chapter 11.

Population Change in the Colonial Era

Tamana population reached its nadir point of 282 in 1878, which was possibly slightly earlier than most other islands in the Gilberts and at about the same time as most islands in Tuvalu. Recovery was slow and annual totals provided by the missionaries are distorted by the comings and goings of overseas labourers. The twenty year period between 1896 and 1911 shows a small average annual increase of 0.39 percent. Oral tradition and official records make no reference to deaths from starvation during droughts although the droughts of the first decade of the twentieth century were the most severe within living memory (see p. 62). If they were as severe as those in the 1870s the absence of mortality must reflect lower pressure on resources because of reduced population, the supplementation of local foods with store-bought foods and the provision of rice rations by the government (an act which, according to oral tradition, brought forth taxation as a means of making the populace pay for the government's magnanimity). The relationship between population and environment has thus been transformed by the island's incorporation into a larger politico-economic unit, and the old rules of the same no longer apply.

The official censuses (see Table 5-2) show a rate of population increase on Tamana of 1.52 percent per annum between 1916 and 1931, but between 1931 and 1947 the population again declined. Pusinelli (1947) attributes this decline to war deaths (41), emigration as part of the Phoenix Island Resettlement Scheme (45) and a possible increase in numbers employed on Ocean Island. Rather curiously, he makes no

reference to the dysentery and measles epidemic of 1936 (in fact the only recorded epidemic on Tamana) when deaths exceeded births by 123 (GEIC Blue Book 1936). Pusinelli (1947) argues that the decline reflected extrinsic factors rather than a decline in fertility. Between 1947 and 1968 population growth rates again reached high levels. 1968 marks another watershed in Tamana's recent demographic history after which sustained population losses again become evident and these losses can be traced directly and indirectly to government policies and programmes (e.g. family planning programmes) and the emerging importance of Tarawa as an administrative centre, place of employment and magnet for migration.

Table 5-2. Tamana: Population Changes Documented in Colony Censuses

Census†

	1901/2	1911	1921	1931	1947	1963	1968	1973	1978
Total population	769	870	814	989	883	1254	1422	1392	1349
% annual change between censuses					-0.67	+2.63	+2.68	-0.42	-0.62
Tamana resident popn. claiming Tamana as home island	NA	NA	NA	NA	833*	1205	1372	1301	1397 ⁺
Total GEIC popn. claiming Tamana as home island	NA	NA	NA	NA	1127*	1581	1835	1888	2013
% of population claiming Tamana as home island actually resident on Tamana	NA	NA	NA	NA	73.91	76.22	74.77	68.91	69.40

†Figs for 1901/2, 1911 and 1921 from Government censuses quoted in Maude(1938).

*By island of birth.

⁺Includes those on Kiribati ships.

The Colony Administration has made several overt attempts to affect the balance between population and resources. The earlier attempts concentrated on expanding the resource base by settling population in previously unutilised areas while later programmes concentrated on influencing the overall size of the population.

The Colony Government's foray into resettlement can be seen as a direct result of the first detailed census of colony population in 1931 and the interpretation put on this and previous population estimates by the then District Officer, H. E. Maude. The 1931 census showed that the population decline of the late nineteenth and early twentieth century had been arrested and that the colony overall showed a modest population increase. Table 5-3 shows that this increase was by no means uniform throughout the Group with some islands losing numbers while others showed quite massive increases.¹ The belief in the apparent "resurgence of native life" (Maude 1968: 318) encouraged the government to entertain fears of overpopulation, land shortages and growing poverty. If Maude's "personal narrative"² accords with the official thinking on resettlement, the arguments put forward to justify the programme reveal some curious thought processes. The scheme was fostered with the densely populated southern Gilbert Islands in mind yet the data presented by Maude for the period 1901/2-1931 (for which reasonable government collected estimates were available) shows the population of these islands to be for the most part static or declining (Maude 1938: 5). Elsewhere, he (Maude 1968: 319) notes that the population of the seven southern Gilbert Islands had scarcely altered through the present century; a situation which he attributed to the exemplification of Mendelian [Malthusian?] laws whereby the total number on each island had to be kept strictly within the fixed limit set by the local means of subsistence. The mechanisms invoked included infanticide, warfare, compulsory emigration and abortion. It is a little difficult to accept that all or any of these operated during the period under review to give the negative growth rates observed and, if they did, it is a curious comment on the efficacy of sixty years of peace and law and order under the British flag and the influence of Christian missionaries. Maude himself observed (Maude 1968: 319) that all of these checks, with the exception of abortion, were successfully prohibited by the government and yet in the southern

¹ Here it should be remembered that because of the small size of the base population gains or losses of quite small numbers of people could have quite large effects on the apparent growth rates.

² "The Colonisation of the Phoenix Islands" in Maude 1968. This account accords closely with the official 1938 Report on the Colonisation of the Phoenix Islands by the Surplus Population of the Gilbert and Ellice Islands.

Table 5-3. Population Changes GEIC 1905/16, 1931 and 1947 Censuses

Island	Census 1905/16	Census 1931	Percentage Change 1905/16-31	Census 1947	Percentage Change 1931-47
Makin	583	724	24.2	969	33.8
Butaritari	1366	1673	22.5	1824	9.0
Marakei	1475	1649	11.8	1803	9.3
Abaiang	2395	2592	8.2	2823	8.9
Tarawa Rural)					
Tarawa Urban)	2378	3013	26.7	1911	14.2
Tarawa Betio)					
Maiana	1543	1406	-8.9	1424	1.4
Abemama	1013	893	-11.8	1174	31.5
Kuria	162	223	37.7	315	41.3
Aranuka	171	292	70.8	366	25.3
Nonouti	2666	2255	-15.4	2004	-11.1
Tabiteuea North)				2814	
Tabiteuea South)	3885	3702	-4.7	880	-0.2
Beru	2178	2241	2.9	2231	-0.4
Nikunau	1686	1674	-0.7	1591	-4.9
Onotoa	1664	1639	-1.5	1491	-9.0
Tamana	805	989	22.9	883	-10.7
Arorae	1172	1451	23.8	1558	7.4
GILBERTS TOTAL	25142	26416	5.1	27824	5.3
Nanumea	745	770	3.4	746	-3.1
Nanumanga	329	424	28.9	524	23.6
Niutao	603	645	7.0	644	-0.2
Nui	385	410	6.5	490	19.5
Vaitupu	528	720	36.4	728	1.1
Nukufetau	334	394	18.0	524	33.0
Funafuti	235	413	75.7	528	27.8
Nukulaelae	181	178	-1.7	282	58.4
Nuilakita	-	40	-	21	-47.5
TUVALU TOTAL	3340	3994		4487	12.3
Washington)	-			259)	
Fanning)	-	467	-	158)	-10.7
Christmas	-	38	-	52	36.8
LINE IS. TOTAL	-	505	-	469	-7.1
Phoenix Is.	-	31	-	984	Resettlement
Ships	-	192	-	176	-
OCEAN	-	2607	-	2060	-21.0
COLONY TOTAL	28482	33745	18.5	3600	6.7

Gilberts at least this change was not mirrored in a massive upswing in population growth rates. Other factors, possibly outmigration, lower female fertility, high infant or adult mortality or similar factors, must have contributed to lack of growth on these islands.

However, despite this lack of evidence of high rates of increase for the southern Gilberts, Maude argued and was presumably able to convince himself, the Colony Government and the Western Pacific High Commission that the situation was "fast becoming serious"¹ (Maude 1968: 319) and that there "was a clear call for government action" in the form of a resettlement programme (Maude 1968: 320).

It is probable that other factors, including the already high population densities, concern by the administration about real or imagined increases in the proportion of children in the population, concern by the islanders about land shortages in future generations (Maude 1938: 5), and the assumption that the 76,000 pending land court cases among a population of 27,000 was evidence of extreme pressure on land, all contributed to the government's willingness to embark upon the resettlement programme involving the shifting of people first to the Phoenix Islands and later to the Solomon Islands.²

Preliminary investigations for the Phoenix Island scheme began in 1937 and by the time further settlement was suspended because of World War II 729 colonists had been resettled. In 1952 the scheme was abandoned because of the drought-prone character of the islands, impending overcrowding on the newly settled islands, and even more extreme communication problems than those already experienced by the rest of the colony.³ Some of the settlers and new recruits were transferred to settlements at Gizo and Wagina on Crown lands in the Solomon Islands. Between 1955 and 1958, 564 settlers went to the Solomon Islands (Schutz and Tenten 1969: 125). These resettlement schemes had little impact on the economic well-being of the donor islands because the

¹It is curious to note that the 1947 census reveals that the population of six of the seven southern Gilbert Islands showed negative growth rates (see Table 5-3). Part of the decline could be attributed to the resettlement programme itself and to war deaths.

²See Knudson, n.d.

³Maude (pers. comm.) considers this latter factor was paramount in the decision to remove the settlers from the Phoenix Islands.

emigrants were only a small fraction of the total island populations and, on Tamana at least, the islanders adapted to the land redistribution requirements in such a way that their impact was reduced. Any individual receiving land in the Phoenix was required to relinquish title to any land held on their island of origin. Most families left at least one child on the island and this child remained the undisputed heir to the family lands. Thus no major redistribution resources resulted from the resettlement programmes and from 1966 increasing emphasis was placed on government-sponsored family planning programmes. It is perhaps somewhat ironical that the rapid population growth feared so much by Maude in the 1930s did in fact occur in the post-war years and that resettlement for various economic and political reasons was not considered to be a viable solution to the Colony's problems.

Even before the Phoenix Island Resettlement Scheme was abandoned, agreement had been reached to investigate the possibility of a government-assisted birth control scheme (F 52/2/1/1 (i) Memorandum from Chief Lands Commissioner to Secretary W.P.H.C. 29 April 1946). Nothing was achieved until the commencement of the present family planning programme in 1964 and major progress was not made until 1969. The present programme reflects very careful preparation, attention to staff training, record-keeping, continuing supplies, and an intensive hard sell extension programme of talks, films, discussion groups and radio coverage through announcements, talks, song sessions and song writing competitions.

By December 1972 99 Tamana women (30 percent of the age group) in the age group 15-44 were notified contraceptors and the effect of this is evident in the replacement ratios [number of children aged 0-4 to numbers of females of reproductive age (15-44)] which give a crude measure of current population replacement. Table 5-4 summarises these data.

Table 5-4. Replacement Ratios: Tamana Island 1947-78

Census	1957	1963	1968	1973	1978
Children 0-4 years	119	193	247	182	156
Women 15-44 years	255	258	272	307	286
Ratio children 0-4 per 1000 women 15-44	466	748	908	592	545

As the ratio is based on children 0-4 years who are survivors rather than the total number of births to women, the figures for 1947-1968 presumably show the general improvement in medical care over time and its impact on child mortality. The sharp decline in the ratio revealed by the 1973 census cannot be attributed to an increase in infant mortality but rather demonstrates the decline in fertility attendant upon the family planning programme. If such trends are sustained they could have a dramatic impact on the island labour force and its ability to sustain the present subsistence economy in the future.

The other major factor affecting Tamana population levels has been temporary and permanent emigration. Table 5-2 shows that the ratio of potential to actual residents remained remarkably constant over the period from 1947-1968 with about 25 percent of potential Tamana residents living elsewhere. After 1968 the rate of outmigration increased and by 1973 the proportion had reached 31 percent.

Table 5-5. Persons Claiming Tamana as Home Island
Enumerated on Other Islands at Time of
Censuses 1947-73

No. of persons claiming Tamana as home island enumerated on	1947		1963						1968				1973					
	Total	%	M	F	T	%	% of emigrant population older than 15		M	F	T	%	% of emigrant population older than 15	M	F	T	%	% of emigrant population older than 15
Tarawa	14	4.76	44	42	86	22.87	66.28		106	89	195	42.12	62.05	158	145	303	51.62	60.73
Ocean Island	132	44.90	67	49	116	30.85	57.76		57	69	126	27.21	49.21	70	79	149	25.38	51.68
Other Gilbert Islands	92	31.29	36	55	91	24.20	78.02		40	47	87	18.79	58.62	42	52	94	16.02	64.89
Ellice	5	1.70	1	2	3	0.80	100.00		7	10	17	3.67	64.71	-	3	3	0.51	100.00
Line Island	49	16.67	38	35	73	19.42	54.79		21	17	38	8.21	65.79	22	16	38	6.47	57.89
Ships	2	0.68	3	4	7	1.86	71.43		-	-	-	-	-	-	-	-	-	-
Total	294	100.00	189	187	376	100.00			231	232	463	100.00		292	295	587	100.00	
% of island population older than 15							56.70						55.70					68.79

Table 5-5 shows that the importance of different destinations within the colony has not been constant over time. Migration to employment centres such as Ocean Island and the Line Islands has remained static or declined while the absolute and relative importance of Tarawa has increased markedly. As far as can be judged from the data on age and sex it is probable that the outmigration had little

distorting effect on the source population. No adequate data on migration to overseas destinations over time are available.

The earlier outmigration from Tamana in this century was largely to contract employment in the phosphate workings on Ocean Island and Nauru and to the plantations of the Line Islands. The resulting pattern of migration was clearly circular with young men leaving home early in their adult life to see the world and accumulate cash and capital goods to augment the island life to which they returned. In some ways employment on overseas shipping, fostered under the Marine Training Scheme¹ could function in the same way. However, prospects for the continuation of circular migration are limited. Ocean Island ceased operations in 1979; Nauru's days are numbered and the future management policies of the Line Island plantations which have already or are soon to be taken over by the Government remain uncertain. In any case the pattern of circular migration with its eventual commitment to return to the rural way of life is now at variance with the aspirations and expectations of many outer-islanders who see their future increasingly in urban rather than rural terms and this means Tarawa.

The growth of Tarawa must have had drastic and long-term effects on the demography of the outer islands and the employment prospects of their people. It reflects directly and indirectly the decisions relating to government spending, particularly on infrastructure and welfare services. Prior to 1952 it had been the express intention of the administration to maintain as small and basic as possible government service in the hope that it could be maintained on independence given the country's limited resource base. The appointment of Michael Bernacchi as Resident Commissioner in 1952, and the funding of development projects under the United Kingdom Colonial Development and Welfare Scheme and increased income from phosphate royalties, saw an abrupt change in policy with the expansion of medical services, the development of a state-run education system aimed at providing primary level education for all islanders, provisions for teacher and technical training,

¹ Since its inception in 1967 the scheme has trained 1600 seamen, approximately 1050 of whom were still in service or on leave in 1976 (Stabex Report 1976: 7).

wholesaling, broadcasting, expanded shipping and air services and developments in providing services such as power, water and electricity for the growing urban centre on South Tarawa, which had once more become the administrative centre after World War II.

The combined effect of these processes was to ensure continued centralisation and concentration of governmental functions and employment and the steady growth of South Tarawa as the Colony's only urban centre. For all these reasons South Tarawa became an increasingly important pull factor in rural-urban migration. Between the censuses of 1931 and 1978 the total population of the Gilbert Islands grew from 26,416 to 56,452 while the urban population of South Tarawa rose from 3013 to 20,339. By 1947 migration to the urban centre was absorbing by far the larger part of the total population increase and over the period from 1963 to 1973 it equalled or exceeded it. Much of the migration was to the government-provided centres at Betio, Bairiki and Bikenibeu, but substantial growth also occurred in the South Tarawa villages.

The 1973 Census shows that of the 18,148 persons classified as being economically active, nearly 65 percent depended on village rather than cash sector employment. Of those employed in the cash sector, government and certain statutory authorities accounted for over half those employed and nearly 60 percent of this employment was concentrated on South Tarawa. Private sector employment is limited and focussed primarily on the provision of services for the urban population. In 1977 the national wage bill was \$A14 million and earnings from full-time employment on the outer islands accounted for only \$A0.6 million of the total (Green, Bukhari and Lawrence 1979: 108-9). Similarly, of the total government current expenditure of \$A14,613,343 in 1977, only \$A550,823 went to local government and rural development (Green *et al.* 1979: 103). The inequalities in income-earning opportunities and the level of services provided between South Tarawa and the outer islands help to explain the steady drift of population to the urban centres. The inequalities are to a small extent mitigated by the redistribution of wage-earnings through remittances. Of the \$A412,981 in remittances originating in South Tarawa and passing through Betio Post Office en route to the outer islands \$A300,016 were remittances by private individuals. In comparison

remittances for the same year from Ocean, Christmas and Fanning Islands totalled only \$A67,097, \$A58,637 and \$A6,388 respectively (Green et al. 1979: 109).

To the outer-islanders Tarawa is an increasingly attractive location, being the only major employment centre providing permanent rather than contract employment, and providing services far beyond those available on the outer islands. By no means all or even most of the emigrants move to already secured jobs and many are supported and housed by kin. Children are often sent to stay with relatives on Tarawa in the belief that the primary school teaching is superior there and the chances of the child gaining admission to high school and employment are enhanced. Tarawa and permanent wage employment is now built into the outer-islanders' value system as an alternative, easier and more attractive means of attaining their prime economic goal, to be oinibai; independent and economically self-sufficient, to be free.

Contact and Environmental Change

Despite the drastic changes in Tamana society attendant upon culture contact, the new influences do not seem to have resulted in equally substantial changes in the physical environment or the society's ability to exploit it. Under the stimulus of the copra economy the area of land under coconuts increased at the expense of scrub and wooded areas. Informants claim this resulted in a reduction in planting of fruiting pandanus and a decline in its importance as a food crop. In the interim period before increased plantings augmented production it is possible that the trading of coconuts, coconut oil and copra may have exacerbated the impact of droughts if surplus nuts were used to obtain tobacco and trade goods instead of being stored against drought. This situation would cease to apply once expanded plantings became productive. The developing cash economy with its supplies of store foods, particularly flour and rice, may also have reduced the importance of standby foods such as te bero and probably resulted in a decline in the importance of storing and preserving food for future consumption. There are really no data by which the changing importance of babai can be assessed. On one hand the introduction of steel tools

would have reduced the labour involved in pit excavation, a factor which could have been expected to give rise in an expansion of babai cultivation but, on the other hand, the actual cultivation is a time consuming process, the crop is slow-maturing and thus rice and flour could have been attractive substitutes for babai. It is probable that babai in the past as now, has always been more important as a ceremonial food, especially in the southern Gilbert Islands where conditions are less favourable.

Even though numerous attempts were made to introduce new crops into the island agricultural system the only successful introductions were pawpaw (Carica papaya), bananas (Musa paradisiaca), pumpkin (Cucurbita pepo) and possibly taro¹ (Colocasia esculenta). None of these plants grow well on Tamana or have achieved any importance in the agricultural system or islanders' diets. On Tamana today there is no sign of tobacco (Nicotiana tabacum) which Catala (1957: 100) claims was cultivated on practically all islands, but was abundant only on the southern islands. He described the situation on Nikunau where each house was bordered with one or two lines of tobacco plants. Most of the decorative plants which give the village such an aura of suburbia were introduced in this period. The list includes such plants as hibiscus, frangipani, lantana, oleander and bougainvillea. A considerable number of grasses and weeds were also introduced, probably unintentionally during this period. Pigs, cats, dogs and new varieties of chickens were also introduced, but no new animals have achieved major economic or dietary significance and pork remains a feast food only.

Matatia, my oldest informant made some observations of considerable ecological interest. He claims that the introduction of a white non-biting ant, presumably a termite, in the early European period caused changes in the frequency and distribution of particular plants. It evidently attacked and completely destroyed the ikaeriki, an unidentifiable but useful timber tree introduced by the early settlers, and also decimated the te non which previously grew widely over the island and is now restricted to the open spaces around the village where the trampling of feet is supposed to scare the termites away.

The effect of new technology on the exploitation of marine resources is also difficult to assess. At one level it could be argued

¹Taro may have been introduced prior to European contact (Catala 1957: 89).

that no new technology (with the exception of underwater torches¹) was adopted by the islanders which enabled them to utilise previously unexploited resources. In fact the prohibitions against inter-island travel brought in during the colonial period may have encouraged the abandoning of sail-powered canoes and thus reduced the extent of the actively exploited deep water fishing zone. On the other hand the adoption of metal fish hooks, finer, stronger fishing lines and nets, and steel pronged spears propelled by rubber catapults may have increased the efficiency of fishing. There seems to be little evidence to suppose Goodenough's contention that the introduction of redwood for canoebuilding greatly increased the number of canoes and thus the intensity of offshore fishing (see p.102).

Summary

The influences to which Tamana society has been subjected since the arrival of the Rose in 1804 have been many and varied. All have had some influence on the balance between resources and population, on the way the islanders perceive the world around them, their position in it and their reaction to it. The new influences do not seem to have resulted in substantial changes to either the physical environment or their ability to exploit it. Rather, the transformation in the relationship between population and environment resulted from the island's incorporation into a larger politico-economic unit so that the old rules of the game no longer apply.

In the pre-contact period Tamana could rightly be regarded as an independent entity with only intermittent contact with other islands through warfare and accidental or intentional visiting. The latter may have generated kinship linkages between islands. However, Tamana never seems to have borne a satellite relationship to other islands. Under these conditions notions of an optimum population capable of being supported by the island's resource base may have had some relevance. It would necessarily have been a constantly fluctuating balance because

¹Used in diving for crayfish at night.

of the impact of recurrent severe droughts, thus making the concept a largely hypothetical construct of limited practical usefulness.

Contact with the market economy ended Tamana's autarkic state and incorporated it into an exchange economy based principally on the islanders' copra and labour resources and the colonisers' store goods and administrative services.

Variations in the nature and intensity of the new influences throughout the Group and differences in capacity to respond to them meant that their effects were not uniform. The development of the whaling grounds gave the Tamana islanders the opportunity to capitalise on their acquired taste for tobacco and iron by supplying coconuts, chickens, pigs, kamaimai and women to the visiting whalers. Because of its geographical position and the evident initiative of its people Tamana was able to assume an important position in this new economic order which it lost with the decline of whaling and did not regain in the coconut oil and copra trade which replaced it. The reasons for this probably lie in the dry, drought-prone climate of Tamana and its relatively high population density which meant that coconut surpluses there were probably lower than in the more northerly islands. The later demands of the L.M.S. for cash donations to pastors' salaries, building projects and mission funds may also have acted as a disincentive to cash-earning. The absence of resident traders in the 1930s and 1940s may also have acted as a disincentive to production. Government policies towards the development of cooperatives, copra pricing and shipping rates schedules did much to reduce the locational disadvantages of Tamana in the post-war period but the side effects of other government policies on infrastructure development meant that Tamana and all the other outer islands with it became the periphery of the growing urban core of South Tarawa. Tamana is no longer an isolated entity drawing only on its own restricted resource base but part of a larger, more complex and constantly changing system and it is in this context that the following empirical study must be placed.

Despite all the changes wrought, the islanders have succeeded in maintaining their identity as Tamanans and still present a unified, viable and vital community. Many aspects of their everyday behaviour still bear the imprint of the traditional value system overlain by many distinctly nineteenth century Protestant nuances and pervaded by

the influence of years of authoritarian control and paternalistic administration, first under the L.M.S. and later by the colonial government and the results of these will be demonstrated in the following field study.

Chapter Six

THE CONTEMPORARY SOCIETY: TAMANA IN THE 1970s

One hundred and seventy years of contact with the alien influences described in the preceding chapter resulted in substantial changes to the organising principles of society, the island settlement pattern and the increasing integration of its economy, through trade and the implementation of government administrative policy, into the wider system of a colonial economy. In the social field many of the fundamental changes arose in response to the mission and government policy of concentrating the population within designated village areas which resulted in the breaking of the basic linkage between kinship and residence. This change had a drastic effect on an individual's choice of physical residence, ability to maintain cooperation in everyday activities with the wider kin group and paved the way for new units of economic cooperation based on close residence¹ in addition to those reflecting kin relationships. More subtle changes in value systems and perception developed from the new relationships between the islanders and the mission and the government (with the implicit assumption of the superiority of their respective religious and secular dogmas) and the incorporation of the island into a larger economic and political system.

Trade brought new possibilities for commodity production outside that necessary to satisfy immediate subsistence and social needs and some reappraisal of the island resource base. It did not, however, lead to a radical reorganisation of production, the introduction of new crops for either commercial production or subsistence consumption or any substantial change in the ability of the environment/agricultural system to support the island populations. Rural depopulation did not follow the commercialisation of agriculture. Cash as a means of buying imported foodstuffs, coupled with government assistance, may have lessened the impact of periodic severe drought and enhanced the island's

¹The mronrons, or small cooperative enterprises for example. These are discussed more fully on p.382.

ability to support its population in such times of stress. The investment of foreign capital in phosphate mining on Ocean Island and Nauru generated a demand for labour from which emerged the contract-based system of circular migration. This enabled the islanders to sell their labour and accumulate cash and capital goods, but by the same token, it forced them to return to their island homes, thereby preventing the emergence of an urban node on Ocean Island capable of generating further and more diverse employment. Instead an urban node emerged in time as the direct result of government policy to expand infrastructure and welfare services and the level of activity and employment generated was largely determined by the level of external aid.

Thus we are no longer talking about Tamana as the largely autarkic man/environment system which resulted from the colonisation of the island by Micronesians. The organising principles of society are no longer simply the utu, kainga, boti and maneaba with the main production nexus being for subsistence and social purposes with reciprocity serving as the basis for exchange. Nor does the island and its surrounding waters now delimit the resources that can be exploited for the islanders' support. To understand Tamana now we must also consider the household, the village and the wider political economy into which the island is now incorporated. It is no longer autonomous. The risks it faces are no longer simply the potential of population to outstrip the resources of its limited, fragile, and fluctuating environment. They are now compounded by other uncertainties. Fluctuations in world prices threaten both export earnings and the costs of the imports which have become essential elements in current lifestyles. The collapse of the phosphate industry means the loss of substantial contributions to the household economy through remittances as well as to the national coffers through royalties. The bureaucracy has become increasingly important as a source of employment, but this too is largely dependent upon phosphate revenues and external aid sources, neither of which are secure in the future. The growth of the bureaucracy has also served to feed expectations and widen the gap between rural and urban living standards. These changes have enlarged the islanders' world view, their perception of their place in it, the choices available to them and their scope for action. Any analysis of the way in which the present population perceives and responds to current circumstances must take cognizance of the altered social organisation and the constantly evolving

broader economic environment. At the same time, it cannot ignore the limitations of scale and restricted scope offered by the atoll environment. On the positive side one must not underestimate the importance of the ability of the Tamana people to maintain both a corporate identity and a conviction of the integrity of their own value system in the face of these changes.

This chapter reviews the hierarchy of the political economy today and the way in which the organising principles are articulated. The discussion begins with the traditional elements of utu, kainga, maneaba etc., and extends to the more recently evolved principles of mwenga, village and island organisation. In the final section an attempt is made to place the village economy in the context of the wider, increasingly urban and aid-dependent economy of Kiribati. It could be argued that the political economy of the wider reality should take precedence over the more traditional elements because it is much more powerful in explaining the gross character of economic activity, employment and migration. However, the latter are still essential in understanding interrelationships between people within the village and how they respond to the options they perceive as being available to them on the island. Both are important to the understanding of the reality of Tamana today.

The Household: Kinship, Residence and Production

The Utu

The utu remains, as it has probably always been, the basic kin group on Tamana. Because it was never a precisely defined and easily differentiated permanent corporate grouping, and was instead an ego-centred entity depending on the common recognition of identity and code for conduct, the utu was the social unit best able to adapt to the changing needs of individuals and thus survive culture contact. Utu membership is still recognised in much the same way as described in pages 76-7. Family solidarity is still an important ideal; one must not openly criticise or talk disparagingly of a member of one's utu and should defend a member against such comments from outsiders. The utu

includes all the individuals from whom an individual might inherit rights to land. It also functions to regulate disputes between its members, to organise social observances associated with betrothal, marriage, birth, first birthday celebrations and death. Utu members are also expected to assist each other, through the kabeabea¹ in large work programmes like housebuilding or canoebuilding, and the utu also defines the limits of bubuti² rights. Although all members of a household would not bear a utu relationship to each other they are likely to treat each other as "as if" kin and extend the code of utu behaviour to them.

Rights and obligations between utu members depend on genealogical distance, the willingness of individuals to respond and the nature of the stimulus to action. This was evident in several events recorded during fieldwork. In one instance a young man aided his non-utu friend's elopement with his father's brother's daughter which led to demands that the accomplice, his siblings and his parents be ostracised from the utu. The complaint and subsequent requests for reconciliation were discussed by representatives of the descendants of the offender's father's father's four siblings only, because more widespread publicity would "have brought shame onto the whole utu." In contrast, many of the weddings which occurred during fieldwork were the responsibility of a much wider range of potential utu members. One included individuals who could claim utu relationship only through the fact that the bride's mother's mother and their mother had been adopted by the same man; the former as a grandchild (tibu) and the latter as a child (nati). The close kin of the bride and groom called separate meetings of the respective utu to arrange details of the wedding and to set the levies of coconuts, babai, chicken, flour, rice, cloth and cash to be brought by those participating. The celebration belongs to the utu members organising it and any member

¹ Kabeabea; to employ, in this sense to request assistance in work.

² Bubuti; to request or demand. Bubuti is a request that cannot be refused and operates as a means of redistributing wealth among kin members.

unwilling or unable to provide the levied goods is excluded. Absence is taken as unkinsmanlike behaviour and social distance is thereby increased.¹

The Kainga

Discussion of the present status of the kainga presents difficulties because of the effects of social change and the confusion surrounding the use of the term in the literature. This arises in part from the extension of the term to apply not only to the land tract and residential site of the descent group, but also to the clan or descent group itself.²

Confusion is also increased by the fact that the significance of land tract names has changed as a result of mission- and government-encouraged relocation of settlements. Resettlement in villages effectively put an end to the process by which Tamana had become divided up into 116 named kainga districts, some but not necessarily all of which would, at the time

¹Two other rather atypical weddings illustrate the flexibility and fluidity of current social organisation. In one, the mother of the bride was divorced and because neither she nor the groom's parents could afford a large feast, came to a private agreement to limit the size of the celebration. This incensed her immediate utu because: (1) she had not consulted them in coming to this decision and (2) that the reduced scale of the celebration would shame the utu as a whole. The utu refused to have anything to do with the celebration. As the bride's mother was a well-liked member of her neighbourhood, the residents on the kainga where she lived, although most were not related to her, decided to act as kin towards her (in fact as members of a kainga and her utu would have been and acted in the traditional society) and took over the management of the feast. Only the ex-husband's kin, the residents of the kainga and the one member of the bride's mother's utu also resident on the kainga attended the celebration at the bride's house.

In the second wedding, between the island nurse and a seaman the rorobuaka or village council took over the management of the wedding in return for payment as a village fund-raising project and the whole village was involved. This arrangement probably reflected the nurse's popularity and the ability of both to pay for the celebration, but it also reflects a conscious effort by the village council and the Island Council to limit the size and cost of wedding celebrations. This was the first village-organised wedding and it was hoped that others would follow. Grimble had also earlier tried to limit the size of competitive feasting in his 1917 Regulations for the Good Order and Cleanliness....

²The Maudes initially confused the two in their 1930 paper on adoption, but Maude (1963: 28) corrects this by stating that the kainga was not the clan but only the ancestral seat of its members. Goodenough (1955: 73) obviously confuses the two in describing the kainga as a non-unilinear descent group based on parental residence.

of the change, have been resided upon by a group of people and their affines who could trace descent through a common ancestor. Relocation changed this by breaking the link between residence and descent and at the same time rigidified the land-name situation for the island as a whole because fission of descent groups could no longer lead to the setting up of new clan hamlets. The entire population was relocated and now occupies the strip of land along the western shore encompassing 35 of the 116 land tracts into which the island is divided. Some individuals may, on relocation, have been able to reactivate residence in kainga within the new village area, but others could not and pressure on the original landholders to give up or exchange land may also have been used (see p. 143). Subsequent restrictions on spacing of houses, number of houses on each site and number of families in dwellings prevented the new locations continuing as the focal point for the descent group and offspring often had to set up households in other parts of the village. In this way the kainga can no longer be regarded as the clan hamlet and land within each kainga area is held by totally unrelated people.

However, in present usage the kainga names have been retained to designate land areas and individuals often regard the place where they were born, the site of the family dwelling, or the site of residential land which they may inherit as their "kainga", thus identifying with land although this does not now imply membership of any kinship group.¹ This identification with land can produce a sense of group identity and a code for conduct not unlike that associated with kinship. This is amply evident in the discussion of marriage feast preparations above. The feeling of group identity is further strengthened by common action. The kainga have come to be used by church and village organisations as a means of dividing the community into small groups to work on community projects, particularly the provision of food, and money for church and

¹ The situation is further complicated by the fact that some informants seemed, in general discussion, to use the terms kainga and utu interchangeably as if kinship and residence were still the same thing. In explaining the absence of another person at a feast, my informant stated simply that "he was not of my kainga" when he presumably meant "he was not of my utu" and did not see any contradiction in the fact that they both were resident on the same kainga land. In addition, some informants associated particular named land tracts (kainga) with particular ancestors and their offspring, which would indicate that the connections between the boti and the kainga (see pp. 78-81) in the past still have some meaning today.

village feasts. In this way essentially unrelated people are brought together to work for particular common social goals. In recent years these units have extended their activities into the economic field by setting up mronron; small cooperatives which sell store goods, bread and other goods for cash or coconuts. They are organised on a kainga basis and in most cases membership is restricted to families resident on a particular kainga. Each group takes a lively interest and pride in the success of their venture and inter-group jealousy reinforces group identity. Common residence is clearly one reason why the kainga rather than a kin-based unit provided the basis for mronron organisation, but the fact that the kainga is no longer a traditional entity may have made it easier for members, behind the anonymity of a group, to pursue such non-I-Kiribati goals as money-making less encumbered by traditional sanctions and away from the fears of predominantly kin-based redistributive mechanisms such as bubuti.

The kainga has thus largely lost its kin associations and now provides a focus of common interest through neighbourliness and common action through working together on church and village projects and in the running of cooperative economic ventures such as mronron.

The Mwenga

With the demise of the traditional kainga and the dispersal of its constituent mwenga to disparate locations within the new village, the importance of the utu declined and with it the influence exerted by its head, the atun te kainga, over everyday activities. The importance of the mwenga or individual households increased. Small groups of mwenga may still act as a limited kin group but the separation of constituent utu segments increased both the possibility of and necessity for individual household action in everyday life. This tendency was reinforced by the fact that early colonial and mission administrators stressed the household as the basic unit in regulations and used it as a basis for taxation and labour levies for communal works. These factors emphasised the importance and discreteness of the household as a social unit.

On the other hand, the mwenga today must be regarded as a unit of residential convenience rather than an enduring social entity.¹ Ties of blood, adoption and marriage are strong enough to give individuals some sense of belonging together and labour and resources are usually pooled for common economic ends while resident in the one mwenga. However, extreme mobility characterises mwenga membership (see Table 6-3); shifts occur with marriage, pregnancy and childbirth, preparations for feasts, employment, visits to other utu members' households, family quarrels and the availability of alternative places of residence. Thus the mwenga cannot be said to be an important social unit with a readily predictable composition and united by common long-term social and economic goals. It is simply a vehicle of day-to-day economic cooperation.

Herein lies something of a dilemma in the presentation and discussion of the empirical data for this study. Data collection began with the assumption that the household was a significant and basic social and economic unit. The household seemed to be the logical unit on which the census should focus as a means of establishing the fundamental character of the community. It was only after fieldwork had progressed for some months that the full extent of mobility and the resulting flexibility of the household unit became apparent that its importance as a social unit had to be reassessed.

The household on Tamana should not be automatically equated with that described in many classical peasant economies. It lacks the chef d'entreprise (Franklin 1969: xv) who oversees and coordinates the activities of the constituent members in order to allocate the available land and labour resources to achieve particular goals. In the short-term the pattern of activities will reflect the demands of the annual agricultural cycle. In the longer-term it will be influenced by the age of the household members and the need to balance the demands of consumption against the labour available. The flexibility of household membership on Tamana ensures that the pattern of household development

¹Maude (1963: 31), speaking of the mwenga in the 1930s, came to much the same conclusion. Because of the constant mobility of individuals Maude questioned the validity of Goodenough's (1955: 73) description of the household as a kin group.

over time is not so clear-cut.

On Tamana the household remains the obvious and only basis for study. People do live together in spatially separated entities (mwenga) and while they are there the buildings are "home" to them. They return there for most meals and to sleep and are more likely to cooperate and coordinate activities with individuals from the same house rather than with individuals from other houses. Thus the "eating out of one pot" definition of the household does serve to delimit a basic unit of residence and cooperation in society and this same group tends to exploit constituent members' land resources, fish, gather and consume food gained from the group's activities and pool income from the sale of copra, handicrafts, other products and remittances to buy food for the group, pay taxes or other commitments. However, on Tamana there is no annual agricultural cycle. The coconut, a continuously productive tree crop is the staple. Fishing is the other major food source and this has no marked seasonal cycle. The environment is such that no rigorously planned and executed production system is necessary to ensure the group's survival through non-productive seasons.

In addition the ethos of the community stresses the value of cooperation and of maintaining equality within society. This is translated into action through the operation of communal work groups. The airiri work groups for women produce materials necessary for the maintenance of the home. The mronron provide the focus for many households' cash-earning efforts. Thus at least part of the activities of individuals within the household on most days will be determined, not by a chef d'entreprise to meet immediate needs, but rather by an outside corporate body which has more general long-term social goals. The islanders show a marked preference for this sort of work because of the enjoyment gained from working in groups. This has the effect of reducing the drudgery involved and enabling large goals to be met with the input of small but continuous effort over a long period. Large needs thus do not demand intensive sustained effort and the foregoing of other more pleasurable activities.

These differences must constantly be kept in mind when comparing the data presented here with other studies of classical peasant societies. It has an important bearing on the manner in which household entities respond to economic opportunities. It is a reflection of the social

system and its values, the particular nature of the island environment and the opportunities it presents for subsistence production and cash-earning and the linkages of the Tamana economy with the centres of employment in Nauru, Ocean Island and Tarawa as well as the flows of remittances that return to the island economy from them.

The Mwenga Census 1971-2

The following tables summarise the data collected during the census of Tamana households in December 1971 and January 1972.

Household Size

Household size ranged from one to 16 members with most households having between three and seven members. Mean household size for Tamana was 5.91 persons and the small difference between villages in mean household size is not significant.

Table 6-1. Size of Households, Tamana Island, January 1972

Number of Members	Number of Households			
	Barebuka	Bakaka (excluding Govt Station)	Bakarawa	Tamana (excluding Govt Station)
1	4	9	4	17
2	8	3	8	19
3	12	7	6	25
4	9	9	4	22
5	6	12	10	28
6	12	6	12	30
7	7	11	9	27
8	10	4	3	17
9	4	5	7	16
10	4	5	4	13
11	3	3	4	10
12	2	-	4	6
13	-	2	-	2
14	-	1	1	2
15	-	-	-	-
16	-	-	1	1
Total No. Households	81	77	77	235
Total Population	456	445	488	1440
Mean Size of Household	5.63	5.78	6.34	5.91
S.D.	2.87	3.18	3.35	3.14

Source: Fieldwork, Household Census Dec 1971-Jan 1972

Analysis of household structure presents certain difficulties because the conclusions reached on structure depend very much on which individual becomes the reference point by which relationships of other household members are specified. Because of this it would be possible to assign households with basically the same pattern of kin relationships to different categories depending on which individual is designated as the head. In each instance during the progress of the census it was left to the respondents to specify who the head of the household was. As later study showed, this was not a position of great importance, particularly because of the constantly changing household composition. In addition, the head of the household never seemed to assert authority over other household members in decisions relating to the productive strategies of the household.

For these reasons the data presented in Table 6-2 are of limited usefulness. They give some insight into the diversity of household structure. Only 33 percent of the households could be classified as nuclear households of two generations only. More complex configurations of three generation extended families and these and nuclear families augmented by other kin make up a further 59 percent of households. Nearly eight percent of households consisted of one person only, usually elderly people whose close kin were all away overseas. A surprisingly large proportion (38 percent) of the households are headed by women. A small number of households contain members unrelated to either the head or the spouse. Their presence usually reflects friendship, particularly those made while in employment off the island.

Table 6-2. Household Composition, Tamana Island, January 1972

Household consisting of			Augmented by					
			Kin of male head or former (absent/dead) male head		Kin of female household head or spouse of male head		Kin of both	
	No.	%	No.	%	No.	%	No.	%
Married couple	7	2.98	3	1.27	1	0.42	2	0.85
Married couple and children	43	18.30	18	7.66	4	1.70	7	2.97
Man and children	5	2.12	1	0.42	-	-	-	-
Woman and children	23	9.79	4	1.70	14	5.95	1	0.42
Subtotal nuclear or fragments of nuclear households	78	33.19						
Married couple, children and grandchildren	25	10.63	7	2.97	3	1.27	2	0.85
Man, children and grandchildren	7	2.97	1	0.42	-	-	-	-
Woman, children and grandchildren	19	8.08	1	0.42	5	2.12	-	-
Man or woman and grandchildren	4	1.70	1	0.42	-	-	-	-
Man or woman only	18	7.66	3	1.27	4	1.70	2	0.85
Total	151		39		31		14	

14 (5.95%) households had unrelated people in them who were not adoptees or prospective adoptees.
 No distinction between natural and adopted children was made.

Source: Fieldwork, Household Census Dec 1971-Jan 1972.

Factors Influencing Household Composition

Much of the diversity in household composition can be related to the differing stages reached in the life cycles of its members. Children, natural or adopted, normally live with their parents until marriage, although they may spend varying lengths of time in the households of grandparents, parents' siblings or even more distantly related kin. Superficially this is an expression of friendship or obligation on the parents' part, but often there is a deeper motive involved; by looking after an aged relative or other neglected person the child can expect a gift of land in return.

On marriage the couple usually live first with the man's kin, but as the birth of the first child becomes imminent, they move to the girl's kin and usually stay there until the child reaches the age of one. This pattern may be repeated with following pregnancies. There are no pressures on the couple to set up an independent household and indeed, this would be considered an unnatural and lonely existence. Thus at any one time a

household could contain sons and daughters, their spouses and children, or none of them, depending on the point they have reached in their child-raising careers (tempered, of course, by the outcome of the inevitable quarrels and reconciliations). Early married life is characterised by a shuttling between two lots of kin.

With maturity in a marriage a certain ambivalence in attitudes becomes apparent. While all informants stressed the inherent loneliness of the nuclear family, there is an obvious hankering for independence, to be in a position to control one's own family's behaviour, to be oinibai (see p.197). As parents age and lose their economic independence, one of the offspring groups takes over the running of the household. Normally this would be the eldest son as he usually inherits the family house site and dwellings. Crowding or personal friction may encourage other siblings to move elsewhere; to households belonging to the spouse's kin, to houses made temporarily vacant by the absence of kin in employment overseas, or if vacant kainga sites and enough cash to bubuti labour is available, a new house might be built. For junior siblings without access to parental or alternative dwellings, life can be an uncomfortable, transitory existence, shifting between relatives' households - not because they are related, but because they are not independent or oinibai. Friendship and feuds thus become an important factor in household composition. Divorce and the absence of husbands in employment off the island explain many of the households headed by women.

The diversity in household structure can thus be attributed in part to the operation of such factors as patterns of life cycle mobility, limited access to dwellings or residential land and cash for house-building, but it is also important to see the household in its wider social and environmental context. In a situation where land tenure is individualised and where land rights are gained through both parents, a person does not have to belong to a particular localised social group in order to gain access to the group's productive resources. Similarly, in an environment where the major food and cash crop is slow-maturing, but once mature continuously-productive, there is not the need to bring together a labour force to organise agricultural production on a seasonal basis to ensure the group's future food supplies and well-being. This generates different demands on household labour and any change in household workforce would not have the same impact on productive capacity that it would in an agricultural system. These added factors presumably make mobility between households feasible.

Population Mobility and Changes in Household Composition

Mobility data on an island-wide basis are not available, but frequent visits to the sample households¹ enabled some measure of changes in these to be made. During the study period only two of the 16 households had no changes in personnel; one household experienced 27 changes. The mean for all households was 10.44 changes over the study period or 1.74 personnel changes between each of the seven points at which data was collected between the census in January 1972 and the final data-collecting visit in December 1973. The figures are a minimum estimate of mobility because they do not include departures and returns completed between data-collecting visits. They emphasise the fluidity of household composition, and also provide a caution in the interpretation of household data on production and performance.

Table 6-3. Mobility by Age and Sex for Members of the 16 Sample Households. Assessed at seven points in time between January 1972 and December 1973.

Age category	MOBILITY DATA									MOBILITY INDICES		
	Sex	Maximum no. persons in age category	Arrivals from other Tamanan households	Departures to other Tamanan households	Arrivals from other islands	Departures to other islands	Total internal moves	Total external moves	Total moves	Internal moves Maximum no. persons	External moves Maximum no. persons	Total moves Maximum no. persons
>60	M	3	1	2	-	1	3	1	4	1.00	0.33	1.33
	F	3	3	4	-	-	7	-	7	2.33	-	2.33
	T	6	4	6	-	1	10	1	11	1.67	0.17	1.67
30-59	M	20	3	3	5	5	6	10	16	0.30	0.50	0.80
	F	18	2	4	3	4	6	7	13	0.33	0.39	0.72
	T	38	5	7	8	9	12	17	29	0.32	0.44	0.76
19-29	M	10	2	4	3	4	6	7	13	0.60	0.70	1.30
	F	17	9	7	2	4	16	6	22	0.94	0.35	1.29
	T	27	11	11	5	8	22	13	35	0.82	0.48	1.30
12-18	M	10	4	4	4	4	8	8	16	0.80	0.80	1.60
	F	10	6	3	-	3	9	3	12	0.90	0.30	1.20
	T	20	10	7	4	7	17	11	28	0.85	0.55	1.40
<11	M	33	11	9	-	3	20	3	23	0.63	0.09	0.72
	F	32	15	13	5	8	28	13	41	0.88	0.40	1.28
	T	65	26	22	5	11	48	16	64	0.75	0.39	0.96
Total all ages	M	76	21	22	12	17	43	29	72	0.57	0.39	0.96
	F	80	35	31	10	19	66	29	95	0.83	0.36	1.19
	T	156	56	53	22	36	109	58	167	0.70	0.38	1.08

Source: Fieldwork 1972-73.

Natural increase (3) not included

¹ These households were selected as a basis for the collection of data on household resources, labour inputs and time allocation, subsistence and cash production, income levels and income redistribution, expenditure, savings and capital formation. The procedures adopted in the selection of these households is discussed in Chapter 1.

The indices presented in Table 6-3 show that movement between households is more common than moves to or from the island, and that internal mobility is highest in the over-60 age group and lowest in the 30-59 age group. These figures are in keeping with the pattern of household development described previously. The pattern of external mobility is somewhat different, being lowest in the over-60 age group. Men are more likely to travel off the island than women, and this reflects the draw of employment at Ocean, Nauru or the New Hebrides, visiting Tarawa with the secondary hope of getting jobs, or even just running away to the "bright lights".

Table 6-4 classifies external moves by purpose and age and sex of the mover.

Table 6-4. Purpose of Overseas Moves by Members of Sample Households Assessed at Seven Points in Time between January 1972 and December 1973

Purpose	Age Groups												
	> 60		30-59		19-29		12-18		< 11		All Age Groups		
	M	F	M	F	M	F	M	F	M	F	M	F	T
Visiting	-	-	5	5	5	4	4	-	-	7	14	16	30
Employment	-	-	3	2	-	2	-	3	3	5	6	12	18
Medical	1	-	2	-	2	-	-	-	-	-	5	-	5
School	-	-	-	-	-	-	4	-	-	1	4	1	5
Total	1	-	10	7	7	6	8	3	3	13	29	29	58

Source: Fieldwork 1972-73, Departures from or returns to island not differentiated.

Visiting is clearly the most important reason for overseas travel. Employment as a reason for moving is over-represented because two of the three males in the 30-59 age group were in fact coming to Tamana for leave or returning at the end of leave. The figures for women and children in the employment column reflect moves as a result of husband's employment.

The data provided so far stresses the variability and complexity of household composition and the fluidity of the household unit, and cautions against thinking of the household as a concrete and enduring social unit. Rather, it emphasises the household as a functional unit

brought together for widely different and varying reasons. These factors make generalisation difficult and should always be kept in mind when interpreting the data presented in the following chapters.

The Household as a Productive Unit

The mwenga of today, unlike the mwenga and kainga of the past, cannot be regarded as self-contained economic entities organising resources of land and labour to satisfy their own wants for sustenance, and fulfilling only wider social obligations within Tamana society. They are now part of a much larger and more complex economic system. This process of incorporation into the capitalist economy began with trade and today the relationships between the island and the wider world have ramifications for economic behaviour right down to the household level. Tamana households participate in at least three interacting spheres of economic activity.

Every household retains quite strong ties with the subsistence production system; this is clearly evident in the diet data presented in Chapter 10. The major source of protein in the diet, is still fish caught by household fishermen. The staple foods are still the traditional tree crop products which have no requirement for constant tending or seasonal cultivation cycles. For these reasons the subsistence production system has perhaps more in common with a hunter-gatherer economy than an agricultural one. The character of the subsistence economy on Tamana is described in detail in Chapter 9.

The penetration of capitalism impinges on the lives of Tamana households in two main areas: it provides a market for island produce and a supply of commodities not previously available on Tamana; it also provides a market for labour whereby Tamana individuals can migrate to the centres of employment to sell their labour, and in so doing gain a livelihood, remit surplus income to kin at home and return with capital goods to supplement their island life. The small-scale commodity production that has emerged on Tamana is export-based and concentrates almost exclusively on the production of copra. In this way the islanders have some characteristics in common with peasant societies in that they produce for their own consumption and for sale using family labour while still possessing a degree of control over the resources and equipment used in production (Harriss 1982: 24). The characteristics and extent of

this production for exchange are described in Chapter 10. Comparison between households allows some inferences to be drawn as to the differentiation produced by differing degrees of incorporation into the cash economy. This theme is carried further in Chapter 11 where a more general discussion of development and change is presented. At this point it is sufficient to note that all households engage in some production for exchange but, as is also clearly evident in the diet data presented in Chapter 10, no household specialises in production for exchange to the extent that it replaces subsistence production as a major contributor to sustenance. Nor is there evidence to suggest that incorporation has proceeded to the point where new social and economic classes, particularly that of capitalist farmers and agricultural labourers, are beginning to emerge. The possible reasons for this will be elaborated in Chapter 11.

Thus, while there is no evidence of proletarianisation of the Tamana people as the result of the commercialisation of agriculture, Tamana people do engage in periods of wage labour of varying length. Until recently this was almost exclusively focussed on the phosphate mining operations at Ocean Island and Nauru. More recently Tarawa has assumed importance as a major centre of employment.

Recruitment for work on Ocean Island is tightly controlled and on a three year contract basis. The British Phosphate Corporation provides transportation to and from the workings, accommodation and a ration allowance for the recruit, his wife and up to two children. The Nauru Phosphate Corporation, which took over from the British Phosphate Corporation when Nauru gained independence, provides similar conditions. Thus the Corporation determines the number of islanders who can migrate to wage employment at these centres at any one time.¹ The importance of this labour migration to the household economy is that it is seen by the islanders as an integral part of outer-island life. The absence is temporary; the migrant gains experience, accumulates cash and capital items needed for life on Tamana and fulfils obligations to kin and community through remittances and contributions to village and island funds.

¹ In 1978 there were 447 I-Kiribati men in the employment of the Nauru Phosphate Corporation while in the same year on Ocean Island employment of non-Banaban-I-Kiribati in the cash sector exceeded 800 (Walsh 1982: 163,174).

There is no expectation that the move will be permanent and few migrants serve more than two contract terms and rise to hold semi-skilled or skilled jobs. Because of the tight control on recruitment there has been no possibility for the emergence of an urban centre with an identity separate from the phosphate workings and generating additional avenues for employment. The only way Tamana people could gain rights to reside on Ocean Island or Nauru would be through marriage to a resident and in the case of the former, the indigenous population was resettled on Rabi in Fiji after World War II (see Silverman 1971). Thus migration to Ocean Island or Nauru augments, rather than provides an alternative to life on Tamana. The remittances received by kin on Tamana are a substantial proportion of household cash income and have a considerable influence on copra production there.

In contrast, migration to the only real urban centre, Tarawa, is now largely unregulated and uncontrolled. A major proportion of the employment opportunities arising on Tarawa are the direct result of government activity particularly in the provision of infrastructure and welfare services. Much of it is the direct result of aid programmes. Recruitment is not contract-based and there is a marked preference for employees with higher education qualifications. Unlike migration to Ocean Island and Nauru, migration to Tarawa is more open-ended and it is seen as the exchanging of one way of life for another. There is no expectation that the migrant will return and while remittances do flow from those employed in Tarawa, higher living costs, more opportunities for spending money and the need to support other migrant kin without jobs probably explain why remittance levels from Tarawa are lower (see Table 10-5). Life on Tarawa is seen increasingly as an alternative to rural life and hence we see the beginnings of the emergence of a proletarian population.

Household Types

Thus the households on Tamana have features in common with hunter-gatherers, subsistence farmers, peasants and proletarians. The process of incorporation has not proceeded to the extent that distinct household types have emerged where households rely predominantly on subsistence or commodity production or wage labour as a means of sustenance. All households rely on all three and at different times one may achieve prominence but this is more likely to be situational rather than conscious strategy.

The diversity of household structure and the mobility of personnel has important implications for the emergence of household types which writers in other studies have distinguished, defined and correlated with differing economic performance; T.S. Epstein's (1968: 63-64) classification of the Tolai households into elders, middle farmers and bachelors comes to mind. On Tamana there appears to be no Chayanov-type cyclic pattern of household development through which all households pass and which result basically from changes in the ratio of dependents to workers. As later chapters will show, the greatest differences between Tamana households are situational and result mainly from differences in access to remittance incomes and the effect this has on household activity patterns and cash-earning activities on Tamana. This leads me to make a twofold classification distinguishing households where cash income changes over time reflect changes in cash-earning on the island from those where income fluctuations result from external sources such as increases or decreases in remittances or wage income. The basis of this distinction is discussed more fully on p.358 and for want of better terms these categories will be designated "local-dominated" and "other-dominated" households.

While these distinctions are not age-controlled in that every household would progress with time from one to the other, Table 6-5 does show that the distinction is mirrored in characteristics which are age-related. Older households are more likely to be dominated by external sources of income simply because they are the ones which can have adult offspring in employment overseas. Similarly households having to operate solely in the local cash-earning context are likely to be younger and without any direct linkages with the remittance economy. The heads tend to be younger, the households larger and nuclear rather than of more complex configuration, as well as having a higher number of consumers and a higher ratio of consumers to producers. Rather surprisingly, the "other-dominated" households do not, despite their more complex composition, have on average higher labour unit scores which may reflect the impact of outmigration. The mean per capita annual incomes of other-dominated households are substantially higher, but this cannot be taken to indicate a higher level of economic performance because of the importance of remittance income. These differences are situational and do not reflect

Table 6-5. Summary, Selected Characteristics of Sample Households Differentiated on Causes of Income Variation 1970-73

HOUSEHOLDS WHERE CHANGES IN ANNUAL INCOME REFLECT CHANGES IN LOCAL INCOME ('LOCAL-DOMINATED HOUSEHOLDS')											
Household head	Sex	Age	Household structure categorised nuclear/other	Size core household	Consumption units core household	Labour units core household	Ratio CU LU	Children or their spouses employed at Ocean Is. Nauru, ships or Tarawa	Mean annual per capita income 1970-73	Mean annual household income 1970-73	Bushlands per capita in ha
Enoka	M	45	Nuclear	13	8.70	4.60	1.89	-	\$ 8.59	\$ 111.65	0.23
Mari	F	40	Nuclear most of time	11	9.20	4.90	1.88	1	9.03	99.37	0.05
Temakai	M	48	Nuclear	7	6.10	4.90	1.24	-	13.08	91.56	0.42
Kaiaba	M	30	Nuclear most of time	7	4.90	2.30	2.13	-	13.59	95.14	0.74
Tambeti	M	51	Other most of time	5	4.60	4.30	1.07	1	15.41	77.07	0.82
Maera	M	30	Nuclear most of time	5	3.90	2.00	1.95	-	16.06	80.31	0.83
Aam	M	53	Other most of time	8	5.00	4.30	1.16	1	21.86	174.90	0.73
Komeri	M	30	Nuclear	4	3.20	2.00	1.60	-	24.05	96.20	1.67
Total		327		60	45.60	29.30	12.92	3	121.67	826.20	5.49
Mean		40.88		7.50	5.70	3.66	1.62	0.38	15.21	103.28	0.69
SD		9.80		3.12	2.18	1.32	0.41	0.52	5.51	30.90	0.49
HOUSEHOLDS WHERE CHANGES IN ANNUAL INCOME REFLECT CHANGES IN OTHER SOURCES OF INCOME ('OTHER-DOMINATED HOUSEHOLDS')											
Tima	M	52	Nuclear most of time	5	4.30	3.30	1.30	2	20.65	123.87	N.D.
Barnae	M	72	Other	5	3.30	2.60	1.27	1	26.36	131.79	1.57
Kaiaa	M	46	Other	6	6.00	6.00	1.00	1	27.85	194.97	0.55
Katirongo	M	31	Other most of time	5	4.40	2.60	1.07	-	44.06	220.28	0.19
Bakanoka	F	51	Other	2	1.50	1.00	1.50	1	58.73	117.46	0.37
Tokintekai	M	68	Nuclear most of time	3	2.60	1.90	1.37	2	58.86	176.59	1.73
Tebebita	M	54	Nuclear-Son's marriage childless	3	2.80	3.00	0.93	1	67.89	203.67	1.70
Kamantoa	M	52	Other	7	5.50	4.00	1.38	2	132.14	924.99	0.73
Total		426.00		36	30.40	24.40	9.82	10	436.54	2093.62	6.84
Mean		53.25		4.50	3.80	3.05	1.23	1.25	54.57	261.70	0.91
SD		12.68		1.69	1.53	1.49	0.20	0.71	35.86	270.82	0.67
Level of significant difference between means for each household type (Student t Test)		97.50%		97.50%	95.00%	Not	97.50%	99.00%	99.50%	90.00%	Not

Source: Fieldwork

Consumption and labour unit scales arbitrarily adopted from Bathgate (1973) and calculated for the core household, the least changing and most regularly present population.

Consumption Units		Labour Units	
Age	0-1 = 0.0	Age	0-9 = 0.0
	1-4 = 0.5		10-14 = 0.3
	5-9 = 0.7		15-60 = 1.0
	10-14 = 0.8		60+ = 0.6
	15-50 = 1.0		
	50+ = 0.8		

better access to resources. They simply reflect connections with the larger outside economy and participation in this depends largely on fate rather than individual effort. The interrelationship between resources and performance will be analysed more fully in later sections.

The Village and the Island

The Maneaba, Boti, Unimane and Island Affairs

The same outside influences that transformed the kainga and the mwenga also affected the principles of island organisations. The process of change here was perhaps more continuous because the changing nature of articulation with the outside world and the changing use the colonial power made of "island government"; first as a means of control and later as an agent of change in the push towards independence. Like the kainga, the maneaba today retains few, if any, of its traditional functions. Both the central maneaba and the "maneaba for waiting" have been replaced by island and village maneaba respectively which function primarily as community meeting houses. If the boti system was ever fully developed on Tamana (see p. 88), all vestiges of it have now disappeared, although a few of the unimane still choose to stand in front of particular pillars when speaking to an assembly. The regulatory functions formerly vested in the unimane and maneaba government have long since been absorbed by the government-instituted courts, Kaubures and Island Councils. The unimane as a body is a pale shadow of its former self and the public at large shows a remarkable ambivalence towards it. Membership is now open to all men over 50 years of age and many potential members regard it as a waste of time. The unimane's main function is to raise funds for the island maneaba, organise feasts for official visitors and workers returning from overseas and manage the An Tamana fund (a substantial sum of money accumulated from gifts from returning workers and levies on workers overseas, and which can be used for particular community projects). Such activities earn the unimane little respect from the community, but their work is seen as work for the good of the island whereas the Island Council is seen to work for the Government and in instances of conflict between the community and the Council attempts were made to get the unimane to assume their former role and call a maungatabu, or whole-island meeting, to air the community's displeasure at certain Council actions. In 1973 the community took the unprecedented action of dismissing their Island Council and referring the matter of new elections to the District Office for action.

Despite such isolated instances, the unimane have seldom played an important part in Island Council activities, either as a body or as individuals. The reasons for this lie in the fact that the Council is

seen as an extension of central government and dialogue with it is perforce in English. Most older men do not have the command of English seen as essential for dealings with Tarawa and hence are unwilling to put themselves forward for election and service on the Council and it is still regarded as part of government and not part of the Tamana social system. No island-wide institution, other than the church and its committees and perhaps the Tamana Cooperative Society, has succeeded in unifying the island and representing its aspirations as the maneaba system did. Thus tension between villages is common and inter-village jealousies affect the outcome of many community projects. However, Tamana people are proud of their island identity and are capable of working concertedly for island ends. This is in no small degree attributable to the unifying influence of the church, and the absence of interdenominational rivalry. They value their unity and contrast their Blessed state with that of other communities saddled with Protestant/Catholic friction, even to the extent of drawing parallels between these communities and the news items on Northern Ireland relayed through Radio Tarawa.

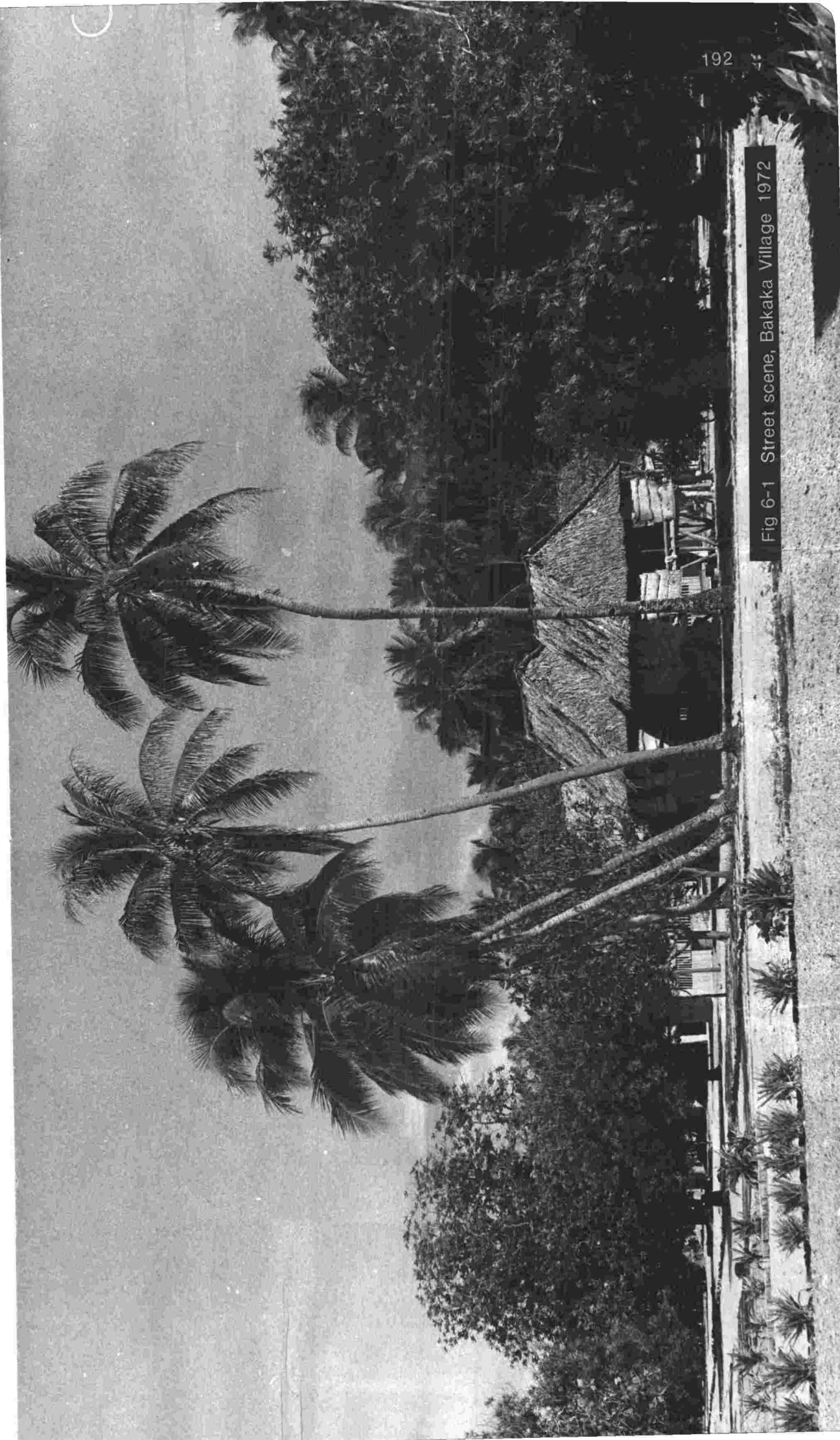
The Villages

As the result of mission and government policy settlement became concentrated along the western side of the island. Initially, there were probably two villages which possibly correspond with the traditional north-south division of the island and separated by the government and mission stations at the boat landing. In the late 1930s or early 1940s a dispute between the Native Magistrate and some members of the southern village allegedly led to fission and the supporters of the Magistrate combining with the people of the southern end of the northern village to form Bakaka village between Barebuka in the north and Bakarawa in the south. For many years there has been no physical division between the villages and they form a continuous ribbon of housing along the main road. In 1945 the villagers commenced building their own village maneaba which now form the focus of village activities.

Each village maneaba is controlled by the botaki n rorobuaka (meeting of married men) which draws its name from the warrior class of

traditional society and which is assisted by a women's club and by the roronga (single men). Membership of the rorobuaka is by village of residence although some men choose to activate membership of rorobuaka in other villages by virtue of having been born in or through the ownership of kainga land in that village. The roronga has no corporate entity or enduring structure and the women's clubs appear to be recent groupings and less enduring in structure and function than the rorobuaka.

Fig 6-1 Street scene, Bakaka Village 1972



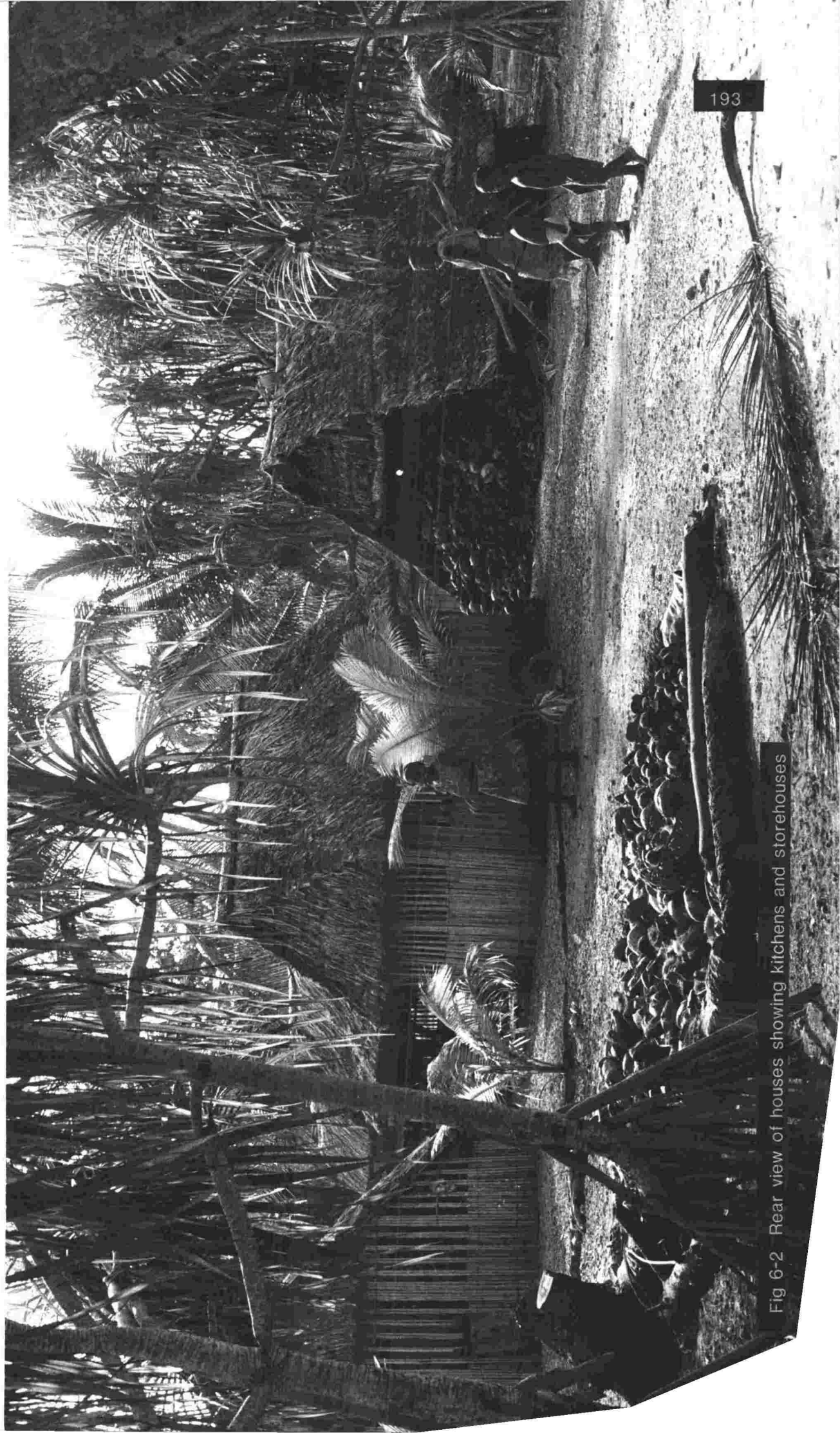


Fig 6-2 Rear view of houses showing kitchens and storehouses

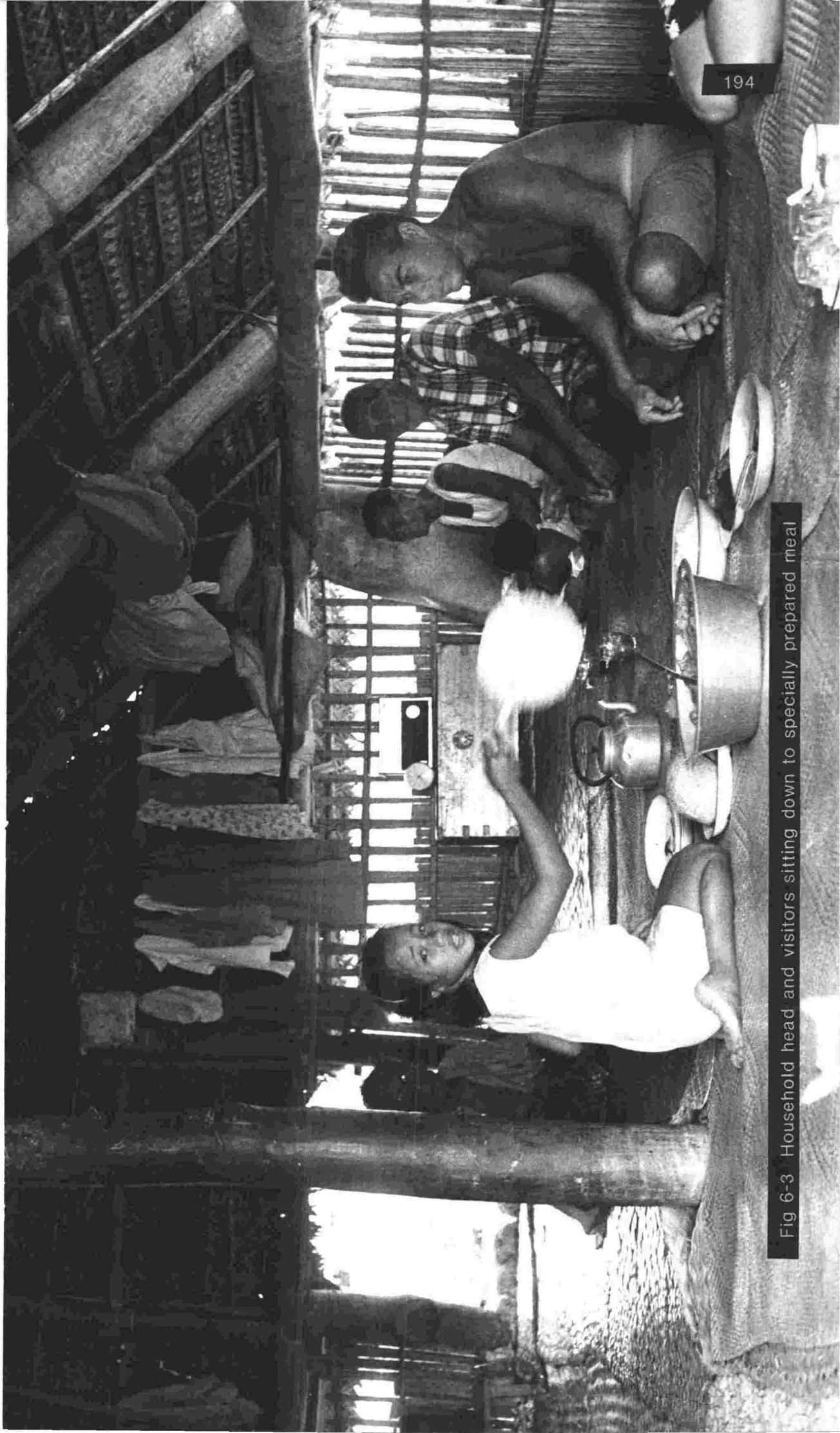


Fig 6-3 Household head and visitors sitting down to specially prepared meal

administrative body capable of meeting the needs of both the islanders and the administration.

Even at the time of fieldwork in 1972-4 this had not been achieved. The Island Council was seen as "Government" and by extension the karo te utu ("head of the families") as the unimane had been in traditional society, but the people no longer see themselves as the rabata n tautaeaka or "the body of the government" as they did in the past. The Council is strictly a means of communicating with central government in Tarawa and as such demands skills in English and knowledge of European ways; skills the unimane do not usually possess and which often are the preserve of younger men who do not necessarily have the respect of the community at large. In addition the Council's structure and functioning are not "Gilbertese"; the president is put in a position where he can, or even has to, coerce others; issues are decided by votes rather than by consensus and members are elected rather than required to serve. The Council is seen to have the function of enforcing decisions taken by a higher body. Thus no satisfactory island-uniting organisation has developed to replace the system of maneaba government and, with the exception of the church and possibly the Cooperative Society, no island-wide organisations operate to unite and orchestrate island identity. Despite this, the island community is not inherently prone to excessive factionalism and conflict the people see themselves as an entity protected from the outside world and themselves by an all-powerful "Government" of which they are no effective part. This factor contributes both to an uncritical acceptance of and often unsustained response to administration-sponsored programmes and to a willingness to promote programmes to achieve community recognised goals.

Summary

The nature of Tamana society has changed considerably over the last century. The utu is still a fundamental unit in society and provides a means by which individuals identify themselves. The utu does not provide a basis for action in everyday life or for the pooling of land and labour resources for particular economic ends. Utu members should be sensitive to other utu members' needs and respond to requests for help. The mwenga, or household has emerged as the primary unit of economic cooperation but, in comparison with the kin-based utu, is a constantly varying and fragile social unit, which because of its changing labour force and resource

base, cannot pursue long-term economic goals and strategies at a corporate level. The kainga is now a residence-based rather than kin-based group which appears to have some potential as a vehicle for the pursuit of longer-term economic goals because it aggregates labour and resources and may have some long-term constancy of numbers even though individual membership may be constantly changing. In addition, these residence-based groups may not be, because they are new and non-traditional, subject to the same pressures of conformity as kin-based groups. The village has emerged as an important social unit, although as yet, no entity capable of expressing island identity and aspirations has emerged to replace the defunct maneaba system. The church remains the most influential unifying principle at the island level in Tamana society. Despite the loss of the maneaba and because of the absence of sectarian jealousies generated by rival mission influences, the people of Tamana see themselves as a community apart, differentiated from the other islands in the Group because of this unity and their ability to cooperate among themselves and with government on community projects. The sense of unity is no doubt strengthened by the small compact nature of the island and the fact that the three villages are part of the one continuous built-up area.¹ The unity encourages the islanders to endorse the traditional values of equality and conformity, fosters cooperation and tends to downplay the importance of the individual as an agent of change.

Tamana Values in the 1970s

As a means of providing a context for the economic behaviour of the household studies presented in the following chapters it is important to gain some insight into the basic premises and sets of assumptions which underlie normative behaviour in present day Tamana society. This brings us to the study of values, which Firth argues:

"can give a useful systematic frame of reference for social behaviour and...help us to understand the meaning of action... Our use of the term is a way of talking about behaviour. It suggests persistence of a common element over time. We recognise a quality isolate in antecedent and consequent."

(Firth 1964: 208)

What Firth is talking about here is very close to what Foster (1965: 293) terms the cognitive orientation of a society; "the unverbilised implicit

¹ Arorae has some of these features in common with Tamana. It is small and solely Protestant. However, there are two distinct villages and there seems to be a strong element of competition between them.

expression of their understanding of the 'rules of the game' of living imposed upon them by their social, natural and supernatural universes", and to Kenny's (1962-3: 280) use of "values" to denote a series of conceptions from which a preferred type of conduct is evolved and imposed by the social system. The values may be abstracted by analysis but may not be consciously recognised or verbalised by every member of the society. These ideals underlie behaviour patterns which are valued by Tamana society and call forth sanctions against non-conforming individuals.

The value system on Tamana is clearly an amalgam of reworked traditional, nineteenth century Protestant values with possibly some Samoan elements as well. The goal of every household on Tamana is to be oinibai. In Tamana usage¹ the term conveys the idea of freedom, self-sufficiency, ability to control one's own activities, and above all, being free of the need to bubuti. Thus oinibai and bubuti are mutually exclusive; to have to bubuti is an admission of dependence on others and a source of shame (mama) for the individual and his household. The term inaomata meaning "freedom" is used in much the same way in the northern Gilberts (Sewell 1976: 28), but on Tamana this term would not be applied to a person's status because there it means being "like a king or a chief" and is thus an anathema to another important Tamana value, the belief in equality, of being boraoi.

Land rights are basic to the concept of being oinibai; without land one cannot control one's own activities or set up an independent household. The land tenure system on Tamana, with its emphasis on individual ownership and inheritance through both parents, ensures that the prospect of an individual being entirely landless is remote (see p.108). As a corollary, a person cannot be deemed oinibai where the ancestral lands have been transmitted in joint tenure and where no formal distribution of lands (katautau) has been agreed upon. Such a situation could arise where no agreement between parties on distribution was reached before or after the parents' death and where final settlement awaits settlement in the land court or where one or more of the claimants has been absent from the island and the final division awaits their return. In either case the

¹Sabatier's dictionary glosses oinibai as "a valuable thing".

individual does not see himself as controlling the land and hence there is no incentive to plant or tend the lands as there is no surety that they will stay in his hands and pass to his children.

While the idea of equality is an all-pervading one on Tamana, three categories of wealth are distinguished, relating to land, possessions and money. A person well endowed with land is kauaba ("rich in land"), a person with many material possessions kaubai ("rich in things") and with much money kaumane ("rich in money").

Among the present adult generation there is still the feeling that wealth in land is the basis of real wealth because, unlike other forms of wealth, land remains productive all the time. Money comes only from work; and both money and the things it buys can be the target for bubuti whereas land is inalienable. However, years of declining returns from copra, access to wage employment and a greater range of imported goods has subtly changed views of self-sufficiency. With the advent of the copra trade people who were kauaba had greater access to cash and imported goods and became kaubai. Those with little land could not eat and make copra too. However, with outmigration to employment and greater awareness of the outside world, aspirations have risen and independence is more than just having land, housing and an assured means of subsistence. It now includes owning a bicycle, sewing machine, canoe of imported timber, clothing boxes, radio, cooking utensils, woodworking tools and a nest egg of money for school fees and taxes. Investment in a child's education is also seen as a means of ensuring independence through remittance income and gifts from their salaries on gaining employment off the island. Most of the goods aspired to are not, and probably never have been obtainable on Tamana. The stores never stocked them and copra incomes were so low as to make saving for them a daunting prospect. Thus a period of wage employment on Ocean Island, Nauru or on the plantations of the Line Islands was seen as an important segment of a young man's life cycle. He went overseas to karakea te kainano (to stop being poor), to get the necessary capital goods to set up a household, to accumulate a nest egg from which to finance future large cash outgoings and to see new and different things. To go and return without these would incur censure and shame because it would indicate a lack of hard work and carelessness with wages. Employment off the island was thus an integral part of island life and in no way an alternative to it. The expanded

access to material wealth and the generation of remittance incomes have added the wealth categories of "rich in things" and "rich in money".

While these wealth categories are recognised by Tamana people, they confer no status on the possessor of the wealth. Wealth and status are not related in Tamana society. In fact the belief in equality, in being boraoi is probably the most staunchly held of Tamana ideals. It must have been at least as obvious as the islanders' nakedness to the L.M.S. missionaries on their first visit as Gill's (1872: 72) terse summing up of Tamana as "strict democrats here and no circumcision" shows. The term signifies the belief that all must have an equal share and that no one, through amassing wealth or pursuing "non-normal" Tamana activities, should attempt to raise himself above his fellow man and thereby prejudice another Tamana person's right to gain a livelihood.

Evidence of precept put into practice can be seen in the islanders' response to the administration's attempts to set up a cooperative store on Tamana after World War II.¹ In 1957 the Cooperative Societies' Officer (F 60/1/5: 32) recorded that:

the tendency was for the cargo to be shared out between all families on the island as soon as it was received, regardless of the families (sic) ability to pay, or else...for the goods to be held in the society's store until all the families had accumulated enough money to pay for their share.

The belief in equality is not simply a static concept dealing with individual situations as they present themselves; it applies in the longer-term to the appraisal of actions which could prejudice the access of future individuals to the means of gaining a livelihood on Tamana. Some individuals registered as landowners on Tamana have never been resident on Tamana and are not likely to do so in the future. Their lands are used by caretakers, but since planting and ownership are synonymous, many of these lands are poorly kept and are not very productive. Section 12 of the Tamana Land Code makes specific provision for the formal redistribution of such lands among the owner's kin remaining on the island but despite this, no informant could remember any instance of the provision having been enforced. The reason for this

¹ Tamana did not have a resident trader for many years before World War II and the islanders traded directly with schooners belonging to Burns Philp and On Chong and Co.

is the underlying belief that all people of Tamana blood have a right to claim a livelihood from the island and that the act of redistribution could deny the landowners' offspring such a right. The individual proposing the redistribution would be guilty of going against the belief in equality by trying to get more land than is rightfully his due.

Status is not achieved through increasing one's access to productive resources and accumulating wealth and the influence that goes with it. In fact, several mechanisms operate to prevent the achievement of status and the accumulation of wealth. In the first instance each individual is required to play an equal part in village affairs and leadership is supposed to follow a strict pattern of rotation. All village members are expected to serve a term as president of the village committee and an individual will usually not serve more than one term unless asked to because of special reasons by the members. The ways in which wealth might be used to gain status and vice versa are thus short-circuited and the pressure is on the individual to shoulder responsibility and act in a way that does not make him conspicuous in the community. Satisfaction is gained at an individual level, not through conspicuous displays of wealth, but by letting the general public see how well your house is thatched, your canoe maintained or babai pit stocked and cultivated, no matter how small or large they are, how often your family eats ocean fish and how little watered down one's toddy is. No particular status appears to accrue from the consumption of imported foodstuffs. They are regarded as poor substitutes for local foods because they are digested too quickly and fail to make the eater feel satisfied through a whole day. The emphasis is also on skill; being a successful fisherman, a skilful maker of mats and the like, to use these skills to maintain a household that is "alive" and to do this in such a way as to avoid prejudicing another's right to gain a livelihood. It involves treading a careful path between generosity and selfishness. To be generous (te akoi) was a valued quality in traditional society but is now thought of in today's terms of "following the Bible". A generous person gives of a surplus he may have without being asked, without expecting immediate reciprocation and responds to bubuti. In contrast a selfish person (kaiko n rang, literally "foolish about storing") never responds to bubuti, keeps everything to himself and is generally despised for this. Being realists, Tamana people admit to the strain of being constantly generous and value

the middle path of being tatabui, economical or temperate. It implies being careful without being selfish, looking after what you have without being wasteful. The definition by example frequently given by informants was that: "if you have ten cents you spend five and save five." Obviously the boundary between being tatabui and kaiko is a fine one and often varies with the standpoint of the observer.

While the following chapters clearly show quite large differences between households in access to land, capital goods, employment, remittances and education, various direct and indirect controls operate to lessen the impact of these differences and reduce the likelihood of conflict arising from them. Firstly the gap between the ideal of equality and reality is never openly acknowledged. Early in my fieldwork I was constantly assured that there were no real differences in wealth or access to resources on Tamana. When my improved knowledge of the situation made it difficult for my informants to maintain this fiction, they then said it was mama or shameful to talk about them. On the other hand, where an individual consciously engages in antisocial behaviour by being lazy, shirking communal duties, trying to amass wealth or engage in conspicuous consumption, gossip generally proves effective in bringing the individual back into line. Because the individual's utu is also implicated by the gossip they may bring additional pressure to bear on the individual.

The importance of bubuti in social control is difficult to assess because the extent of its operation seems to have altered with time. It may once have been an effective directly-operative levelling mechanism which achieved the redistribution of goods between households with adequate or more than adequate resources and those less well endowed; but it is not clear that it achieves this in the present day. In traditional society, where the island and its resource base were one and the same thing, where the range of needs and uses to which productive resources could be put were circumscribed, bubuti presumably provided a means by which short-term fluctuations in production and productive capacity and longer-term problems of access to resources could be overcome. It is possible that some households in traditional society may never have had adequate resources to survive independently, would have had to rely on bubuti to augment these and hence never have achieved the desired status of being oinibai. However, culture contact greatly increased the range of goods available, heightened the expectations and aspirations of people and

increased the disparities between households in the material goods owned. The scope for and potential impact of bubuti thus changed and many older men recount how in earlier years they lost most of the goods accumulated during work off the island to requests from kin and even unrelated people. Today bubuti is much more restricted and operates widely only at the level of small requests for everyday items when one household finds itself short and unable to meet its needs by other means. These should more properly be regarded as exchanges because reciprocation and some balance is ultimately expected. Persistently one-sided requests lead to adverse comment and gossip. Requests for goods of greater value are now uncommon outside the utu and even here restricted to smaller rather than larger items. The tarau or borrowing has to some extent replaced bubuti for major items.¹

While a bubuti is still technically irrefusable and the act of refusal would bring shame on the possessor of the item because it would demonstrate a lack of consideration for others' needs, there are pressures on the individual against making the request. The request itself is an admission of inadequacy, a lack of independence and hence a source of shame. Both these factors tend to restrict the context and frequency of bubuti on Tamana. However, bubuti and the fear of it are still pervasive elements in social control. It reinforces the belief in equality and operates to quell economic incentive. It discourages individuals from undertaking new and novel ventures which might radically raise their income above that of other members in the community and thereby engage in conspicuous consumption. It is perfectly acceptable for an individual

¹ There was one much talked about instance of bubuti for a large item involving unrelated individuals during fieldwork. It involved the school headmaster (from another island) and a school monitor of Tamana origin. The latter received a watch from relatives on Nauru and wore it to school where it became the target of a bubuti from the headmaster (who already had a watch). The monitor felt he could not refuse the request, no doubt partly because of shame and partly because of his non-traditional and subservient position to the headmaster. For his part the headmaster presumed on his position, his popularity in the community and the fact that he had no kin on the island to share the blame or censure him, to overcome the shame of the request. Wristwatches seem to be a constant source of trouble. I loaned my assistant one during fieldwork and he kept it knotted in his lavalava rather than wear it because he could not bear the shame of being seen with a watch when no one other than the schoolteachers, the pastor and the store manager had watches. Such was the power of the belief in being boraoi.

to go outside the community to earn money, accumulate capital goods and even remit money to his kin on the island because this act is outside the prevailing ethos, because the access to this world is determined by fate rather than individual endeavour and presumably does not prejudice another's rights to gain a livelihood from the island.

The Tamana view of fate is another factor which seems to operate to lessen overt dissatisfaction with the disparity between the ideal of equality and reality. Tibanga is a term which cropped up frequently during rambling discussions on the life history of people in the sample households. It was used in the sense of "share", "lot in life" and "fate". It is clearly something over which the individual has no control; it implies power or guidance from outside the system and in current usage has assimilated Christian dogma to mean "guidance from God" (E aronira te Atua). So it is tibanga whether one has few lands or many, a small or a large family, is recruited to work on Ocean Island or Nauru, gains selection for secondary schooling and the prospects this opens up for employment on Tarawa, or even selection for a job in the cooperative store or government station on Tamana, and there is very little that an individual can do about it. In a situation of individualised land tenure, governed by narrowly defined rights of inheritance and no buying and selling of land, where employment opportunities in the public service are initially determined by the selection for the Colony's two high schools and in earlier times at least by a ballot for recruitment with the phosphate companies, it is easy to see why fate plays such an important part in Tamanans' view of the world. It is seen as something exerted from outside and attempts to escape are rare.

While there are few instances of explicit attempts to alter the outcome of events and the distribution of wealth within the community, particularly through engaging in entrepreneurial activity (see p.343), the community at large does get involved in attempts to ameliorate and influence the operation of fate. In the case of balloting for unskilled jobs in the phosphate workings each village is given an equal share of the vacancies available. In the case of jobs in the cooperative store or jobs at the government station each village is given an equal number of jobs and the village council often decides who should fill the vacancy; the decision being made on ability, household needs and a host of other factors. At the outset of one period of fieldwork there was a suggestion that I

should employ three assistants/interpreters, one from each village. However, the Island Council made the final decision and this was accepted by the community as a satisfactory appointment where no favoritism had been shown. The popular support given such projects as the Island Council School (see p.456) which replaced the substandard mission school and attempts to establish a community high school can be seen as attempts to manipulate fate and improve the island's children's chances of getting employment in Tarawa. Individuals attempt to work the same system by sending their children to relatives in Tarawa in the hope of better schooling and improved chances of getting to secondary school, a job in Tarawa and thus an escape from the restrictive island system.

Motives and Development

There are some aspects of the Tamana view of fate and equality presented above which immediately bring Foster's "Image of Limited Good" (Foster 1965) to mind, and it would be attractive to suggest parallels between the Tamana situation and Foster's view of peasant society in general. For the purposes of his analysis Foster treats peasant society as a closed system where behaviour can be accounted for by a cognitive orientation engendered by the image of Limited Good whereby the peasants view their social, economic and natural universes - their total environment - as one in which the desired things of life, such as land, wealth, health, friendship etc exist in finite quantity, are always in short supply and where there is no way within the peasant's power to increase the available quantities. The supply can be divided and redivided but not augmented, and the only way that an individual or family can improve its position is at the expense of others (Foster 1965: 296-7). The parallels with Tamana are at least superficially striking.

Foster uses the image of Limited Good to explain apparently irrational economic behaviour, particularly in respect of how this adversely affects economic growth. He also argues that such a world view is an indispensable part of maintaining peasant society in its classic form. The kinds of behaviour he sees as being rational in terms of a cognition based on the Image of Limited Good and yet disadvantageous to economic growth include; the "luck" syndrome, the "fatalistic"

outlook, inter- and intra-familial quarrels, difficulties in cooperation, extraordinary ritual expenses by poor people and the problems these expenses pose for capital accumulation and the apparent lack of "need for Achievement" (Foster 1965: 296). While it is possible, as Foster does in the remainder of his paper, to cite examples of behaviour on Tamana (or probably for any other society in the world for that matter) which could be interpreted to illustrate some, but definitely not all of these elements, the value of the image of Limited Good in explaining Tamana behaviour is limited. This stems mainly from important differences between the Tamana environment and the idealised environment Foster uses in his view of peasantry in general.¹ Essential to Foster's argument is that Limited Good is an "image" or "cognitive orientation" and a viewpoint which he considers is an increasingly unrealistic view of the modern world (1965: 296). Foster's peasants thus believed resources were in short supply although in reality this may not have been the case. I would be inclined to argue that Tamana (in the nineteenth century at least) was probably one of the few places in the world where the image and reality came together. The droughts of the early 1870s showed this. The present population is painfully aware of its limited resource base and the problems continued population growth pose. This explains their enthusiasm for the resettlement programmes, the family planning campaign and their willingness to migrate to other centres in search of work. Thus on Tamana Limited Good is the reality not an image. Foster's assumption of a closed system is also unrealistic. While it would seem attractive to argue that Tamana as a small, isolated and remote island should approximate a closed system, this is clearly not the case and is becoming increasingly less so because of improvements in shipping and communications. In fact, despite its being 600 km from the administrative centre, Tamana is more accessible than many areas closer to towns on larger land masses. All Tamana people are simply one boat trip² away from Tarawa by a regular, government-run service, whereas Keesing's Kwaio, for example, have to make a long foot journey to the roadhead, then

¹Kaplan and Saler criticise Foster for offering only evidence that conforms with his model and question whether the world view presented in the image of Limited Good is in fact peculiar to peasant societies (1966: 203-4).

²The airport has since opened in 1980.

travel by truck to Auki, the administrative centre of Malaita, and then make an overnight boat trip to Honiara, the main town of the Solomon Islands on Guadalcanal (Keesing 1978). Regular shipping services and radio programmes ensure that the people of Tamana are well aware of what is happening in their world and they obviously want to take an active part in it. Hence the accelerated outmigration to Tarawa and their investment in community projects, such as the school, by which it was hoped to improve their children's chances of taking part in the emerging urban way of life. Their value system is already undergoing metamorphosis to accommodate this change. Tarawa is seen increasingly as an alternative to life on Tamana. Most parents want their children to get wage work on Tarawa. In so doing they will become oinibai or inaomata in the sense that they will be freed from the drudgery of subsistence-getting, from the need to cut toddy, fish and work on the land; as wage workers they are thought to control their own activities. By extension parents on Tamana with children working on Tarawa see themselves as being oinibai because they control their children, they can bubuti money and goods and they expect their children to return to Tamana on their request when needed. Whether this is realistic has yet to be seen. Several requests have been made to the Island Council asking the Council to force unresponsive children to remit money or return home. This suggests that although Tarawa has been accommodated in the Tamana value system, migration to the urban life is not integrated with rural life in the same way that contract work on Ocean Island or Nauru is and this has serious implications for the future vitality of Tamana's subsistence economy.

Finally, the question of the supposed absence of need for achievement needs more careful scrutiny. Its applicability to the Tamana situation is equivocal. On Tamana there is pressure on individuals to achieve in certain socially prescribed areas. The idea of equality and conformity has implicit in it a minimum as well as maximum standard. It sets a level of performance below which a household cannot fall without being ridiculed for slothfulness or incompetence, just as much as it sets a maximum above which a household would not aspire without fear of being censured for covetousness. In the context of everyday life on Tamana, it is the ambition of every able-bodied man to be akawa, a successful fisherman, and a skilled toddy cutter; for a woman to be known as a hard

worker and skilled mat-maker. Achievement in these fields is lauded, but it is in areas where the pursuit of such ends is not likely to prejudice another household's prospects for gaining a livelihood. This is clearly not the sense in which Foster reviews "need for Achievement"; he uses it in the much more restricted sense of achievement in commercial activity which leads to national economic growth and national development (Foster 1965: 296). On Tamana no similar pressures operate to encourage a household to achieve a minimum standard of performance in the cash-earning sector, although the belief in equality and the fear of bubuti still act as a positive disincentive to entrepreneurial activity. This is closer to Foster's conception of lack of need for Achievement which he argues stems directly from the image of Limited Good. On Tamana it would be attractive to argue that it results from the reality of limited resources and the recognition that any significant improvement in one household's position must be at the expense of others and hence constitute a threat to the community's long-term stability.

However, there is a danger of special pleading here and the placing of too much emphasis on behavioural explanations at the expense of consideration of important structural factors affecting action. Many agricultural development projects throughout the Pacific, in areas much more climatically favoured, with much lower population densities and much better endowed with resources than Tamana, have been outright failures or at best met with only patchy success. It would be unrealistic to suggest that the image of Limited Good, the lack of need for Achievement and an unrealistic cognitive orientation account for so general a lack of success in an area where colonisation and missionisation have engendered significant social change. In reviewing the lack of agrarian change and the emergence of what he calls "low productivity rural slums" in the more developed parts of Melanesia, Brookfield (1977: 138) suggests that we may be looking at the question the wrong way round. In concentrating on explanations as to why an individual lacks, or cannot respond to incentive, we are failing to place agrarian change in the context of total change; the process whereby isolated, self-sufficient communities are incorporated into a large and worldwide system. The first system is essentially autonomous and risk is primarily determined by environmentally-controlled fluctuations in productivity. In the second,

the dependence on external markets leads inevitably to a reduction in autonomy and an increase in risk because not only do environmentally-controlled fluctuations remain important, but to these are added risks attendant upon price fluctuations, both of the commodities produced and of the restricted range of goods and services which are all that can be purchased with money, the new medium of exchange. "Traditional answers" have little prospect of coping with the newly emerging system and the context in which the new agriculture must operate is one characterised by low capitalisation, high labour inputs, low levels of technology, high transport costs and marketing problems. It is labour-demanding, uncertain in return, has a low capacity to absorb failure and has a low marginal return for each unit of labour input. Against this must be placed the recognition that integration into the larger world increases the options available to the rural dwellers. The growth of employment in the emerging urban centres provides alternative money-making strategies and a worker may choose the longer hours and less leisure of wage labour employment as a reliable and risk-minimising means of gaining a living. Whether this remains a realistic option in the future will depend on the growth of employment in the future. This will reflect external as well as internal factors; the level of aid received from donor countries and the balance between the prices paid for imports against the receipts for exports.

Brookfield thus provides an alternative explanation which could account not only for the lack of entrepreneurial activity on Tamana, but also for the upsurge in migration to the "bright lights" of Tarawa. In retrospect it is possible to interpret attitudes and actions which illustrate both viewpoints. This may depend very much on the viewpoint of the participants; whether they are looking back to what makes them Tamanans or forward to their future in an at least politically independent Kiribati. The future character of life on Tamana must depend increasingly on what happens in Tarawa and the major donors of aid to Kiribati. The process which began in 1803 with the arrival of Captain Cary in the Rose continues; its impact is evident in the empirical material presented in the following chapters.

Tamana Population and Environment in the 1970s

The Tamana population at the beginning of the 1970s was larger than it had been at any time since reliable estimates have been available and the de jure population must be even larger. As a result of employment off the island, migration to the urban centre and inter-island marriages a substantial number of potential Tamana residents and claimants to land now live elsewhere. The 1973 census showed that 587 persons resident elsewhere within the G.E.I.C. claimed Tamana as their home island, which is 31 percent of the total. To this must be added those living outside the G.E.I.C. In December 1970 there were 83 persons of Tamana origin resident on Nauru, 42 of them in wage employment (F 14/1/1 Employment Overseas Nauru Phosphate Corporation) and my household census of 1971-72 showed a further 20 Tamana people away at work in the New Hebrides, 11 resettled in the Solomon Islands (no longer legal claimants to land), 11 on Rabi Island, 9 on colony and overseas ships and two in New Zealand. Taking these figures into account it is likely that the Tamana de jure population would exceed 2000, all of whom are potential claimants to land on Tamana.

Despite the long history of inter-island movement and work-related mobility, only a small proportion of Tamana's resident population appears likely to have claims to land on other islands. Eighty percent (422) of the 529 household heads¹ and their spouses had both parents of Tamana origin and would thus be unlikely to inherit land on other islands unless from more remote kin or by non-biological inheritance. Fifty-four (10.2 percent) had one parent from another island and a further 53 had both parents from another island or islands, coming to Tamana on marriage or on adoption by Tamana foster parents. In two such situations it was the stated aim of the family unit once the children had reached maturity to return to the islands concerned, reactivate their claims to land and establish their children on them.²

Despite the fact that over 31 percent of the population claiming Tamana as their home island was resident off the island at the time of

¹From my 1971-72 household census, government employees excluded.

²Five years later one of these families had not achieved this aim and instead most of the children had gone to Tarawa to work or stay with relatives.

the 1973 census, the outmigration appears to have had little obvious impact on the de facto population's age and sex structure. As Table 6-6 shows, this differs little from that of the Gilbert Islands as a whole except that there is a deficit of males in the 35-44 and over-50 age groups. The former probably reflects the greater number of males going to Tarawa and the Line Islands (see Table 5-5) and in employment outside the colony at Nauru, New Hebrides and on ships. The age group at which the first discrepancy becomes apparent suggests that the outmigrants are more likely to be married rather than single men and are presumably going overseas for a specified period of contract labour. The discrepancy in the over-50 year olds could, in part at least, be a reflection of the 41 war deaths of Tamana men on Ocean Island during World War II. The patterns and trends in labour migration will be discussed more fully in the context of the national economy.

Table 6-6. Age and Sex Structure Tamana Island Population, 1973

Age group	Tamana			All Gilbert Islands	Tamana		All Gilbert Islands
	Males	Females	Percentage males of age group	Percentage males of age group	Total population in age group	Percentage of total population in age group	Percentage of total population in age group
0-4	89	93	48.90	50.49	182	13.07	14.25
5-9	118	114	50.86	51.83	232	16.66	15.46
10-14	99	90	52.38	51.71	189	13.58	14.26
15-19	54	64	46.55	48.42	118	8.48	10.01
20-24	57	67	45.97	45.97	124	8.91	8.53
25-29	44	47	48.35	48.87	91	6.54	6.23
30-34	28	35	44.44	47.57	63	4.53	5.61
35-39	18	31	36.73	46.90	49	3.52	4.74
40-44	26	52	33.33	49.81	78	5.60	4.41
45-49	29	32	47.54	47.17	61	4.38	4.03
50-54	19	47	28.79	48.64	66	4.74	3.38
55-59	10	21	32.26	44.63	31	2.23	2.46
60-64	12	25	32.43	46.96	37	2.66	2.41
65+	26	45	36.62	42.20	71	5.10	4.22
Total	629	736	45.17	49.08	1392	100.00	100.00

Population and Production

The descriptive and quantitative material presented in the following chapters demonstrates that subsistence production¹ is still a vitally important part of the economic life of the 1301 Tamana people still resident on the island. The further 700-odd potential Tamana residents living elsewhere contribute in varying degrees to the welfare of their compatriots by remitting money and other gifts and the on-island population engages in a relatively small amount of cash-earning activity which further supplements this livelihood. The subsistence activities of household members remaining on the island account for, on average, slightly more than 50 percent of allocated time and still impinge on a wide range of island resources despite 170 years of contact with the western world. Fish, toddy and coconut remain pre-eminent food sources on Tamana and have been augmented rather than replaced by the flour, rice and sugar purchased with cash gained from trading, wages or remittances. Pandanus foods (particularly in preserved forms which were previously produced as standby foods against drought) and babai may have declined somewhat in importance. However, in the field of housing, shelter and furnishing, pandanus wood and leaves remain of supreme importance. As late as 1973 the store, school, dispensary, church and one maneaba were the only buildings constructed with imported sawn timbers and having galvanised iron roofs; all other buildings were still of roundwood pandanus framing fastened with wooden pegs and sennit and roofed with pandanus thatch. In canoe construction imported planking has universally replaced local woods. Despite this, and the uniform adoption of imported tools, fishing tackle and cooking utensils, the design and construction of buildings and canoes and the agricultural, fishing and cooking practices followed retain characteristics which, if not "traditional" are quite distinct from those of the societies from which the technology was imported.

¹Used here in a wide sense to include not only production to satisfy the biological needs of the population for sustenance and shelter but also in its role of providing the means by which individuals can adequately discharge the social obligations demanded of them by kin and other relationships.

The long period of culture contact has also seen the penetration of the market economy with the development of trade (principally in copra and labour) which with the social changes fostered by missionisation and colonial rule began the process of transformation of the Tamana economy from an isolated pure subsistence economy towards one increasingly market-oriented and involved with the international capitalist system. Today all Tamana households fall between either ends of the spectrum; no households operate entirely within either the subsistence or cash-earning sector and this applies even to the few households with members employed in well paid local jobs. All households on Tamana would fall into the category of "subsistence with supplementary cash production" identified by Fisk (1975: 53) as the second stage of his four-stage categorisation of the transition from a pure subsistence economy to one characterised by complete specialisation for the market. At stage two Fisk considers that the essentials of life are still mainly produced by the group that consumes them and that supplementary production is undertaken in order to secure access to goods and services not obtainable directly from the group's own resources. On Tamana at least the links with cash production are not particularly strong. Most cash-earning activities on the island are focussed on copra and handicraft production and the returns are spent on foodstuffs from the store and government taxes, school fees or such like. Most householders agreed that it would be possible, though not necessarily enjoyable, for them to abandon cash-earning, forgo these supplements and rely even more heavily on subsistence production to supply their needs. However, few households could conceive a future without the technology of imported tools, fishing equipment and redwood canoes (which in the case of Tamana result not from supplementary production on the island but rather from employment and capital accumulation off the island) and which have become very much a part of everyday life on Tamana.

The final expression of the importance of the subsistence sector to communities where it still makes a substantial contribution to livelihood must be in the size and densities of the rural populations supported. Given the central importance of the subsistence sector on Tamana the density of 290 persons per square kilometre is astonishing. It is substantially higher than those obtaining in the rest of Kiribati and is exceeded by only two islands in Tuvalu. Comparison with other

islands in the Pacific is made difficult by a lack of suitable data on population, the character of the island economies and the fact that not all the land on the high islands is suited to agricultural production. However, data from the Population and Environment Project in the Eastern Islands of Fiji do permit some crude comparisons to be made with these islands (see Table 6-7).

Table 6-7. Rural Island Population Densities, Selected Islands in Kiribati, Tuvalu and Eastern Islands of Fiji

Island	Population	Land area in sq km	Land area potentially suited to agriculture in sq km	Crude population density pers/sq km	Population density considering only land of agricultural potential pers/sq km	Estimated percentage of potential land owning population actually in residence
Kiribati & Tuvalu						
Tamana	1392(1973)	4.8	4.8?	290	290	69 [†]
Nanumea	977(1973)	3.9	3.9?	252	252	58 [†]
Eastern Islands of Fiji*						
Kabara	565(1976 est.)	52.5	4.98	11	113	32 [#]
Lakeba	2050(")	61.7	30.05	33	68	NA
Batiki	245(")	9.8	3.03	25	81	23 [#]
Koro	2900(")	112.9	78.96	26	37	NA

* Population and land estimates from Tables 7.2 and 7.5 Population and Environment Project in Eastern Islands of Fiji Draft General Report No.1. Taveuni is excluded because island coverage is incomplete.

† Based on 1973 Census returns of persons resident on island claiming island as "home island" plus persons resident elsewhere in census area claiming island as home island, plus others known to be overseas from researchers' censuses. See Lawrence (1977: 17), Chambers (1975: 99).

Percentage of mataqali members actually resident on island to total number of mataqali members registered with the Native Lands Commission. See Bayliss-Smith (1978b:87), Bedford (1978: 52). On both these islands very little land is in other than traditional tenure.

The data presented above show that rural population densities on Tamana are substantially higher than those of the islands studied in eastern Fiji, even when allowances are made to exclude land of no agricultural potential. The authors of the Draft General Report No.1 (1976: 184) conclude that all the islands are "underpopulated" in the sense that their populations are much lower than predicted carrying capacities and even the small and less well endowed islands of Kabara and Batiki could sustain between three and sixfold population increases before they could be classed as overpopulated. However, despite these considerations of the potential carrying capacities of the islands, the writers interpret the substantial net outmigration in recent years as indicating that many residents consider the islands to be overpopulated already. Table 6-7 suggests that a substantially larger proportion of Tamana's potential residents are still on the island in comparison with estimates for Kabara and Batiki.

Having laid so much emphasis on the harsh and restricted nature of the reef island environment in previous chapters an appeal to environmental differences to attempt to explain the higher rural population densities on Tamana would seem like special pleading. Instead it is probably more rewarding to look for possible explanations of density differences in the effects of transformation of agriculture which accompanied the incorporation of many isolated, autonomous subsistence economies into the market economy of the west, the pressures this generated encouraging outmigration from rural areas and perceived opportunities for employment in the emerging urban centres.

In discussing the relationship between migration and peripheral capitalism in Africa Gregory and Piché (1978: 42) come to the conclusion that the transformation of agriculture during colonial rule, in particular the setting up of plantations (absent from G.E.I.C.) and the emergence of commercial peasant agriculture was a major cause of migration from rural areas. Similar transformations have been recorded for the Pacific (see Brookfield 1971, Howlett 1973, Draft General Report No.1) and by all accounts the process proceeded with remarkable rapidity. In Fiji as late as 1860 yams and taro were the staple food crops on many islands being produced under intensive agricultural systems employing terracing and irrigation. On Batiki the staples were plantains (*Musa* spp.), coconuts, taro and breadfruit (Bayliss-Smith 1978b:78). Today, the writers of the Draft General Report No.1 observe (1976: 73) that yam cultivation has all

but disappeared and yams retain importance only in ceremonial presentation. Their place as an everyday food has been taken by taro and the more recently introduced crops of cassava (Manihot esculenta) and Xanthosoma, both of which are more tolerant of poor soils and can be grown on drier hillsides with less effort than traditional crops. The change to new crops was accompanied by an expansion in coconut planting. Initially this was by Fijians to meet levy demands requisitioned by Tongan and Bauan overlords for coconut oil and copra and later to meet church levies imposed by Wesleyan missionaries and the in-kind tax demands of colonial administrators. Further stimulation to expand coconut plantings came with the introduction of an increasing range of store goods and the implementation of taxation in cash rather than kind. On some islands expatriate coconut plantations were established on lands alienated as a result of inter-group warfare. The net result of these changes was to take land out of traditional subsistence production, relegate the latter to poorer, steeper land and provide a certain amount of scope for wage labour on the expatriate plantations. The authors claim (1976: 80) that the process led to the emergence of more than a coconut economy. They deem it a coconut society where the land use pattern is almost totally at variance with land potential; where the best land is taken up by coconuts which in terms of return are inferior to other possible uses and where these potential uses are relegated to freehold and mataqali land beyond the coconut groves on land of lesser quality and accessibility (1976: 101-2). All of these factors have combined to accentuate the islands' marginality by reducing their potential for supporting existing populations or realising their aspirations for higher levels of consumption, thus fuelling the process of migration to the state's central places.

On Tamana this process has clearly not proceeded as far and although there are certain aspects in common, such as the intensification of coconut planting during the late nineteenth and early twentieth century, the atolls and reef islands appear to present a special case. The operation of certain environmental, social and economic factors has prevented the transformation developing to the same degree and this may help explain why these small, remote and poorly endowed islands support relatively high population densities substantially supported by buoyant subsistence sectors. In the first place the peculiarly restrictive nature of the reef island/atoll environment militated against the establishment

of exotic crops in either the subsistence or commercial fields. Despite the enormous and fundamental social changes wrought by European contact, it did not result in the introduction of any new plants of economic importance or the wholesale abandonment and replacement of existing subsistence crops. It could also be argued that the reef islands/atolls are also unusual in that they provide one of the few instances where a tree crop of commercial importance was already a major part of the indigenous vegetation. Opportunities for trade and demands for cash saw the expansion and intensification of planting rather than the replacement of traditional crops on pre-existing cultivation. Again, the situation is probably unique because the commercial crop is also a staple food and this fact gave the islanders the freedom to choose between possible end uses for the one crop: for either food or cash income.

Even if it had proved possible to introduce new commercial crops into Tamana there are certain aspects of the land tenure system which would have tended to prevent such a transformation of agriculture occurring. On Tamana all land is held individually and any expansion in planting of cash crops would have been directly at the expense of land availability for the same individual's subsistence crops. The studies of agricultural transformation described above for Fiji and in Vella Lavella (McKinnon 1972) and North West Guadalcanal (Bathgate 1973) occurred where the kin group, rather than the individual, was the landholding entity and where there appears to have been no pressure to discourage the individual from planting coconuts on abandoned garden land at the end of a cycle. The individual's continued rights to these trees appears to have been assured. The net result of this practice would be a steady increase in the area of best agricultural land going under coconuts with diminishing areas of increasingly less suitable land being available to group members generally for subsistence crops.

Similarly, the dispersed nature of landholding rights within the community made alienation or transfer more difficult and this, coupled with the fact that land sales were specifically forbidden by the colonial administration on some islands, meant that the penetration of the rural economy by the plantation system was precluded. Very few plantations were established in the Gilbert Islands and those which were restricted to the islands having stratified societies and those disrupted by inter-dynastic warfare. The absence of plantations meant on one hand no dispossession

and disruption of the subsistence economy, and no emergence of possibilities for migration to employment on the plantations on the other. Together these factors tended to diminish prospects for rural depopulation.

In fact the final factor contributing to little outmigration and high population densities must be the limited possibilities for employment and migration. Although Ocean Island and Nauru have figured large as employment destinations for the islanders, recruiting for employment has always been on a contract basis with individuals being recruited on their home islands and with stringent restrictions being placed on the number of dependents permitted to accompany each recruit. Although the administrative centre did provide some employment opportunities until 1948 it was a closed district and entry by those without land rights was by permit only (Macdonald 1982: 173). Since then both employment opportunities and migration on Tarawa have expanded steadily but even now Tarawa does not provide the wide range of employment prospects of a larger and more diverse centre like Suva. The reasons for this lie in the complete absence of substantial foreign private sector investment, either from individual companies or multinational corporations.

All of these factors have tended to operate to maintain the dominance of existing patterns of land use. This has ensured the strength and vitality of the subsistence sector in the face of new pressures from outside and contributed to the high population densities exhibited by these small islands.

Given that these islands have substantially higher population densities and have retained more of their potential residents because of lower levels of outmigration, there is no evidence on Tamana to suggest the emergence of more labour intensive agriculture and the operation of the process of 'agricultural involution' described by Geertz (1963). In the pre-contact society the absence of intensification can be attributed in part to the effect of droughts and other natural calamities in periodically raising death rates and thereby reducing pressure on resources. Brookfield (1971: 92) hypothesises that in ancient Melanesia such stochastic equilibrium-seeking processes were insufficient to reduce pressure on resources and led instead to the adoption or invention of technological advances which facilitated the closer occupation of the land. In the relatively short span of post-contact time depopulation, small base populations, low growth rates, outmigration and resource

supplementation through being incorporated into larger functional units have all reduced the pressure for intensification. In addition there is the underlying fact that the man/land system of the atolls and reef islands with its heavy dependence on coconuts provides little scope for intensification. Brookfield (1971: 148) suggests that the coconut grove is

the antithesis of Geertz's (1963) hard driven wet rice ecosystem, which has great elasticity of response to increases in the input of labour; coconut productivity can be sustained remarkably well through great reductions in labour input, while the marginal response to increases in that input may be limited.

It is this last factor, coupled with the strength of the subsistence economy on Tamana and the importance of money remitted by workers off the island, which goes a long way towards explaining many aspects of Tamana peoples' participation in the cash economy as well, as can be seen in Chapter 10.

Tamana, The Gilbert Islands and Kiribati

We now turn to consider Tamana in the wider context of the rest of the Gilbert Islands and its part in the political economy of the colony that was to become Kiribati at the close of the 1970s. Since all of the Micronesian-colonised Gilbert Islands are either atolls, reef islands or raised atolls, it is not surprising that the differences in character of the rural economies on different islands tends to be small. All islands present similar limitations of young, coralline soils, impoverished indigenous floras and scant prospects for the introduction of new crops. For the most part the observable differences reflect social factors and historical influences as well as environmental factors. The most important of these include the large differences between the north and the south in mean annual rainfall coupled with increasing rainfall variability resulting in periodic drought being an important factor of life in the southern islands.

Environment, Population and Production

All the islands experience a maritime equatorial climate with high uniform temperatures. There is a marked gradation in mean annual rainfall from north to south. Butaritari in the north has a mean annual rainfall of 3115 mm and this declines to 1125 mm on Tabiteuea, the driest of the islands in the south. Over the period from 1962-73 the highest annual rainfall recorded on Butaritari was 4113 mm while the lowest was 1841 mm. On Tabiteuea the range over the same period was from 2933 mm to 390 mm. These differences in rainfall totals and rainfall variability affect the range of plants grown, their productivity, the ease with which they are cultivated and the part they play in the subsistence lives of the people.

Although miniscule land areas are the hallmark of atolls generally, Table 6-8 demonstrates that there are quite large size differences between them. Tamana is the smallest of the Gilbert Islands with a land area of only 4.8 km², while Tabiteuea, the largest has a land area of 38.0 km². Table 6-8 also suggests no direct relationship between island size and the size of the population resident upon it. The population densities in 1973 differed substantially with Tamana being the most densely populated rural island with a density of 290 per km² while Aranuka has a density of only 50 persons per km². The impact of differing rates of outmigration are evident in Table 6-8 but these are not sufficient to explain the differences observed. If one considers the de jure population for each island (of which the best available estimate is those people resident in the Colony who, in the 1973 Census claimed a particular island as their home island) quite large differences which are difficult to explain, remain. The lowest densities are still in the central islands of Abemama, Kuria and Aranuka and it would be attractive to argue that these low densities still show the effect of conquest warfare and disruption during the nineteenth century. This explanation could also be invoked to account for lower densities on Nonouti and Tabiteuea, the former being invaded by Tem Binoka from Abemama and the latter experiencing religious wars between the north and south in 1881 (Geddes 1975: 17). However Tarawa was also wracked by endemic civil war during the nineteenth century (Maude 1963: 10) and this appears to have had no obvious effect on present populations and densities, while

Chapter 4 of this thesis demonstrates that the population of Tamana was decimated by drought in the early 1870s and yet seems to have made a remarkable recovery. The differences in population densities between islands at present are thus not easily accounted for.

Table 6-8. Land Area, Population 1973 and Population Density, Gilbert Islands

Island	Approximate Area in Km ^{2a}	Mean Annual Rainfall in mm ^b	Population 1973 ^c	Persons per Km ²	Population Resident in G.E.I.C. Claiming Island as Home Island 1973 ^d	% of Population Claiming Island as Home Island Still Resident There in 1973	Population Density if Only Those Within G.E.I.C. Claiming Island as Home Island Were Resident There (in persons per km ²)
Makin	6.7	2493	1445	216	1787	72.97	267
Butaritari	13.5	3115	2971	220	3646	72.57	268
Marakei	13.5	1886	2212	165	3496	59.78	258
Abaiang	16.0	2218	3296	207	4623	61.93	289
Rural Tarawa	14.7) 1083	2268	154) 5336	89.64	253
Urban Tarawa	8.5		14861	1748			
Maiana	15.9	1511	1413	89	2745	49.40	173
Abemama	27.8	1488	2300	83	2282	69.50	82
Kuria	12.3	1337	821	67	710	50.85	58
Aranuka	15.5	1022	781	50	369	69.83	24
Nonouti	29.2	1248	2223	76	3669	56.55	126
Tabiteuea	38.0	1125	3942	104	6223	60.36	164
Beru	14.7	1216	2318	158	3406	63.33	232
Nikunau	18.2	1151	1845	102	2753	63.39	151
Onotoa	13.5	1177	1997	148	3071	61.45	227
Tamana	4.8	1141	1392	290	1888	68.91	393
Arorae	9.5	1404	1626	172	2585	55.59	272

^a Areas from 1973 Census.

^b Summaries of Climatological Observations (Table of Averages) Fiji, Tonga and WPHC Territories to end of 1970.

^c 1973 Census.

^d From 1973 Census. Home island is not necessarily island of birth. It is island regarded as true home.

Such differences in environmental factors and population densities do not appear to have given rise to marked differences in the character of the subsistence economies on the four Gilbert Islands studied as part of the Victoria University of Wellington Rural Socio-economic Survey. If it can be argued that people are what they eat, the diet data should give the best indication on any differences. Table 6-9 suggests that on each of the islands studied the subsistence economy remains very important in the livelihood of the household. Coconut remains the staple on all islands and imported foodstuffs are not yet indispensable items of diet on any island. The diet data presented here points to some minor differences of possible environmental significance. Babai and breadfruit are frequent items of diet only on Butaritari and this may reflect the higher rainfall enjoyed by this island and the ease with which these are cultivated there. On the drier islands of Tabiteuea North and Tamana pandanus and the fig, te bero, assume more importance. Despite the fact that Tamana men are renowned through Kiribati for their prowess as deep-sea fishermen, fish protein does not appear as such a frequent item in household diet as one might expect. This factor could be attributed to the differences between the atoll and the reef island environments. The former provide extensive sheltered lagoon waters which can be fished in most conditions as well as extensive sand and mudflats providing abundant shellfish. These habitats are restricted or non-existent on reef islands hence the emphasis is on fishing the open sea for tuna, shark and similar fish which provide more spectacular but perhaps less sure returns. This explanation does not satisfactorily account for the low frequency with which fish appears in the diet on Tabiteuea North which has a lagoon.

The differences in rainfall totals and settlement densities may also have some influence on the levels of copra production and copra remains the only cash crop in the islands. The analysis of mean production levels 1947-74 completed for the Team Report (see Geddes et al. 1979: 49) shows that the wetter islands produce more copra per km². However the differences in population density described above have no consistent influence on copra production per km². This would seem to indicate that there is no competition between subsistence and commercial nut use resulting in fewer nuts being available for copra production on the more

Table 6-9. Percentage Frequency of Particular Food Types in Meals Taken, Four Study Islands

Food Type	Abemama ^a	Butaritari ^b	Tamana ^c	Tabiteuea North ^d
<u>Local starches</u>				
Babai, taro	5.78	36.50	1.04	1.80
Breadfruit	2.00	22.22	5.88	1.99
Coconut	54.94	58.33	49.89	48.10
Pandanus	4.89	0.56	3.98	19.73
Te bero	-	2.17	9.81	2.00
Other fruits ^e	-	0.56	1.07	0.71
Arrowroot	-	0.44	-	-
<u>Imported starches</u>				
Rice	12.44	5.39	3.28	0.99
Flour	27.44	8.11	9.78	12.51
<u>Local protein</u>				
Fish	38.44	34.39	19.66	15.52
Shellfish	-	5.89	-	5.25
Chicken/pork	-	0.33	0.06	0.37
<u>Imported protein</u>				
Tinned fish/meat	0.89	0.61	0.66	0.16
<u>Local beverages</u>				
Toddy	61.50	10.89	89.76	54.67
Others ^f	11.78	2.06	1.68	1.44
<u>Imported beverages</u>				
Sugar water	31.94	3.83	4.84	2.53
Tea/coffee	n.d.	73.94	7.55	21.88

^aFrom Watters, 1977: Table

^bFrom Sewell, 1976: App.

^cFrom Lawrence, 1977, Table

^dFrom Geddes, 1975: App.

^eIncludes bananas, pawpaw, pumpkin, te non.

^fMainly kamaimai.

densely populated islands. The correlation coefficients presented in that report 6-10 demonstrate there is no relationship between population density and production per km². However, and rather surprisingly, the data 6-10 indicates there is a significant negative correlation between population density and production per capita; the more densely populated islands produce less copra per person. Reconciliation of these results requires recognition of the fact that resources are not necessarily the limiting factor; the larger islands have significantly lower population densities than small islands. On both large and small islands the population is not uniformly distributed over the available land area but concentrated in villages. Given present transport technology this means that not all areas are uniformly accessible. This suggests that each village would be surrounded by a zone of intensively used land and the width of this zone bears no relation to the size of the village but rather reflects transport costs and the ability or willingness of the villagers to collect nuts, process them and transport copra to the nearest buying point. The width of the actively exploited zone would change with changes in the copra price. Tamana effectively has one village and one buying point only and it is probable that the actively exploited area approximates the total land area and is thus a reflection of the island's small size. On Abemama, Butaritari and North Tabiteuea land is clearly less intensively used (Watters 1977: 76; Sewell 1976: 76-77; Geddes 1975: 51). These factors may contribute to differences in the general level of production between islands; social and situational factors are likely to be more important in explaining differences between individual producers.

The Cash Economy of the Rural Islands

All of the Gilbert Islands are now thoroughly enmeshed in the cash economy. Very few if any I-Kiribati could envisage life without the flour, rice, tobacco, soap and kerosene that can now be bought with proceeds from the sale of copra or with the remittances sent by relatives working in Nauru, Ocean Island or Tarawa. Nor could they carry out many of their daily activities without the capital goods acquired during temporary stints of wage labour at Ocean Island or Nauru. Within the Gilbert Islands variations in the degree of intensity of commitment to the cash economy are not marked. There are no islands particularly well

favoured in location or resources, or with markedly more motivated or innovative populations which have emerged as centres of greater involvement in the cash economy. The reasons for this are probably threefold. In the first place it relates back to the reality of administering a colony made up of miniscule islands spread over vast areas of ocean. If any degree of control were to be exerted at all, it required the provision of an adequate, waterborne transport system. Once this was provided all areas became more or less equally accessible and enjoyed the same stimulus to economic activity that accessibility brought. In the second place no foreign-based private sector has emerged to generate modes of greater investment and increased economic development. The third factor contributing to the lack of differentiation is the pervasiveness of the distinctively I-Kiribati notions of equality and conformity and the operation of levelling mechanisms that inhibit individualistic forms of enterprise.

Government Intervention and Influence on the Rural Cash Economy

Despite their small size, remoteness and lack of economic potential the Gilbert Islands are better served transport-wise than many other newly developing countries in the Pacific. Their small size and limited production potential made them relatively unattractive to commercial traders and left the government with no choice other than to get involved in the provision of transport services. This was reinforced by the government's determination to take over the handling of the copra wholesale and retail trade after World War II and their decision to use aid money to provide an adequate infrastructure for Kiribati on independence. Thus all 16 of the Gilbert Islands enjoy a reliable and regular shipping service regardless of their size or proximity to the government centre and quite unrelated to their ability to generate trade.

The same principle of uniformity of infrastructure as a matter of policy also applies in marketing and retailing. The government fostered cooperative societies on all islands to preclude the return of private traders and set up centralised bodies such as the Copra Board and Colony Wholesale Society to service the cooperatives. Thus the two latter bodies have a virtual monopoly on primary marketing and retailing and effectively control a large part of the Colony's commerce. This affects the economics of rural production in several ways. Through its

ability to control the prices paid to the producer of copra and the wholesale supply of goods for retailing in the rural areas the government has been able to implement policies providing uniform prices for copra and store goods throughout the Colony and thus remove the advantages enjoyed by islands closest to Tarawa as the only export point or those enjoying economies of scale. At the same time it removes the disadvantages that might have been suffered by producers on smaller and more remote islands.

From the point of view of indigenous initiative the high degree of government control has, on all islands, engendered passivity and dependence to the extent that the cooperatives are regarded as an arm of government and often management by the locally-elected executive on the islands amounts to little more than ordering from the relatively narrow range of goods supplied by the Colony Wholesale Society and marking-up goods according to price lists provided by the Society. This effectively prevents the cooperatives on most islands becoming vehicles to effectively stimulate development. It also discourages the emergence of individual initiatives on the islands because alternative means of supply are not available and because the existing cooperatives enjoy considerable advantages from scale. To date the most significant innovations introduced by the Cooperative Societies on Butaritari, Abemama and North Tabiteuea have been the purchase of trucks and the operation of transport services. On North Tabiteuea this has operated at a loss (Geddes 1975: 105). On Butaritari it has been an important factor in encouraging copra production on more remote lands (Sewell 1976: 77) underlining the nature of the population/productive system described earlier in this chapter (p.215). Tamana presumably did not attempt to purchase a truck because of the island's small size and limited length of roading. Instead the Tamana Cooperative Society's efforts were directed at overcoming the central management's objections to their proposals to establish a cinema on the island and assisting island proposals to establish an island-run fishing industry on Tarawa (see p. 463). At present as far as on-island activities are concerned the differences between islands in the role played by their cooperative societies are not great; the more efficiently run ones are constrained by the bureaucracy; the less successful ones reflect the effects of poor management, or factionalism between villages or groups within the community.

Social Factors

There are also common social factors which contribute to the uniformity in degree of involvement in the cash economy throughout the rural areas of the Gilbert Islands. On all islands studied the ethos of equality and conformity is strong and levelling mechanisms, such as bubuti operate throughout to inhibit individualistic forms of entrepreneurial activity. Perhaps, not surprisingly, all islands display similar responses to getting around the impasse created by adherence to the ethos of equality and the desire for more material goods in the form of the distinctively I-Kiribati mronron. These are small private cooperative businesses which enable the individual to pursue goals of self-enrichment while still being able to claim to be working for the benefit of a wider social group. The products of this labour belong to the group and thus are protected from the threat of bubuti. The character of mronron organisation presents a continuity between the traditional airiri communal work groups (see p.335), the present and the future. This is evident in the island companies being formed on Tarawa to exploit the potential of the growing urban market there. These are communally rather than individually owned and often the aim is to provide benefits for the communities in the rural areas (see p.463-6). This emphasis on corporate action and the stress on general community goals, for Tamana people at least, rather than immediate individual gain must represent a distinctively I-Kiribati response to the process of incorporation into the market economy and have implications for how far the process might proceed.

Despite the overall similarities, there are differences between the islands which can be attributed to subcultural differences between the south and central and northern areas and to differences in the status and influence of mixed race communities on particular islands.

Both Tamana and North Tabiteuea belong to the southern I-Kiribati subculture which is characterised by a staunchly egalitarian society which in the past was administered by a gerontocracy. In fact, the name Tabiteuea means 'Chiefs are forbidden' (Geddes 1975: 2). On all islands land tenure is individualised. Close identification between land and social identity, coupled with high or potentially high population pressure, ensures that land sales are almost unheard of. On Tabiteuea the possibility of sale or exchange of land was treated as a joke and

promoted the response: "We are not Abemamans" (Geddes 1975: 47). The significance of these factors lies in the fact that any would-be entrepreneur cannot preempt the wider kin groups' communally-held land resources or purchase additional land in order to increase the scale of his commercial activities. It also means that there are few migrants in these communities who are outside the prevailing norms of equality or conformity. They are thus freer to engage in entrepreneurial activity and may be forced to compensate for low status and lack of inherited social position by excelling in economic performance. It is these people on Butaritari who are usually strangers to the island, or people of mixed descent who are most actively economically (Sewell 1976: 31). It could be argued that this uniformity in society contributes to the strong sense of community and importance of cooperative action on Tamana, but the same cannot be said of North Tabiteuea. Geddes (1975: 14) argues that the impact of the government's continued stress on the mwenga rather than larger kin groups has produced an increasingly individualistic society and the isolation of mwenga at the expense of cooperative activities and organisation. However, these developments have not so far been sufficient to produce a distinct entrepreneurial class on Tabiteuea. The uniformity, cooperative cohesion and stress on the community on Tamana must ultimately relate to the social organisation, the island's small size and the absence of sectarian differences as the result of missionisation.

The stratified societies of Butaritari and Abemama are obviously quite different from Tamana in these characteristics. It appears that the stratification in both societies has different origins and somewhat different relevance to present-day society and economic behaviour. Maude (1963: 9-10) regards Butaritari and Makin as being culturally peripheral to I-Kiribati society, presumably showing some influences from the Marshall Islands to the north. Sewell (1976: 19-25, 54-65) describes social stratification on Butaritari as consisting of three classes: the king or uea, aristocrats or toka, who were descendants of the reigning line of kings, and the workers or tabonibai. All three groups possessed different and complementary rights in land which together constituted ownership. The king had strictly limited political authority and what power he had came mainly through his supreme right to reallocate ownership rights in most lands on the island. He was the central recipient

of the economic activity of the people, receiving tribute from those gaining access to land through him. It was also the king's duty to care and provide for immigrants and refugees evicted from their lands. The aristocrats either lived with the commoners on rural lands or remained in the main Butaritari village. In an economic sense they may have assisted in the working of the land but their main function was to act as an intermediary between king and commoner, to represent the king on the land and arrange the periodic presentations of food to the king on behalf of the commoners. They also represented the commoners in public affairs. The role of the commoners was to work the land, provide food for themselves, for aristocrats resident on the land and presentations for the king.

With the development of the copra trade the king did not emerge as a powerful economic figure. He did levy taxes and take nuts from all lands to augment his cash income, but this was done because of his mana rather than right. The kingship was abolished by the colonial government in 1964 and from that point on the aristocratic superstructure which hinged upon it ceased to have legitimate existence. In theory at least all Butaritari families regardless of history or origin became of equal status and this is clearly enunciated in their value system. In practice, however, there are quite significant differences which arise because of the administration's attempts to codify the land tenure system and encourage individual tenure. The king's rights in all lands were given expression in the "king's quarters", while aristocrats and commoners shared the remainder. This means that these lands now belong to the descendants of the king's lineage and that many people particularly well endowed with land reside in the vicinity of Butaritari village. There is little that can change this pattern since the sale of land is considered one of the more shameful actions man can take (Sewell 1976: 65). The combined effect of these differences and the social isolation of villages contributes to important differences between villages. On Butaritari equality and conformity is interpreted in terms of "keeping up" rather than scaling down to the norm and the standard of keeping up is defined afresh in each village. The goal is seen in terms of earning "enough" to "keep up" as efficiently as possible. Those with more adequate resources can do this with relatively little effort; those with less must employ more intensive efforts in order to achieve the required goals. This strong emphasis on "enough" makes the Butaritari households

persistent target workers and this is quite clearly evident in their response to changes in copra prices. Butaritari and Makin are the only two islands where annual copra production levels are significantly inversely correlated with price (Geddes et al. 1979: 51). When price goes up production goes down because the same level of income can be maintained with less effort.

In the central islands centuries of civil war on Tarawa and the emergence of dynasties with the overlordship of Abemama, Kuria and Aranuka resulted in substantial modifications to I-Kiribati society. On Abemama five classes emerged: the High Chief (uea), and his son, the relatives of the High Chief (banuea), a "middle" class (inaomata) who had pleased the High Chief or excelled in battle and been given land in return, a landless class (rang) and slaves (toro), usually captives from warfare. At the peak of his power the uea could direct villages to supply babai pudding, coconut oil and copra. Since the uea had a monopoly on all trade with the Europeans it appears that no copra could be marketed without passing through the royal household (Watters 1977: 24). Today the class distinctions have lost most of their meaning. There may still be a few landless families who obtain their livelihood by collecting food and cutting copra on the lands of the uea and supplying him in return with half of their produce (Watters 1977: 23). The majority of Abemamans now belong to the inaomata class. Mission influence, conflict with the Government, the abolition of the formal system of appropriation, the marriage of a previous High Chief to a commoner and accelerated social change since World War II has weakened the standing of the uea and the banuea class. Watters (1977: 24) records one informant's statement that with the marriage of the uea to a commoner "rank was abolished and all men were equal". However, members of both these classes are still accorded considerable respect. The uea still has the power to ask anyone to cut copra for him and can request help from those caretaking on his lands. In return the people of Abemama expect the uea to respond to requests for money, goods from the store, or the use of one of his lands.

The importance of these class divisions are still evident in land ownership and access to resources. The uea formerly owned over 400 lands amounting to between one-quarter and one-half of the island area. Today he owns 132 lands or about one-tenth of the area of Abemama (Watters 1977: 30). Many of the banuea are also large landowners, but

land sales have reduced many of their holdings. The corollary of these land sales is that Abemama now has a substantial population of in-migrants from other islands who have relatively restricted land resources. Several Tamana families bought land on Abemama, Kuria and Aranuka with money saved during employment on Ocean Island and Nauru and either migrated there or settled some of their children on these lands. Limited resources, lack of established social position and freedom from social control and the fear of bubuti often encourage these outsiders to higher levels of achievement in the economic field. The lower population densities on Abemama, its higher and more reliable rainfall and the control of copra production by the uea made Abemama a more attractive proposition for traders. Today this fact is evident in a considerable number of part-European and part-Chinese I-Kiribati who are particularly active in commercial enterprises which have in the past enabled them to further increase landholdings through purchase and also by marriage into the banuea class. These people clearly see themselves as being outside prevailing morality and with qualities more akin to those of the Europeans they seek to emulate (Watters 1977: 150-155).

The differences in environmental and social factors described above are reflected in the scale and character of the cash economy on each of the islands studied (see Table 6-10). As far as comparisons of mean household income levels can be made from the data presented in the studies,¹ both mean household and per capita incomes are higher on Butaritari and Abemama, even when allowance is made for the effect of agricultural subsidies which were paid on these islands but not on Tamana and North Tabiteuea at the time of study. On all islands except Butaritari remittances and gifts were the most important single source of cash income and this underlines the importance of employment off the island in the economies of the outer islands. The slight lesser importance of remittances on Butaritari presumably results from the lower rates of outmigration from this island (see Table 6-8) and the preference given to the southern islands in recruitment for Ocean Island and Nauru. Copra incomes are higher on Butaritari and Abemama than North Tabiteuea and Tamana reflecting more favourable environmental conditions on the wetter islands and the lower population densities on Abemama. Remittances and unearned sources of income appear to have a substantial effect on copra production strategies. Butaritari is the

¹See notes to Table 6-10.

Table 6-10. Annual Income per Household by Source, Four Study Islands

	Abemama ^a	Butaritari ^b	Tamana ^c	Tabiteuea North ^d
Mean household annual income \$	424.06	303.16	146.52	58.00
Coefficient of variation %		124.87	41.78	71.58
Range in mean annual income \$ - highest	1218.36	1686.36	989.14 ^e	n.d.
lowest	84.76	34.84	75.12	n.d.
Mean annual income per capita \$	68.51	29.16	24.42	11.46
Source %				
Remittances and gifts	31.77	14.07	24.27 ^f	48.03
Copra	14.07	30.53	7.05	32.67
Wage and casual labour	9.40	5.32	14.57	7.41
Sales of local produce	12.53 ^g	11.32 ^h	1.53 ⁱ	6.19 ^j
Handicrafts	- ^k	-	10.07	1.04
Agricultural subsidies	22.00	10.98	-	-
Other	10.23 ^l	27.78 ^m	42.46 ⁿ	4.66 ^o
Total	100.00	100.00	100.00	100.00

^aBased on mean of 16 households surveyed over 10 weeks March-December during 1972.

^bBased on mean of 16 households surveyed over 7 weeks April-December 1972, April-November 1973.

^cBased on Lawrence, 1977: Table 8.3 on mean of 15 households using mean annual income figures from all available recorded income sources 1971-73.

^dBased on mean of 16 households surveyed over 8 weeks April-December 1972, April-September 1973.

^eExcluded from calculation of means.

^fFigure for this and shortfall differs slightly from those in Lawrence, 1977: Table 8.3 as figures are adjusted to accommodate missing telegraphic money order (telmo) data. This adjustment makes all % figures differ slightly from Table.

^gIncludes sour toddy, bread, doughnuts, fresh and salt fish, thatches, coconut string.

^hIncludes sale of fish, sour toddy, bananas, commercial cooking and other village trade.

ⁱIncludes fresh and salt fish, sharkfin, boiled toddy, commercial cooking and string.

^jIncludes bread, rolls, salt fish, string and thatches.

^kIncluded in Sales of local produce.

^lIncludes cooperative bonus, Lands Court fees, gambling wins, salt fish sold on Nauru.

^mIncludes cooperative bonus, debt repayments, gambling wins, bank withdrawals and loans.

ⁿIncludes cooperative bonus, mrnron divisions, withdrawals from savings and the shortfall of known income of known expenditure. The latter accounts for 22.47 per cent of income and is probably made up of unrecorded gifts and remittances redistributed on the island and thus should probably be added to gifts and remittances. Mrnron income (6.66 per cent) derives from cooperative trade in coconuts and copra, store goods, commercial cooking and such like.

^oMrnron distribution.

only island studied where the islanders are clearly committed to copra production as a major income source and this presumably reflects the lesser importance of remittances here. Producers respond to price falls by increasing production in order to maintain income levels and similarly when prices rise production is curtailed. This is clearly evident in strongly significant negative relationship between annual production and price established for the 1963-74 period (Geddes *et al.* 1979: Table 6.6). It is also in keeping with the notion of maintaining equality by "keeping up" discussed above. On Abemama, North Tabiteuea and Tamana the relationship is the reverse; when prices rise producers consider the effort worthwhile and produce; when prices fall they retreat and rely more heavily on other sources of income, particularly remittances. This pattern appears to apply to Abemama even though this island is consistently the largest producer of copra and has the highest mean annual production per capita (Geddes *et al.* 1979: Tables 6.3, 6.5). This suggests that for a majority of islanders copra production is an adjunct source of income and that the commitment to the cash economy is not particularly strong. Production occurs when market conditions are particularly favorable but the strength of the subsistence economy and the overwhelming importance of remittance incomes enables producers to enter and leave the market when they please. On Abemama and Butaritari inter-household trade in fresh and saltfish, bread, doughnuts and similar commodities is another source of income of some importance. There are also prospects for the enlargement of the saltfish trade on Abemama, the development of babai and banana production on Butaritari and toddy molasses export from Tamana and North Tabiteuea to supply the urban market on Tarawa. However neither this production, nor the income generated by hoped-for developments in offshore fisheries, baitfish or brine shrimp production will make good the loss in outer-island incomes expected with the closure of the phosphate industry on Ocean Island. Nor are the benefits from such developments likely to be uniformly available throughout the rural areas and thus have any substantial effect on trends of migration within the country as a whole.

Thus the differences between islands in the rural areas are small and insignificant. They are variations on a theme rather than quantum differences in the degree to which the rural economies have developed and become enmeshed in the cash economy. Within the rural areas there

has been no emergence of nodes of intensive innovative economic development with an indigenous entrepreneurial private sector or urban concentrations resulting from extension of these activities into the service sector. In the national context such concentrations have emerged from the investment of foreign capital in the exploitation of the phosphate resources and from the expenditure of aid money in providing for the administration and services of the Colony. Both are highly localised in their effect, are of a scale out of all proportion to the economic activity in the rural areas and each generates a distinctive pattern of circulation between the node and the periphery.

The National Economy

The national economy is characterised by a very small number of activities which are very different from each other in their capacities to generate export income, employment or government revenue. The village-based economy of the rural areas involves by far the largest proportion of the country's workforce and although it satisfies a large part of their subsistence needs, it contributes a relatively small proportion of export income and government revenue. On the other hand the phosphate industry generates an overwhelmingly large proportion of export income and government revenue while providing a smaller number of jobs. Employment in the phosphate industry is an important adjunct rather than alternative to rural life. It is contract-based and temporary. Recruiting is directly from the rural areas. This employment also generates a substantial flow of remittances to the rural areas. The revenue flowing to government from the phosphate activities, augmented by substantial money flows enables the government to be the major consumer of goods and services in the economy. The employment generated and services provided tend to be concentrated rather than dispersed uniformly throughout the country and have created disparities between the wage and salary-earning sector of the urban area and the rural areas outside it. Even though there is some redistribution of incomes through remittances the gap between income-earning opportunities and services enjoyed in the urban and rural areas is so large as to encourage large-scale migration and there is reason to believe that the migrants see these moves as being the exchanging of one way of life for another.

The National Income and Government Revenue

The Colony's economy is dominated by two elements: the phosphate mining on Ocean Island and the government. In terms of export income the Colony is dependent on phosphate and copra augmented by substantial inflows of aid-moneys. Aid is likely to become an increasingly important element after the cessation of phosphate mining in 1979. Export earnings from both phosphate and copra fluctuate markedly from year to year. Approximately 75 percent of copra exports are produced by the village sector. Between 1972 and 1977 earnings fluctuated between \$0.4 million and \$4.8 million. In the best year (1974) copra accounted for 20 percent of export earnings. Over the same period the value of phosphate exports varied from a low of \$6.0 million in 1972 to an all-time high of \$26.7 million in 1975 reflecting high world prices and high rates of extraction. In 1975 phosphate exports amounted to 96.4 percent of export income. In recent years phosphate has never accounted for less than 79.7 percent of export receipts.

Similarly, phosphate taxes are a major contributor to government revenue. In 1971 revenue from phosphate taxes was \$3.1 million. In 1975 it rose to \$22.8 million, making up 86 percent of all government revenue. In the early years of the 1970s British aid amounted to around 2 million dollars per year. In 1971 aid receipts amounted to 11.2 percent of N.N.P. The importance of aid is likely to continue into the future. At the Constitutional Conference in London in November 1978 prior to independence, aid requirements for new projects for the 1979-82 period were set at \$18.2 million and an additional \$9.1 million of special financial assistance was agreed to to meet agreed deficits in the government of Kiribati's recurrent budget over the 1980-3 period resulting from the loss of phosphate revenue (Green, Bukhari and Lawrence 1979: 103, 123).

These factors have several important implications. The government's revenue has been in excess of its immediate needs and has allowed the diversion of the surplus into the Revenue Equalisation and Retention Fund. It was intended that this fund should reach \$60 million by 1979 when phosphate earnings ceased when the interest from the fund could augment recurrent expenditure and go some way to cushioning the loss of phosphate revenue in the future. In addition it has enabled the government to become the dominant element in the economy. Consumption of goods and services by government in 1971 amounted to some 29.3 percent of national

income (G.E.I.C. Draft Development Plan 1973-76). A major part of the capital formation in the Colony is also carried out by the government and is largely aid-funded.

The benefits of this government involvement to the economy is not felt uniformly throughout the country. Of a current expenditure of \$14.6 million in 1977, Local Government and Rural Development (including Lands and Survey), i.e. the government activities most directly concerned with rural areas accounted for only \$550,823 of this. Similarly, of \$18.2 million approved for new aid projects in the 1979-82 period only \$460,000 was allocated to rural development. All of these factors find expression in the market discrepancies between rural and urban areas in employment opportunities available.

Employment

Table 6-11 demonstrates the overriding importance of the village-based economy as a source of employment in the Colony. Of the total of 32,511 persons 15 years or over at the time of the census in 1973, 20,934 (64 percent) considered themselves "active" in the economic life of the Colony. Village-based activities (subsistence production and copra cutting on an irregular basis) occupied 67 percent of those economically active. A large proportion of those considered "not active" (females on "home duties", "students", "retired" persons and "visitors") are also supported by the village sector. Cash employment (including regular wage earners, employers, self-employed persons and unpaid family workers active in the cash economy on a regular basis) accounts for 29 percent of the "active" workforce. As expected, the contrast between indigenous and non-indigenous employment shows up strongly in the absence of the latter from the village-based sector and their high level of representation in cash employment (71 percent).

Table 6-11. Pattern of Employment: Indigenous and Non-indigenous Population Aged 15 Years and Over, 1973

	Not Active	Active				Total
		Village-based	Cash Employment	Seeking Work	Total Active	
Indigenous	11461	14059	5786	785 ^a	20630	32091
Non-indigenous	116	3	298	3	304	420
Total	11577	14062	6084	788	20934	32511

^aIncludes 517 with previous experience in cash employment.

Source: 1973 Census of Population.

Table 6-12 gives the further breakdown of the 6084 in cash employment by industry. Community and social services are pre-eminent, accounting for 39 percent of employment. The category includes those in employment in public administration, education, health and social welfare functions. It underlines the importance of the government as the major employer in the economy. This importance is further heightened when it is recognised that much of the employment in other sectors results from governmental or related statutory body activity. This would apply to transport, public utilities, commerce (through the activities of the Colony Wholesale Society Copra Board and the Cooperative Societies) and even in the field of commercial agriculture where the Government is also an important employer through its ownership and operation of plantations on Christmas Island. In 1972 many of these functions were given over to the Gilbert and Ellice Islands Development Authority (G.E.I.D.A.) a development corporation with responsibility for shipping and transport, public works, importing, boat-building, engineering services and a host of other activities. Even though it was enjoined to operate on commercial principles it was financed and indirectly controlled by government (Macdonald 1982: 182). Mining is another substantial employer. Ocean Island in 1973 provided 8.8 percent of the employment in the cash sector. Nauru (not covered by the Census) provides an additional 800-1000 jobs.

However, the most striking feature revealed by Table 6-12 is the small size of employment in the manufacturing (2.4 percent) and the finance and business services (2.7 percent) sectors, underlining the weak development of the private sector in the economy. Employment of non-indigenes is highest in mining, finance and business services and community and social services sectors and spectacularly absent from manufacturing suggesting a lack of indigenous skilled manpower and a heavy reliance on expatriate experts in mining and government and little involvement of expatriate expertise in the private sector in either commerce or manufacturing.

Table 6-12. Indigenous and Non-indigenous Persons Employed in the Cash Economy by Industry

Industry	Indigenous	Non-Indigenous	Total	Percent
Commercial Agriculture and Fishing	483	17	500	8.2
Mining	474	61	535	8.8
Manufacturing	144	1	145	2.4
Utilities	204	4	208	3.4
Construction	594	13	607	10.0
Commerce	650	8	658	10.8
Transport and Communications	862	28	890	14.6
Finance and Business Services	154	10	164	2.7
Community and Social Services	2220	156	2376	39.1
Not stated	1	-	1	-
Total	5786	298	6084	100.0

Source: 1973 Census of Population.

In total these data depict an economy with a heavy emphasis on the provision of services rather than production and in this the government is the main provider of services and generator of employment. In the productive areas of the economy (phosphate and copra) prospects are not bright. Phosphate ceased to be a source of revenue and generator of employment in 1979. Nauru will cease being an important source of employment in the late 1990s. Labour export to New Hebrides has proved unsuccessful and the prospects for employment on overseas ships insecure. Although a large proportion of the Colony's economically active population contribute to copra production, returns are low and production has fluctuated about a relatively static level for many years. Even if all the hoped for targets of the subsidy schemes are achieved, additional copra tonnages in the late 1980s should only add another \$1.5 million to export earnings (G.E.I.C. Draft Development Plan 1973-6: 19). Neither this, nor plans to develop brine shrimp, crayfish and other marine activities on Christmas Island or baitfish production on Tarawa or other Gilbert Islands is likely to fill the gap left by the depletion of phosphate. The internal marketing system is poorly developed and has not as yet encouraged a substantial flow of goods from the rural areas to the expanding urban market on Tarawa. Thus in terms of the total economy government employment and capital formation is likely to become

increasingly important and aid-dependent. This has important implications for the balance between the urban and rural sectors of the economy as well as its long-term viability.

A shortage of skilled manpower has contributed to demand for increasing levels of expatriate employment and this, coupled with policies of increased localisation in preparation for independence has generated artificially high wage levels and expectations in the urban areas and a widening gap between rural and urban areas. Hughes (1973: 16) estimates that in 1971 three-quarters of all cash incomes were earned on Tarawa. Here the government and G.E.I.D.A's wage bill topped \$3 million, 15 times the sum spent on wages in the rural areas. Eighty percent of all government staff and 93 percent of its senior staff were employed in the urban area. The differential is translated directly into consumption and imports since the internal marketing system did not or was not able to encourage potential local producers to capitalise on the opportunities created by the growing urban market. The three cooperatives servicing the urban centre on Tarawa accounted for half of the \$2.5 million cooperative society turnover. 1971 per capita purchases by cooperative society members in the urban area averaged \$350 per year, while in rural areas the figure was only \$80 (Watters 1977: 210). A large proportion of this expenditure is on foodstuffs. In 1971, 39 percent (\$1.8 million) of all imports were foodstuffs, beverages and tobacco. Thus a large proportion of the country's import bill goes to supporting an urban workforce engaged in administration and the provision of services rather than contributing directly to production. The increasing dependence on imports has the potential to erode any gains in growth of national income by the productive sector through continued inflation in import prices (G.E.I.C. Draft Development Plan 1973-76: 1). Problems of sub-standard nutrition, high infant mortality, drunkenness and crime are also beginning to emerge in the urban area. In addition the growing urban population places stress on housing, sanitation, water supply and other facilities which generates demands for more investment in the urban areas. The rapid growth of Tarawa called for the further investment of \$6 million by 1980 to provide basic water and piped sewerage systems, improved housing and increased electricity generating capacity. This investment is necessary to ensure basic levels of health and welfare for the urban population, but it is investment that the planners recognise has very limited benefit in

development terms and which can only accentuate rural-urban imbalance in the economy and availability of subsidised services (G.E.I.C. Draft Development Plan 1973-6: 4). Although the capital costs of these developments may be met from aid funds, the recurrent costs still have to be met. With the loss of phosphate revenues in 1979 these costs will be borne increasingly by the productive sectors of the economy, which remain the rural outer islands which have received few benefits from the expenditure and which have seen their rural incomes or wages effectively undercut by the artificial escalation of incomes and prices in the urban centre. It is small wonder that recent censuses have shown increasing rates of rural-urban migration as individuals respond to the increasing disparities between the level of income and services that can be enjoyed in the urban area in comparison with the rural outer islands.

Migration and Employment

Migration to employment arising out of unequal development in the region has been part of I-Kiribati rural dwellers' experience for a very long time. What differentiates the movements described immediately above from earlier mobility is that the individuals moving to the urban centre see the move as a means of exchanging one way of life for another and is thus, in intention at least, permanent. In contrast earlier migration was clearly temporary, circular and a means of supplementing rural life; there is always the expectation on the part of the migrant, that he will return to his rural environment. The differences between the systems resulting from particular sets of circumstances in which potential or actual migrants find themselves do not reflect to individual decisions [what Mitchell (forthcoming: 18) terms the situation of action] but rather to what Mitchell terms the setting of the social action. The setting is provided by the macroscopic economic, political and administrative structures of the regions in which the migrant is involved. Bedford (1981: 25) argues that the setting provides basic explanations for the existence or persistence of particular forms of mobility and this is clearly evident in the patterns of mobility described below.

The Phosphate Workings and Circular Migration

The development of capitalist plantation agriculture into Samoa, Fiji and Queensland encouraged the development of a contract labour system to which the I-Kiribati rural dwellers willingly responded. Phosphate

mining on Ocean Island and Nauru brought labour recruitment much closer to home. The close working relationship that evolved between the Pacific Phosphate Company (later the British Phosphate Corporation) and the British Government and the Colony Administration ensured that the phosphate interests gained access to the phosphate reserves needed. In return the Colony gained some benefits from employment and phosphate taxes. Recruitment for employment was closely controlled with the B.P.C. providing transport to and from the workings. Only those employed, their wives and a limited number of dependents were permitted to travel to Ocean Island or Nauru. The term of contract was for one year although this could be extended. The Government managed to exert some influence on recruiting patterns in that preference was given to recruits from the more densely populated and drought-prone southern Gilbert Islands. From Ellis' (1936: 264) description of recruiting it seems that fitness and health were the main criteria for selection. No consideration was given to whether the recruit could read or write. In more recent years the Nauru Phosphate Corporation has shown preference for recruits with previous work experience. The employment histories presented in Table 7-7 suggest that older rather than younger men have had previous work experience on the phosphate workings and that most Tamana men went for periods of two years at a stretch, often returning for further periods in employment. Few stayed for longer periods and there are very few I-Kiribati in skilled positions. Most returning workers brought back bicycles, timber for canoes and savings.

While on Ocean Island or Nauru workers and their families are accommodated in multi-unit residential blocks with the spaces between the blocks being designated as maraes or meeting areas for the different island communities. Each island community has an association to regulate the behaviour of its members and act as a means of liaison between those in employment and the home community. These associations also raise funds for projects on the home island and in some cases are used to pressure workers to remit money to kin at home.

In this way employment does not permit the individual to escape from his own community. Nor does he have any right to an existence on the island apart from employment, or by marriage to a native landowner. No other system of migration exists for Ocean Island other than "temporary", "circular" or "pendular" migration (Skeldon 1977: 395). The movement is for a set period and the purpose is to accumulate

particular capital goods. There is no expectation of exchanging one way of life for another and no ethos of urban life has emerged. It did not provide a kicking-off point for other types of more permanent relocation. Although the system has had some permanency over the last seventy years it has not resulted in a permanent redistribution of population.

Nor has it generated other forms of migration. Recruiting regulations ensured that both Ocean Island and Nauru functioned as virtually closed districts. The B.P.C. exerted control over all aspects of the mining industry, even to the extent of providing trade stores for retailing to its employees. Thus there was no scope for private investment or the growth of a private sector servicing the population concentration. No urban node associated with mining activities emerged to draw additional migrants to the area.

Migration to Tarawa

In contrast to the migration to Ocean Island and Nauru migration to Tarawa is a much more recent phenomena and arises directly from the decision to locate the Colony administrative centre there after World War II. In the early years Tarawa was effectively a closed district with only Tarawa landholders and their families and those in the employment of the government being permitted to remain there. In theory at least, would-be migrants were supposed to get the permission of the Kaubure on their home island before being permitted to embark for Tarawa. Additional checks were also supposed to operate at Betio, the port at Tarawa. Bedford (1968: 31) found neither of these operated as effective deterrents to migration in 1968 and around this time attempts to control internal movements of the population (except to Ocean Island) were abandoned. Both factors are clearly evident in the data presented in Table 6-13.

Table 6-13. Population Change, Tarawa Urban Centre, 1947-1978

	Census Year				
	1947	1963	1968	1973	1978
Population, urban Tarawa	1529	6101	10616	14861	17921
Annual increase over census period		286	903	849	612*
Annual increase total population Colony over census period		799	947	859	-269*

* Figures show effects of separation of Tuvalu from G.E.I.C.
Source: Colony Censuses 1963, 1968, 1973, 1978.

The population of the urban centre grew steadily from 1529 in 1947 to 6101 in 1963 over which time the growth of Tarawa was equivalent to 36 percent of the natural increase of the whole Colony population. After 1963 the rate of migration to Tarawa shows a marked upswing and Tarawa began to absorb the equivalent of almost all of the natural increase for the Colony. Between 1963 and 1968 only Marakei, Abaiang and Onotoa experienced population declines, but by 1973 the list included Abemama, Kuria, Nonouti, Tabiteuea, Beru, Nikunau, Tamana and Arorae. The trend continued over the following intercensal period with the following islands experiencing population losses; Makin, Rural Tarawa, Kuria, Beru, Nikunau, Onotoa, Tamana and Arorae. The effect of this continued out-migration is evident in Table 6-14. By 1978 no island had less than 20 percent of its potential population (population recorded in census as claiming island as "home island") resident on Tarawa. One island (Maiana) had 40 percent of its de jure population resident in the urban centre on Tarawa. As expected, there has been a steady decline in the proportion of the de jure population actually resident on the island they claim as "home". Since the proportion neither resident on the home island nor Tarawa remains reasonably constant, Tarawa must be the main target for increased outmigration. Walsh (1982: 169) concludes from the 1978 census that 82.5 percent of all net migration gains occurred in the urban area. He also demonstrates through the use of net migration rates¹ that the rate of immigration to Tarawa is exceptionally high in comparison with other centres in the Pacific; 6408 compared with 744 for Suva, 2388 for Honiara, 77 for Apia and 212 for Tongatapu.

Not all islands are equally important as sources of migrants to Tarawa as is demonstrated by Table 6-15. The reasons for this are not always readily apparent. As might be anticipated, the closer islands (Marakei, Abaiang and Maiana) are important sources of migrants, but so too are the more remote islands of Nonouti, Tabiteuea, Beru and Onotoa. Here population pressure does not seem to be an adequate explanation and so factors such as the quality of schooling, employer preference for people from particular islands and the importance of kin networks among already established employees could be important.

¹Net migration rate: Net migration divided by one half net migration minus population born in a place multiplied by 1000.

Table 6-14. Percentage De jure Population Resident on Island and in Urban Tarawa 1963-1978

Island or Island Group ^a	Census Year								
	1963			1968			1973		
	Percent de jure population resident in Tarawa	Percent de jure population resident on island	Percent de jure population resident in Tarawa	Percent de jure population resident on island	Percent de jure population resident in Tarawa	Percent de jure population resident on island	Percent de jure population resident in Tarawa	Percent de jure population resident on island	Percent de jure population resident on island
Makin	5.66	82.46	12.96	77.53	16.33	69.86	23.43	61.76	
Butaritari	7.08	83.25	16.18	74.44	22.27	66.88	27.38	61.70	
Marakei	14.03	69.54	21.89	62.52	28.24	53.93	33.92	48.27	
Abaiang	16.31	74.18	22.60	67.16	28.99	56.76	35.20	48.82	
Maiana	16.42	66.03	27.22	58.06	40.93	45.98	40.50	43.90	
Abemama	6.37	84.30	17.37	66.74	21.31	64.90	25.13	59.57	
Kuria	17.53	41.75	14.70	74.55	33.32	44.91	37.35	49.00	
Aranuka	9.65	73.68	16.48	71.91	21.68	63.75	23.17	58.69	
Nonouti	12.23	67.72	20.82	63.00	32.94	52.62	37.60	44.39	
Tabiteuea	7.18	74.69	15.10	69.17	25.13	58.09	28.90	52.05	
Beru	10.52	72.26	17.33	67.33	24.01	59.53	28.89	54.59	
Nikunau	6.13	74.04	13.42	68.76	22.24	58.83	29.93	51.75	
Onotoa	10.29	70.89	16.19	62.63	24.45	57.49	28.89	50.72	
Tamana	6.24	73.38	11.78	73.71	15.41	67.50	22.38	61.11	
Arorae	6.70	68.30	11.60	67.43	20.04	53.29	29.35	45.72	
Ellice	10.04	66.70	14.94	73.74	26.49	72.47	48.03	ND	

^aPopulations regarding Banaba (Ocean Is), Line and Phoenix Islands too small to produce meaningful results.

Source: Colony Censuses.

Table 6-15. Proportion of Indigenous Non-Tarawans Aged 15 Years and Over Enumerated in Urban Tarawa by Home Island

Home Island	Year			
	1963	1968	1973	1978
Makin	1.67	2.34	2.06	2.79
Butaritari	4.24	5.98	5.68	7.21
Marakei	8.82	8.03	7.21	8.38
Abaiang	14.08	11.59	10.04	11.17
Maiana	8.49	8.19	8.40	8.25
Abemama	2.73	3.40	3.20	3.18
Kuria	1.39	1.82	1.58	2.01
Aranuka	0.90	0.98	0.89	0.99
Nonouti	9.18	9.19	9.19	10.18
Tabiteuea	8.82	11.05	11.83	13.36
Beru	6.73	6.41	6.17	7.07
Nikunau	3.47	4.47	4.65	5.90
Onotoa	6.45	5.76	5.90	6.51
Tamana	2.33	2.69	2.21	2.97
Arorae	3.96	3.83	4.25	6.09
Tuvalu	15.40	13.92	16.64	3.82
Others	1.34	0.35	0.10	0.12
Total	100.00	100.00	100.00	100.00

Source: Colony Censuses.

However, work by Wilson (1979) on the 1973 census (quoted in Walsh 1982: 173) suggests that a very large proportion (71 percent) of moves were primary moves and these were directed to the "work" islands - Tarawa, Ocean and Line Islands. It is unlikely that stepwise migration would be important because of the simple fact that there is no urban hierarchy; there are the rural areas and the urban centre at Tarawa. Work on Ocean Island and Nauru cannot be regarded as preparation for migration to Tarawa because it has always been a part of "normal" rural life. In addition, it demands no skills other than strength whereas most migrants to Tarawa aspire to white collar jobs which require some years of secondary schooling which has only recently been available to a larger number of children.

While many of the data presented above indicate that the tempo of migration to Tarawa is accelerating, data on the length of stay in Tarawa in the 1978 census (see Table 6-16) indicate that a surprising proportion of the migrants would already qualify as "long-stay" migrants. Over 20 percent of the migrants from most islands have been resident on Tarawa for more than 11 years. If many of the newly arrived migrants

maintain this trend it is clear that migration to Tarawa is seen as the exchanging of one way of life for another. Thus it would bear no relation to previous migration patterns and is a direct response to the trends in the economy and particularly increasing government expenditure discussed in the previous section.

Table 6-16. Length of Stay of Non-Tarawans in Urban Tarawa

Home Island	Length of Stay on Tarawa in Years		
	0-2	3-10	more than 11
	%	%	%
Makin	41.70	33.59	24.71
Butaritari	38.59	35.29	26.12
Marakei	30.69	36.83	32.48
Abaiang	28.49	31.55	39.96
Maiana	28.70	34.73	36.57
Abemama	42.91	36.82	20.27
Kuria	30.81	49.19	20.00
Aranuka	32.61	40.22	27.17
Nonouti	33.51	39.49	27.00
Tabiteuea	29.23	43.32	27.45
Beru	29.16	42.14	28.70
Nikunau	33.27	47.98	18.75
Onotoa	29.45	41.43	29.12
Tamana	32.97	42.39	24.64
Arorae	40.57	38.26	21.17
Line	45.45	45.45	9.10
Tuvalu	30.88	28.61	40.51

The setting of this new pattern of migration would seem to indicate a new social order. Bedford (1968: 31) records that employment was the main motive for male migration to Tarawa, many had no clear economic purpose and were coming to "try their luck". This has shades of tibanga and "fate" discussed earlier. Under the traditional social system such mobility would not have been possible because position in a community depended very much on rights to land. Without these an individual would have had no means of support and no place in an alien community. This would still apply in the rural areas and puts a brake on inter-island travel except where linkages through descent or adoption can be demonstrated. However it is clear that urban Tarawa is now a place outside this system. It is no longer bon abaia kain Tarawa

("land of the people of Tarawa"). It has become abara ("our land") ara tabo ("our place") or aba nte botanaomata ni kabane ("land of all the people"). The same constraints on movement do not apply. Wage employment is the touchstone for this new way of life and education is the key. The government has provided the education so it must in its infinite wisdom demonstrated in over a century of paternalistic control, intend providing the employment as well. It is to this new tibanga that the migrants are responding and the migration data presented above are clear evidence of this. It is a clear indication of what the I-Kiribati expect of their future. Whether it is realistic is another question and one which can only be answered after the reality of the post-phosphate years becomes apparent. It will depend pre-eminently on the evolution and character of the aid relations between Kiribati and its sponsors rather than with what will happen in the rural areas.

SECTION TWO

THE HOUSEHOLD STUDY

Chapter Seven

THE HOUSEHOLD RESOURCE BASE

The aim of this chapter is to provide a brief summary characterising and comparing the resource bases of the sample households. Individual resources and the manner in which they are used will be discussed more fully in later sections. Traditionally, land was the most important resource because it was through land that access was gained to most of the necessities of life: food, shelter and much of the technological equipment needed to exploit the environment. In the early phases of contact when the coconut oil and copra economy prevailed land was still important because it provided the major means of access to the newly introduced trade goods. However, the development of the phosphate workings and the contract employment system it generated introduced new cash-earning opportunities and vastly expanded the range of goods available; access to capital goods and wage employment became synonymous. The post-war growth of the government bureaucracy on Tarawa has further increased the range of employment opportunities and shifted the emphasis from contract-organised, unskilled manual labour to an increasingly diverse, sophisticated white collar service industry where higher levels of education and different skills are demanded. Education thus becomes an important resource as it is the means of access to the new and converted urban way of life. Thus the definition of a resource must be a wide one which encompasses all the elements which contribute to the "good life" on Tamana: land, capital, goods, employment and education. At present labour appears to be ubiquitous and not a major constraint, although increasing rates of outmigration may change this and make the present way of life on Tamana increasingly difficult to sustain. Not all households have the same access to all of these resources and the variation is mirrored in the different strategies adopted by different households. The major differences were introduced briefly in the preceding chapter.

Access to Land

Tables 7-1, 7-2 and 7-3 summarise the lands owned and used by members of the sample households. The distinction between ownership and usage is emphasised. In most cases households used more lands than were actually registered in members' names which illustrates the flexibility of the system. Only one individual, Bakanoka, had not received land through the normal channels of inheritance and had no prospect of doing so (which must be regarded as being atypical) but even here through other strategies she had gained the use of five other plots of land. Thus the flexibility of the system ensures that no individual or household is denied access to land and that large tracts of land do not go unused because of the absence of the registered owners.

However, quite large disparities in land access between households do exist. The 15 households¹ surveyed used 150 land plots totalling 54.56 hectares of land; the least well endowed household had access to 0.52 hectares in five plots while at the other extreme one household had 5.50 hectares in 18 plots, while another had 7.17 hectares in 11 plots. Of the 150 plots used 107 were vested in household members, or household members with their siblings. Ninety five of these were used by sample household members while the remainder were either given over under informal agreements to siblings in other households or to daughters on marriage. These transfers would be ratified at some future date by the Land Court. A further 55 plots were used by household members although not registered in their names. Twenty nine of these will however come to the individuals concerned on the death of aged parents or once a final distribution of lands is agreed upon by siblings and ratified by the Land Court. Eighteen more plots in use belong to individuals temporarily absent from the island and seven more belonged to persons who had been absent for much longer periods. The household members were thus acting

¹One household had shifted to Tarawa before the survey of lands was completed. All plots were surveyed by closed pace and compass traverse. Boundary markers were identified in the field by the owners or users. Plot size and shape were very irregular and so areas were calculated by plotting the closed and corrected traverse at a suitable scale onto standard weight card which was then cut out and weighed to calculate the area. The smallest plot measured was 0.0318 hectares (63 square yards) while the largest was 2.492 hectares (just over one acre). A count of all immature, productive and senile palms on each land was also taken.

as "caretakers" for these lands, which are known as aba ni marawa or "lands of the sea".

Table 7-1 demonstrates the operation of some of the general principles of land inheritance discussed in Chapter 4. The data shows that land is inherited by both males and females from both parents. Males inherit more plots than females and as the inevitable result of this more land is usually inherited from the father than the mother. There are, however, exceptions to this depending on the number of children, particularly male children, in each generation. Preference is usually given to the eldest son, particularly in inheritance of the village house site. Despite the importance of adoption in I-Kiribati society only six of the 150 plots came to present generation household members through adoption. By tracing individual plots back through the Land Register it is apparent that land transfers accompanying adoption were more common in the past and the decline presumably reflects increasing pressure on land. Adoption, in so far as a child will live more or less permanently in the household of other kin than its true parents, is still very common, but the adoptions are evidently not formally registered before the Lands Court and no transfer of land is made.¹ It is probable that adoption is of declining importance as a means of resource redistribution on Tamana (except in cases of childless marriages, or where individuals are likely to die without issue) and this presumably reflects increased pressure on the island's limited land resources. Other forms of non-biological transfer of land are even more rare. One member of the households surveyed received a small piece of village land as a result of a "land of kindness" transfer.

Temporary redistribution of lands is much more common, and for households such as Meri's and Bakanoka's, survival without strategies to gain access to additional land would be exceedingly precarious. In Meri's case she used lands belonging to her absent sister's husband, and her estranged (and deranged) husband. In the latter instance she forced her adolescent sons to stay with their father for varying periods to ensure that he had no grounds for disinherit them on the grounds of neglect. Bakanoka had, for some reason, inherited no lands of her own

¹The Tamana Land Code requires that all adoptions be registered with the Land Court, but a survey of surviving court records following the 1950 land settlement shows remarkably few registrations of adoption.

Table 7-1. Land Plot Ownership and Usage, Sample Households, Tamana Island

Household landowners	Lands vested in household members							Other lands used		Total lands used
	No. lands vested	Conveyance			Encumbrances		Vested lands used	No.	Vested in	
		Distribution from father or father's line	Distribution from mother or mother's line	Other	Self	With siblings				
MERI	3	1	2	-	2	1	3	1	Sister's absent husband	4
Household	3	1	2	-	2	1	3	2	Estranged husband	5
KATIRONGO	3	3	-	-	3	-	3	-		3
His wife	5	5	-	-	-	5	1	-		
Household	8	8	-	-	3	5	4	-		4
ENOKA ^a	5	2	2	1	5	-	5	-	Probably belongs to mmfdds	5
His wife ^a	-	-	-	-	-	-	-	1	Probably belongs to descendant of ffm	2
Household	5	2	2	1	5	-	5	2		7
BAKANOKA	-	-	-	-	-	-	-	2	Son's dead wife	5
								1	Absent son	
								1	Husband's daughter by previous marriage	
								1	Dead adopted son's wife	
Household	-	-	-	-	-	-	-	5		5
TENAKAI	-	-	-	-	-	-	-	2	Father's land shared siblings	6
								2	Father's land self	
								1	Mother's land shared siblings	
								1	Mother's land self	
His wife	2	2	-	-	2	-	2	-		2
Household	2	2	-	-	2	-	2	6		8
KAIEA	9	6	3	-	1	8	6	-		6
His wife	3	1	-	2	3	-	3	-		3
Household	12	7	3	2	4	8	9	-		9
AAM	5	3	2	-	5	-	5	1	Belonged to father's brother who died without issue	6
His wife	2	-	1	1	1	1	2	1	Belonged to ffd by different wife	3
									unofficial distribution by ff - never ratified in court	
Household	7	3	3	1	6	1	7	2		9
KAMANTOA	6	3	3	-	2	4	6	-		6
His wife	2	1	1	-	2	-	2	1	Sister died without issue	3
Household	8	4	4	-	4	4	8	1		9
KAIABA ^b	-	-	-	-	-	-	-	5	Father's undistributed lands	7
								2	Mother's undistributed lands	
								5	Father's undistributed lands - used with mother and siblings	7
His wife	-	-	-	-	-	-	-	1	Mother's land - used with mother	
								1	Evidently recorded under another owner by error after transfer	
Household	-	-	-	-	-	-	-	14		14
TEMBETI	9	4	3	2	7	2	9	1	Absentee owner	10
His wife	4	3	1	-	4	-	3	-	Parents' lands undistributed but not used	3
Household	13	7	4	2	11	2	12	1		13
MAERA	4	4	-	-	4	-	4	-	Undistributed father's lands	4
His wife	1	-	1	-	-	1	1	4		5
Household	5	4	1	-	4	1	5	4		9
BARAME	4	1	3	-	4	-	4	3	Absent daughter's from mother	10
								3	Absent sister's son's land	
Adopted son's daughter	3	1	2	-	3	-	3	1	Unofficial transfer from mother on marriage	8
								4	Absentee land belongs to mfaidd	
Household	7	2	5	-	7	-	7	11		18
KOMERI	9	4	5	-	-	9	9	-		9
His wife	1	1	-	-	1	-	1	1	Mother's undistributed land	2
Household	10	5	5	-	1	9	10	1		11
TEREBITA	10	7	2	1	10	-	8	2	Absent son's wife's land	10
Resident son's wife	-	-	-	-	-	-	-	2	Unofficial transfer from father on marriage	2
Household	10	7	2	1	10	-	8	4		12
TOKINTEKAI	5	3	2	-	2	3	5	2	Absentee land. Belongs to ffbdds	7
His wife	12	9	3	-	5	7	10	-		10
Household	17	12	5	-	7	10	15	2		17
Total all households	107	64	36	7	66	41	95	55		150
Mean all households	7.13	4.21	2.40	0.47	4.40	2.73	6.33	3.67		10.00
SD	4.84	3.39	1.92	0.74	3.33	3.59	4.25	4.03		4.19

Source: Fieldwork.

^a Has lands on Arorae.^b Has lands on Beru.

No land data available for Timea's household. It had moved to Tarawa when the survey was carried out.

and used lands belonging to her absent son, his dead wife, her dead adopted son's wife and her dead husband's daughter by a previous marriage. While these two examples show the importance of "caretaker" lands to the survival of some households, Table 7-1 shows that the redistribution of lands is not necessarily directed to those most in need. There are no set rules governing temporary transfers and these do not have to be registered with the court. Kinship and friendship bonds are important in determining who gets use of absentee lands. A caretaker is entitled to use the lands entrusted to him in much the same way he would use his own, except that custom prevents the individual planting lands for which he does not have legal tenure and thus absentee-owned lands tend to be neglected and this is clearly evident in the lower palm densities of most caretaker lands in Table 7-4.

The location and boundaries of all lands except one were known to the owners or caretakers which clearly demonstrates the importance of land in society and the thoroughness with which the community's resources are known. Unlike many other Pacific communities, on Tamana there are no pools of unutilised or only vaguely perceived resources. Land is held in small, often widely dispersed plots. Of the 147 plots vested in or looked after by the sample households, 104 (71 percent) measured less than half an hectare in area (see Table 7-2). The smallest bush land measured was 0.032 hectares (63 square yards); the largest was 2.492 hectares (just over one acre). The smallness of the plots shows the working out of the inheritance system where all offspring are entitled to a share in the lands and where it has been the custom in the past to subdivide all lands, thus ensuring the recipients get lands in the differing ecological zones. The process of fragmentation is not as rapid as one would expect. Only 12 of the 107 vested lands recorded have been officially subdivided since the Lands Settlement in 1950. A further seven have been unofficially subdivided and 33 are used jointly by siblings or parents and adult children in separate households. While this may represent a strategy to reduce fragmentation, it can only be a short-term measure because the lands must be transferred and subdivided at some later date. Once lands are subdivided they are treated as separate units and never reaggregated for more efficient management. No evidence could be found of regularised sharing systems where potential inheritors take turns in using lands. However, it must be remembered that observations were made during periods of low copra prices when the

demand for coconuts was somewhat depressed. In many instances joint holding of lands arose because some of the potential claimants were away from the island and hence there was no need to fix a settlement. Dormant claims are still recognised for several generations and this has an adverse effect on land husbanding because it is shameful to plant lands to which one does not have title. Land is socially important as a symbol of belonging and the means by which one's offspring claim their place in the community. In terms of the Tamana value system, if one does not control one's own land one cannot be oinibai, independent of other people; one cannot control one's own destiny and take one's place in the community.

Table 7-2. Size Frequencies of Land Plots Held by Sample Households

Area in hectares	No. Plots	% of Plots
0.000-0.249	57	33.78
0.250-0.499	47	31.97
0.500-0.749	18	12.25
0.750-0.999	13	8.84
1.000-1.249	4	2.72
1.250-1.499	3	2.04
1.500-1.749	1	0.68
1.750-1.999	2	1.36
>2.000	2	1.36
Total	147	100.00

No attempt is made to classify the household's bush lands on the basis of the land types distinguished in Chapter 3 because there is no relationship between present coconut palm densities and land type.¹ Over most of the island palm densities reflect planting histories rather than environmental gradients. Table 7-3 presents data on sample household access to palm resources. The least well endowed household had access to 53 bearing palms while two households had more than 400 bearing palms. Bearing palm densities on household bush lands ranged

¹ No relationship was evident also between palm densities and the good (R, rarao), medium (N, nuka) and poor (B, buakaka) land classification used in the Land Register for land tax purposes.

Table 7-3. Land Area and Coconut Resources, Sample Households, Tamana Island

Table 7-3
Land Area and Coconut Resources, Sample Households, Tamana Island

Household	No. of Plots Used	Area* of Lands Vested in or Will Become Vested in Household Members	Area of Area of Area of			Bush Lands per Capita	Bearing Palms Bush Lands	Palms yet to Bear Bush Lands	Bearing Palms per Hectare Bush Lands	Bearing and yet to Bear Palms per Hectare Bush Lands
			Other Lands Used	Total Village Lands Used	Bush Lands					
Meri	5	0.52	0.16	0.68	0.10	0.58	0.05	59	5	198
Katirongo	-	1.02	-	1.02	0.07	0.95	0.19	79	39	207
Enoka	7	2.83	0.84	3.67	0.62	3.05	0.23	326	25	191
Bakanoka	5	0.35	0.59	0.94	0.19	0.75	0.37	53	29	147
Temakai	8	3.35	-	3.35	0.41	2.94	0.42	200	29	136
Kaiea	9	3.71	-	3.71	0.43	3.28	0.55	169	28	117
Aam	9	3.18	0.28	3.46	0.12	3.34	0.67	197	39	130
Kamantao	9	5.40	-	5.40	0.26	5.14	0.73	319	46	132
Kaiaba	14	5.13	0.18	5.31	0.07	5.24	0.74	354	51	128
Tembeti	13	4.26	0.39	4.65	0.51	4.14	0.82	271	54	130
Maera	9	4.40	-	4.40	0.27	4.13	0.83	253	51	120
Barawe	18	5.50	2.79	8.29	0.44	7.85	1.57	451	90	107
Komeri	11	7.17	-	7.17	0.48	6.69	1.67	447	112	148
Tebebita	12	3.27	2.21	5.48	0.38	5.10	1.70	215	72	113
Tokintekai	17	4.47	0.89	5.36	0.17	5.19	1.73	290	97	129
Total All Households	150	54.56	8.33	62.89	4.52	58.37	12.27	3683	4026	
Mean All Households	10.00	3.64	0.56	4.19	0.30	3.89	0.82	245.53	268.40	
S.D.	4.19	1.92	0.85	2.18	0.18	2.10	0.58	125.34	132.00	

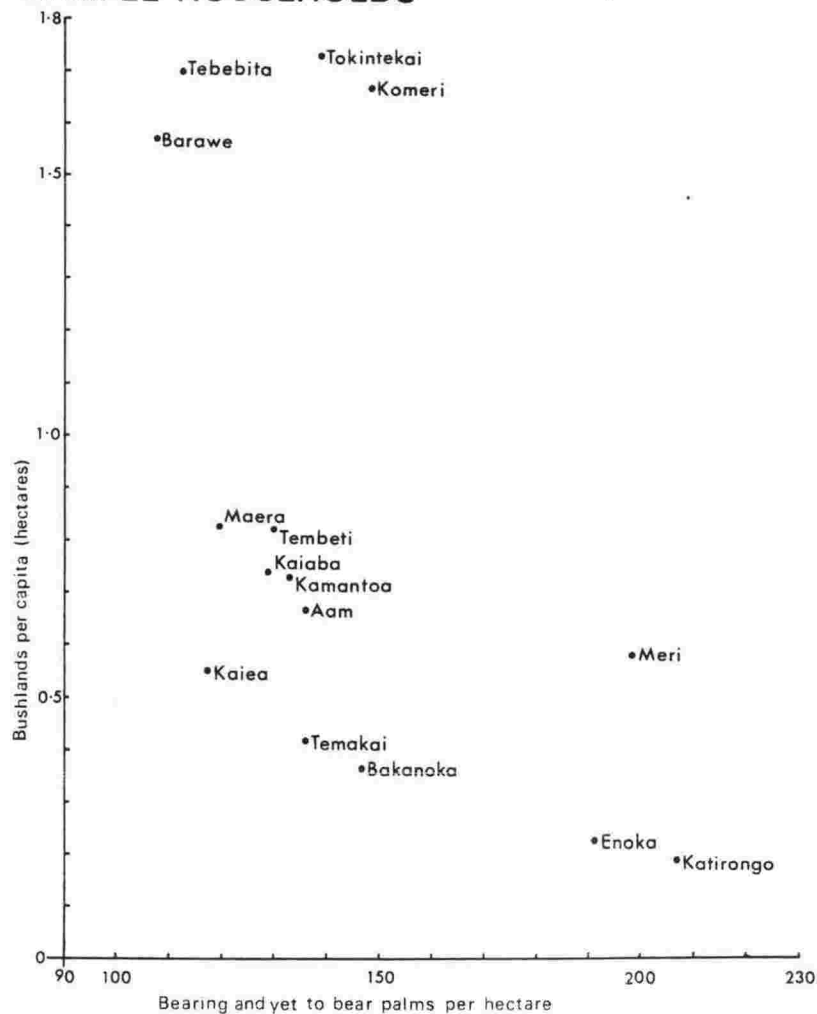
*All areas in hectares.

from 51 to 107 per hectare (Table 7-3). However these figures tend to cloak plot-to-plot variability. Table 7-3 also shows that most households have more palms yet-to-bear than those already bearing and so productivity of the household land overall in the future appears assured, although here the density of palms on different lands and the pattern of division of lands among descendants is critical to future well-being. Since all lands are not uniformly well planted it

would have been confronted with the same land/people ratios and the same need to plant up lands. It may give credence to the professed aim of parents to marry their children to spouses with similar or better prospects of inheriting land. Thus there is little that individual household members can do in the short-term to supplement their land-based resources, other than by gaining access to additional land, or by other means of getting coconuts. In the longer-term resources can be expanded by sustained planting programmes, and in custom any individual having rights to land vested in him is expected to maintain and improve the productivity of the land so that his offspring are assured of getting a living from that land in times to come. The implications of differences in present-day land and palm resource access for household economic performance is discussed in Chapters 9 and 10.

Fig 7-1

TAMANA: LAND RESOURCES AND PALM DENSITIES, SAMPLE HOUSEHOLDS



Babai Pits

Babai resources do not appear to bear the same importance as coconut lands. The 15 households used 40.5 babai pits (rua) and 405 niba¹ giving a mean of 2.70 pits and 27 niba per household. The total number of plants per household show great variability with a mean of 188 plants and standard deviation of 155.77 which suggests that some families attach little importance to babai cultivation, while others devote more attention to it. This is borne out by other data in Table 7-5. Nearly one quarter of the pits registered in householders' names were abandoned, either through laziness, neglect of maintenance or cultivation problems through increases in salinity or changes in water levels. Only five pits have been dug by present householders, which underlines the lesser importance of babai in the economy. It is also interesting to note that there appears to be no caretaking of pits for absentee owners. Only one household used a pit registered in another's name. The use of pits registered in household members' names but used by others represent distribution of inherited pits not yet ratified by the court.

Livestock

All households kept pigs. The numbers held at any one time ranged from one to seven, numbers being built-up if a wedding or similar celebration was in the offing. Pigs were used mainly in feasts to celebrate weddings, the New Year and farewells. Chickens were somewhat less carefully husbanded and numbers tended to be more variable, both between households and over time. A few households kept no chickens at all, occasionally the flock might get up to 18-strong, but mostly the household would have about half a dozen chickens running around the homesite. Most households would also have dogs and cats attached to them. These were rarely intentionally fed. Two of the households were alleged to raise dogs for food. As this was not a topic of polite conversation (indeed, it was a prize Tamana insult to say "that man eats dog") no data could be gathered on this. Meat served up by these households always tasted different....

¹ Niba are small holes, large enough to take one plant, dug through the hardpan.

Rua is the large pit containing many plants.

Table 7-5. Babai Pit Ownership and Usage, Sample Households, Tamana Island

Household	Householder	Pits listed in <i>babai</i> register						Pits used but not listed in <i>babai</i> register						Total pits used		Total plants
		Listed in register		Used by household		Used by others		Empty or abandoned		Inherited		Dug by self				
		<i>Rua</i> ^a	<i>Niba</i> ^a	<i>Rua</i>	<i>Niba</i>	<i>Rua</i>	<i>Niba</i>	<i>Rua</i>	<i>Niba</i>	<i>Rua</i>	<i>Niba</i>	<i>Rua</i>	<i>Niba</i>	<i>Rua</i>	<i>Niba</i>	
MERI	Meri	-	-	-	-	-	-	-	-	-	-	1	-	1	-	40
	Household	-	-	-	-	-	-	-	-	-	-	1	-	1	-	40
KATIRONGO	Katirongo ^b	2	-	1	-	1	-	-	-	-	-	-	-	1	-	40
	His wife ^b	7	67	1	10	6	57	-	-	-	-	-	-	1	10	70
	Household	9	67	2	10	7	57	-	-	-	-	-	-	2	10	110
ENOKA	Enoka	-	26	-	26	-	-	-	-	1	-	2	10	-	36	470
	Household	-	26	-	26	-	-	-	-	1	-	2	10	-	36	470
BAKANOKA	Bakanoka	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-
	Household	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-
TEMAKAI	Temakai ^b	4	21	1	11	2	10	1	-	-	-	-	-	1	11	51
	His wife	2	22	1	20	-	-	1	2	-	-	-	-	1	20	58
	Household	6	43	2	31	2	10	2	2	-	-	-	-	2	31	109
AAM	Aam	3	30	2	30	1	-	-	-	-	-	1	-	3	30	235
	His wife ^b	-	25	-	-	-	25	-	-	1	-	-	-	1	-	87
	Household	3	55	2	30	1	25	-	-	1	-	1	-	4	30	322
KAMANTOA	Kamantoa	2	17	2	15	-	2	-	-	-	-	1	26	-	41	177
	Household	2	17	2	15	-	2	-	-	-	-	1	26	-	41	177
TEMBETI	Tembeti	3	15	1.5	10	0.5	5	1	-	1	-	-	-	2.5	10	108
	His wife ^b	2	22	-	6	2	16	-	-	-	-	-	-	-	6	6
	Household	5	37	1.5	16	2.5	21	1	-	1	-	-	-	2.5	16	114
KAIABA	Kaiaba	5	7	1	7	-	-	4	-	-	-	-	-	1	7	47
	His wife ^b	2	8	1	-	1	8	-	-	-	-	-	-	1	-	50
	Household	7	15	2	7	1	8	4	-	-	-	-	-	2	7	97
MAERA	Maera ^b	2	30	-	10	-	20	2	-	-	-	-	-	-	10	10
	His wife ^b	2	10	-	3	-	-	2	7	-	-	-	-	-	3	3
	Household	4	40	-	13	-	20	4	7	-	-	-	-	-	13	13
KAIEA	Kaiea ^b	4	20	2	-	2	20	-	-	-	-	1	-	3	-	120
	His wife	-	18	-	18	-	-	-	-	-	27	-	-	-	45	45
	Household	4	38	2	18	2	20	-	-	-	27	1	-	3	45	165
KOMERI	Komeri	1	20	1	20	-	-	-	-	2	4	-	-	3	24	124
	His wife	-	-	-	-	-	-	-	-	1	-	-	-	1	-	40
	Household	1	20	1	20	-	-	-	-	3	4	-	-	4	24	164
TEBEBITA	Tebebita	2	15	1	-	1	15	-	-	1	-	-	19	2	19	164
	His son	1	-	1	-	-	-	-	-	-	-	-	-	1	-	50
	Son's wife	-	-	-	-	-	-	-	-	1	-	-	-	1	-	100
	Household	3	15	2	-	1	15	-	-	2	-	-	19	4	19	314
TOKINTEKAI	Tokintekai	3	11	1	11	-	-	2	-	1	-	-	29	2	40	71
	His wife	-	-	-	-	-	-	-	-	3	13	-	-	3	13	148
	Household	3	11	1	11	-	-	2	-	4	13	-	29	5	53	219
BARAWE	Barawe	4	80	3	80	-	-	1	-	-	-	-	-	3	80	380
	Adopted son's wife	1	-	1	-	-	-	-	-	1	-	-	-	2	-	140
	Household	5	80	4	80	-	-	1	-	1	-	-	-	5	80	520
Total all households		53	464	21.50	277	16.50	178	15	9	13	44	5	84	40.5	405	2834
Mean all households		3.53	30.93	1.43	18.47	1.10	11.87	1.00	0.60	0.87	2.93	0.33	5.60	2.70	27.00	188.93
SD		2.59	23.54	1.12	19.76	1.85	15.57	1.41	1.84	1.25	7.49	0.62	10.38	1.58	21.78	155.77

^a *Rua* refers to large pits holding many plants; *Niba* to small holes holding only one plant.^b Indicates undistributed pits.

Capital Goods

The point was made earlier in this chapter that employment and capital goods were almost synonymous. The full list of households' possessions in Appendix 3 shows that very few of these possessions could have been fabricated on Tamana, nor can they or could they in the past have been purchased from the store on Tamana or even from Tarawa. The range of tools and implements is particularly impressive and makes a significant contribution to the ease and efficiency of outer-island life. Most of these goods appear to have been accumulated through purchase, gifts or "borrowing" while in employment on Ocean Island or Nauru. Table 7-6 shows that the ownership of major capital items by the sample households is high and that most households have access to such important items as canoes, bicycles and sewing machines. The households with older heads tend to have more capital items than households headed by younger men or women which could reflect differing employment histories, or, in the women's case, differences in the transfer of capital goods by inheritance. However, a comparison of Tables 7-6 and 7-7 shows that some households where members have not been employed overseas do have at least some of these major capital items presumably through inheritance, gifts or bubuti. Where a household lacks such major items as canoes, bicycles or sewing machines, the loss was made good by forming a fishing partnership with someone owning a two-man canoe and by temporary borrowing of the needed item from other kin. In both instances there is a stigma attached to the lack of independence demonstrated since it is an important goal of all Tamana households to be independent and to make their own decisions as to their activities.

Table 7-6. Ownership of Selected Capital Items by Sample Households

Household	Canoe	Timber for canoe	Sewing machine	Bicycle	Cloth- ing box	Pressure lamp	Radio
Barawe	1	1	1	1	3	1	1
Tokintekai	-	-	1	1	3	-	1
Tebebita	2	1	1	1	2	1	1
Aam	1	-	2	1	2	1	-
Tembeti	2	-	1	2	2	1	1
Enoka	1	1	1	1	3	1	1
Kaiea	2	1	1	2	2	2	1
Temakai	1	-	1	1	2	-	1
Timea	2	1	-	1	2	-	1
Bakanoka	-	-	-	1	2	-	1
Kamantoa	1	1	2	3	3	1	2
Meri	-	-	-	1	1	-	-
Komeri	1	1	1	2	2	1	1
Kaiaba	1	-	1	1	1	1	1
Maera	-	-	-	-	1	-	-
Katirongo	2	-	1	2	2	1	1
Percent of households owning item	75.00	43.75	75.00	93.75	100.00	62.50	81.25
Source: Fieldwork							

Capital Goods and Employment

Table 7-8 suggests that the employment experiences of different age groups within the community are substantially different. This is more strikingly evident in Table 7-9. A very high proportion of over-30 year old males have been in employment and most of these were employed at Ocean Island or Nauru. Less than half the under 18-29 year olds have had employment experience and only one of these had worked at Ocean Island or Nauru. Most of these younger men work on ships or go to Tarawa in search of jobs. This underlines the changing pattern of

Table 7-7. Employment Histories and Goods Acquired by Members of Sample Households, Tamana Island

Householder	Age	Schooling	Employment		Reasons for termination	Capital accumulation	Other close kin in employment
			Place	Duration		Capital goods acquired	
Barawe	72	Mission school	Ocean Island	After World War I	-	n.d.	Son-in-law, Ocean Island
			Tarawa/ships	1931-32	-	"	
			Ocean Island	1934-36	Dysentery outbreak Tamana	"	
			Tamana Native Magistrate Overseas ships	1946-47	-	"	
Tokintekai	68	Data incomplete - absent at time of survey. as seaman on Burns Philp vessels.		Worker at Nauru, travelled to Australia and New Zealand		Son, Tarawa Adopted son, overseas ships	
Tebebita	54	Mission School	Ocean Island Nauru	1934-42 1952-54	War Contract ended	Timber for canoe, cloth Cooking utensils, timber for canoe, bicycle, clothes, cash Salary £8 per month Unpaid	Son, Ocean Island
His son	31	Mission School, Mokongai Fiji Mission School Tamana	Tamana Island Council School Nauru	1958-60 1960-66	Went to Nauru Wanted to return	Timber, food, clothes, cooking utensils, bicycle	
			Tamana Cooperative store Nauru	1971-72 1974-	Dismissed	Salary \$23 per month	
			Aam	53	Mission School	Ocean Island Ocean Island Ocean Island Nauru	
Kamantoa	52	Mission School	Ocean Island Ocean/Kusai Ocean Island	1938-42 1942-45 1958-59	War Japanese prisoner Contract ended	Cooking utensils, bicycle, £30 cash	Son-in-law, Nauru Son, overseas ships
His son	18	Island Council School	Tarawa	1972-73	Father's sickness	Timber for canoe, bicycle, sewing machine, clothing box, small amount cash	Brother-in-law, policeman, Solomon Islands
			Nurse Tamana EBS High School Colony hospital	1970			
Timea	52	Mission School Rongorongo	Ocean Island Nonouti Island pastor Nauru	1937-39 1951-54 1956-58	Wanted to return Contracted TB Requested to be pastor	Could not remember Loath to discuss - said got more money as missionary Timber for canoe, bicycle, sewing machine, clothing box, small amount cash	Son-in-law, Tarawa Daughter, Tarawa
Tembeti	51	Mission School Rongorongo (3 years only)	Nikunau Island pastor	1958-64	Sickness	Loath to discuss	Daughter, house-girl, Tarawa
			Ocean Island	1940-42	War	Clothes, fishing gear, cooking utensils, timber for canoe, £3 cash. Salary £1 12s + 8s bonus per month	
Bakanoka	51	Mission School	Ocean Island	1947-48	Contract ended	Bicycle, fishing gear, cooking utensils, sewing machine, clothes, £11 cash. Salary £3 3s per month	Son, Nauru
			Ocean Island	1947-48	Contract ended	Bicycle, fishing gear, cooking utensils, sewing machine, clothes, £11 cash. Salary £3 3s per month	
Temakal	48	Mission School	Ocean Island Washington Island Ocean Island	1938-42 1945-50 1951-55	War Wanted to return Wanted to return	Cooking utensils Bicycle, timber for 2 canoes, cooking utensils Clothes, cooking utensils, sewing machine, savings	
Kaiea	46	Mission School	Wartime Labour corps	1944-45	End of war		Son, colony ships Brother, dresser, Tamana
			Ocean Island	1948-49	Contract ended	Fishing gear, timber for canoe, sewing machine, cooking equipment, £25	
			Ocean Island	1954-56	Sickness	Bicycle, timber for canoe, cooking utensils, clothes	
			New Hebrides	1962-64	Contract ended	Clothes, cooking equipment	
Enoka	45	Mission School	Tarawa, Solomons	1943-45	End of war	£8	Brother, policeman, Solomon Islands
			Ocean Island	1951-52	Wanted to return	bicycle, clothes, household utensils, £20 cash	
			Nauru	1963-64	Wanted to return	Clothes, 2 chests, cupboard, sewing machine, bicycle, timber for canoe, iron crow-bar, household utensils	
Meri	40	Mission School	-	-	-	-	Brother, policeman Solomon Islands
Her daughter	16	Island Council	Tamana Island Council School	1972	Contract not renewed	Salary \$10 per month	Son-in-law, Nauru
Katirongo	31	Mission School	Nauru	1961-62	Wanted to return	Sewing machine, bicycle, timber for canoe, cooking utensils, clothes, £100 cash Salary £25/month	Brother, Ocean Island Brother, Nauru
			Nauru	1970-71	Wanted to return	Bicycle, wood for canoe, cooking utensils, clothes	
			Tamana cooperative store	1972-			
Komeri	30	Mission School	New Hebrides	1964-72	Contract ended	Clothing box, suitcase, radio, \$30	Father, policeman, Solomon Islands Brother-in-law, Ocean Island Brother-in-law, Nauru Brother-in-law, Fanning Island
Kaiaba	30	Mission School	-	-	-	-	2 brothers, overseas ships
Maera	30	Mission School	-	-	-	-	Brother, policeman, Tarawa

outmigration and employment patterns discussed previously in Chapter 6, and success in this world depends very much more on educational attainments, particularly achievements in secondary schooling.

Table 7-8. Employment by Age Group. Male Members and Male Offspring Over 18 (Resident and Non-Resident). Sample Households, Tamana Island

Age group	No. individuals	Never employed	Employed	Employed Ocean Island or Nauru
>60	2	-	2	2
30-59	17	3	14	13
18-29	15	8	7	1
Total	34	11	23	16

This change in patterns of outmigration and employment has important implications for the continued viability of rural life on Tamana. Past experience has shown that few of the Tamana-born people gaining high school education and employment on Tarawa have returned to Tamana. Their experience is largely lost to the community and Chapter 10 suggests they remit smaller amounts of money. There is no certainty that the larger number of younger people now leaving Tamana for Tarawa will return; those who have so far complain about the dullness of outer-island life and extol the attractions of the "brighter lights" of Tarawa. Neither do they return with the same stock of capital goods to replace and augment the existing supplies on Tamana. This is in part due to the fact that such goods as heavy fishing gear, canoe timber and sewing machines are not readily available on Tarawa, but also to the fact that the higher cost of living, the lesser degree of employer involvement in employee welfare and the wider range of alternative uses for wages on Tarawa make saving and the purchase of capital items more difficult. The same motivation to return is not present either. Employment on Tarawa is not for a specified contract period, and employment is much more success-oriented. Levels of

remuneration, standard of housing and leave allowances are all geared to length of service and this makes it more difficult for the individual to move between the two systems. All of these factors tend to make the choice between the two systems increasingly weighted in Tarawa's favour and feeds the islanders' perception of Tarawa as an alternative rather than an integral part of life on Tamana.

This, and the preceding chapter, have brought together data on the resource bases of the sample households; particularly land, coconut, babai and livestock resources, but also the human resources, including population structure, labour/consumption ratios, employment histories and access to capital goods. In the following chapters the households' activity patterns, income and expenditure strategies and dietary patterns will be discussed, bringing out the relevance of these resources in the households' livelihoods.

Chapter Eight

THE HOUSEHOLDS IN ACTION: THE ALLOCATION OF TIME

Together with the land and capital resources described in the preceding chapter Tamana people use their other major resource, labour, to achieve their livelihood. The ways in which a society uses time is a direct reflection of its way of life. Thus one would expect the increasing incorporation of the community into the market economy to be accompanied by changes in the activity patterns of its members and changes in the social system within which they interact.

In traditional Tamana society the range of options available for the use of time was circumscribed. Under "normal" environmental conditions Fisk's "subsistence affluence"¹ would have prevailed with the society being able to meet its subsistence and capital needs with relatively small inputs of time. This obviously could not apply under severe drought conditions. No amount of intensification of effort in expanding the area under production or increasing labour inputs (except for preserving and storing food) could substantially alter the ultimate impact of a severe drought of several years' duration.² The time remaining, after subsistence and capital production and maintenance needs had been met, was devoted to the elaboration of social, religious and community activities which enriched the islanders' lives and gave the society its meaning. Such activities required considerable inputs of time, both in participation and the provision of goods and services necessary for the proper discharge of celebrations associated with marriage, death etc. They provided the occasions when the utu and those resident on the kainga acted together to achieve particular goals and in this action were differentiated from

¹Fisk (1975: 59) in the condition of subsistence affluence the group is able to produce, from their own resources, as much as they can consume of the normal staple foods that they are used to, together with a reasonable surplus for entertainment, display and emergency, and a standard of housing, clothing and entertainment, requisites (e.g. kava) that is traditionally acceptable, with the employment of a relatively small part of the total potential resources of labour and land available to them.

²There may have been some increase in the intensity of fishing during severe droughts.

the rest of the community. This production could be termed "social production" and suggests that the distinction between "work" and subsistence production on one hand and "leisure" and social activity on the other was not a clear-cut one in traditional society. Nor is it likely that the resulting patterns of action would be a trade-off between the two since subsistence affluence would have ensured that group's needs for sustenance could be satisfied with relatively small inputs of time.

However, the comparative isolation which engendered such conditions no longer applies and since 1803 Tamana has become increasingly incorporated into the larger international economy. New wants were introduced and the range of options for achieving them evidenced. The new technology introduced may have increased the efficiency with which various tasks were completed and freed time for other activities. The new economic order also introduced a third element into the system; production for cash. Thus began the process of incorporation of the traditional subsistence system into the market economy and this process then engenders further interrelated economic and social changes. Fisk (1975: 53-4) argues that there is an almost continuous range of degrees of market participation, but within this distinguishes four key stages in the process. They are:

- (a) Pure subsistence in isolation. At this stage there is no effective contact with the monetised sector, all consumption depends on self-subsistent production, and there is no specialisation, no trade, and no division of labour outside the group.
- (b) Subsistence with supplementary cash production. At this stage the essentials of life are still mainly produced by the group that consumes them, but supplementary production is undertaken in order to secure access to market goods and services not obtainable directly from the group's own resources.
- (c) Cash orientation with supplementary subsistence. In this stage, the producer is oriented mainly towards the monetised economy, and his main productive efforts are directed at earning a money income; however, some, even a substantial part, of his basic foods and other necessities may be home-produced because, in terms of factor cost it is more economical to do so.
- (d) Complete specialisation for the market. This is the stage where specialisation and division of labour are exploited to the maximum, and the producer is dependent on the market for all the goods and services he requires.

Discussion of how the development process impinges on traditional societies has focussed on the question of how cash-generating activities are accommodated within the social system and what potential exists for the grafting-on of commercial activities to thereby initiate the "development process". Fisk (1962: 463-4) argues that in the early stages of the process cash generation utilises the potential labour surplus in the subsistence economy which arises because of ceilings to the demand for subsistence goods and the large proportion of time devoted to ceremonial activities which he equates with leisure. According to Fisk (1962: 472) development from pure subsistence in isolation (citing Eastern Highlands, New Guinea examples) results from external factors such as the provision of market facilities. It is achieved by surplus labour being used to first complete the linkage with the market and then to increase agricultural production for sale. The strength of the incentive factor governing this will depend ultimately on a comparison by the subsistence producer of the disutility of additional labour (or negative leisure) necessary to earn money with the utility of the goods and services that money will enable him to buy (Fisk and Shand 1969: 262). Since, as Nash (1966: 53) asserts, human effort and time is the constant costly item involved in all three subsistence, cash and social nexus it should be possible to assess the extent to which the process of market incorporation has proceeded in particular communities by comparing the time allocated to each of these nexus.

Both Waddell and Krinks (1968) and Lockwood (1971) have attempted to test the validity of Fisk's arguments (among two groups of the Orokaiva in New Guinea and four villages in Samoa respectively) and found his main arguments vindicated. However, the former writers question the validity of Fisk's (1962: 464) assumption that "economic and ceremonial activity are distinct and separate". They conclude from their study of the Orokaiva that "political, social and economic behaviour are...inextricably connected and 'leisure' activities cannot be considered apart from the economic system" (Waddell and Krinks 1968: 70). They also suggest that Fisk's hypothesised pristine subsistence communities are now all elements in much broader political economic and religious systems where outmigration by adult males leaves heavier workloads on those remaining behind but at the same time provides linkages with the external sector which are more effective and largely unrelated to those arising from increasing commercialisation of

the village economy (Waddell and Krinks 1968: 71). The latter point is particularly relevant to Tamana where the remittance incomes arising from labour outmigration affect responses to economic opportunities in the village.

Their first point raises the important question as to whether norms or economising strategies are more important in determining the allocation of effort. This brings us to the formalist/substantivist debate which has dominated economic anthropological discussion for several decades (see Sahlins 1972, Godelier 1980). Given the Tamana perceptions of "work" discussed below it would be unrealistic to attempt to interpret Tamana household time allocation patterns in a simplistic formalist manner by equating subsistence and cash-earning activities with "labour" or "drudgery" and resulting action as the trade-off between available resources and needs or preference. The discussion below suggests that such a dichotomy has little validity on Tamana and is of little usefulness in the understanding of reasons for action. However, this does not imply automatic unqualified support for the substantivist position. Salisbury (1970: 4) argues most substantivists have tended to overemphasise the force of tradition and the mechanism of social control, at the same time ignoring or under-playing the role of individual, rational choice. He sees the greatest contribution of the substantivists to have been in describing the institutional framework of choice. In this respect it is clearly important to recognise the differences in the way in which Tamana and western societies see the division between work and leisure, but the element of choice still remains.

Perceptions of Work and Leisure on Tamana

The underlying theme to almost all activity on Tamana is "work". One informant expressed the complex interrelationships between productive and social activity in saying "work is the household and the household is food; without work there is no household and without the household there is no food." The household stresses relationships between people and food as the means by which such relationships are maintained. Thus work is the necessary input to produce the food to maintain the relationships. This association also extends to wider inter-household relationships. Most social events require the supplying of specified food levies to an organising body, whether it is a segment of one's utu or a women's

club and participation is dependent upon such levies being honoured. The shouldering of one's social responsibilities is expressed in food and food implies work. The individual has to weigh the benefits of maintaining kinship bonds and social participation against the costs of providing the levies demanded. Distant kin relationships and more peripheral social groupings can be ignored, but closer kin relationships and membership of pivotal social groupings must be maintained to ensure access to resources and position in the community. In this way the distinction between productive "work" and unproductive "leisure" or social activity is artificial and not particularly relevant to understanding Tamana activity patterns.

The association of social activity with work is strengthened by the fact that on Tamana certain types of social activity are associated with particular types of food which require work inputs of a particular nature. When an impending celebration is announced the distinction is made as to whether it is mainuku ("from the east" and by implication from the source of tradition) or inaomata ("free", from the west and the source of contact). Kinship celebrations are usually mainuku and require the participants to supply babai, babai puddings, coconuts, toddy and kamaimai for the feast. These are all traditional foods and involve activity in traditional subsistence tasks.¹ In contrast island and club feasts are inaomata feasts and participants are free to provide a wider range of foods, some of which, like flour and rice, can be purchased with cash. The association of traditional foods with family feasts is not surprising since it is through these that the individual takes his place in society and gains access to land, the society's most enduring resource. Since land cannot be gained through any other means than inheritance and is never bought or sold for cash, it is perhaps significant that the discharge of duties related to kinship should be expressed in terms of the products of land. Thus subsistence production and kinship-related social activities are closely interwoven. The household provides the major focus of subsistence production and depending on the nature of the event being celebrated, differing constellations of additional households become involved in social activities where traditional foods in particular are the key to

¹ Cloth and cash are also included in wedding levies nowadays.

participation. Inaomata feasts also involve food levies and work to provide the foods to enable the family to eat at the feast, but here it would be possible to substitute food bought with cash for traditional feast foods without incurring shame.

Other characteristics of feasts also distinguish Tamana social events from "leisure" in the western sense. A social event like a feast is not something accommodated after all other calls on time by "productive" uses have been satisfied. Once involved in a celebration the individual's commitment is complete. He is not free to leave the feast to attend to other more pressing tasks. Most feasts have fixed programmes and participants cannot leave before the close of formal proceedings which usually coincides with the start of evening toddy cutting and preparations for fishing.

In other less direct ways social mores and the value placed on sociability also affect perceptions of work and the pattern of time allocation. Behind all activity patterns on Tamana is the underlying principle that respect in the community is gained through having one's house in good repair, one's family eat fish regularly and drink non-watered down toddy and well-tended babai pits to provide for feast requirements. No status is attached to accumulating cash wealth or to conspicuous consumption. The emphasis is on maintaining a generally accepted standard of self-sufficiency and being able to fulfil one's social obligations while still maintaining sociable relations within the community. This applies equally to subsistence and cash-earning activities. Any individual choosing to pursue one activity to excess while neglecting others would be ridiculed as would a lazy or incompetent person who failed to achieve the general standard. Respectability is a fine line between too little and too much and a state which is attained by work.

Work (makuri) is concerned with the performance of everyday tasks and duties. Most tasks require relatively short and intermittent periods of effort. They are usually discharged by household members individually or cooperatively and accomplished as efficiently as possible. This applies to both subsistence tasks and the few examples of copra-making and commercial handicraft production observed during fieldwork. The possible exceptions would be toddy cutting and deep-sea fishing where, because all male children are expected to become proficient toddy cutters and some kudos accrues to a male seen to be an active fisherman, effort may

have exceeded immediate need. No examples of work for cash-earning to meet unspecified future needs was observed.

However, there are several needs which cannot be satisfied by intermittent short bursts of activity. One such need is that associated with housebuilding and rethatching, the other is a more recent need resulting from taxation and the need to provide a relatively large sum of money at one point in time. The solutions to these problems again underline the importance of values, the ability of the social organisation to meet such needs, and the importance of sociability. Housebuilding is taken care of by the kabeabea; a request for assistance from kin, friends and neighbours. Those invited provide labour in return for special food, card playing and the expectation of similar help in the future. Rethatching is a more frequent need (occurring every five to seven years) and the needs it generates are met by the more formalised and regularly operating airiri groups. Here women from several households work together collecting and preparing thatch and give the products of each day's work to one member of the group in turn. In this way the need is met by a low level of continuous daily effort which can be accommodated within each household's schedule without difficulty rather than a mammoth effort every few years that would require many weeks of work and the abandoning of other tasks and social activities until it was completed. In much the same way, the obvious preference of Tamana people for mronron activity rather than individual cash-earning effort works on the same principle. Through the mronron the individual is assured of a reasonably large sum of money at infrequent but strategic points in time. This is achieved by low level continuous inputs that can easily be accommodated within normal activity patterns. Both the mronron and the airiri groups capitalise on the enjoyment gained from group work, socialising and the achievement of wider community rather than individual goals. The resulting activity pattern can hardly be depicted as the allocation of scarce resources among competing ends. The goal is clearly to maximise satisfaction which is seen in social rather than purely materialistic ends.

The perceptions of work discussed above clearly indicate the inappropriateness of Fisk's assumption that economic and ceremonial activity are distinct and separate. It demonstrates that the economic and social nexus on Tamana are inextricably interwoven and this applies to the cash as well as the subsistence nexus. The discussion here and in

Chapter 6 suggests that the cash nexus on Tamana has still not impinged on the social and economic system to the extent that it has replaced the prevailing values of equality and conformity or reduced the obvious pleasure that Tamana people gain from working in groups to achieve general social goals as well as their own particular ends. In no sense is immediate monetary gain the prime stimulus to action. In many instances as in babai cultivation and airiri work the goals are longer-term and not the response to immediately perceived needs.

The Tamana household economies would fall without doubt into stage two of Fisk's sequence: subsistence with supplementary cash production. This is also strongly suggested in Table 8-4 below which shows that the mean sample household spent only 7 percent of its active time in cash-earning activities, while it spent 50 percent in subsistence activities, 21 percent in social activities and the remainder in sickness, schooling etc.

While the above generalisation gives a measure of the relative importance of subsistence and cash-earning on Tamana today, the degree of involvement in the cash sector fluctuates constantly as opportunities for earning money change with commodity prices, market access, transport costs, palm productivity and alternative opportunities for employment. Within the range of households present the response will not be uniform either because households will differ in their access to resources, labour availability and needs for money. Both sets of external and internal factors will affect the manner in which a household chooses to allocate its labour resources between the competing demands of subsistence, cash-earning and social needs. Comparison between households may illuminate the likely direction of future change for the island economy as a whole. The data presented below seeks to establish the factors affecting individual activity patterns, how present households allocate time between these ends, how this is influenced by household size and structure and to identify the factors which encourage or constrain households from allocating more time to cash-earning activities, thus contributing to the expansion or stagnation of the monetised sector of the economy.

Time and the Individual

Daily Activity Patterns and the Division of Labour

In order to provide a context for the quantitative data presented below, Table 8-1 suggests typical activity sequences for individuals of particular age and sex of groups within a household. Taken as a whole it gives some indication of the activity pattern and division of labour within a household; actual activity sequences will of course differ with particular immediate household needs, the household's resources, extrinsic factors such as the weather and personnel available.

In comparison women's work patterns appear less structured than men's, with women doing a wider variety of tasks, often for shorter periods of time and where the order in which the tasks are performed is not usually important. In contrast most men's day begins with toddy cutting and if this is not followed soon after by deep-sea fishing, it is unlikely that he will go deep-sea fishing until fishing for flying fish begins in the evening. This may in part reflect the realities of life on a reef rather than lagoon island where it is much easier to leave the shore for the open sea when the tide is half full or more, thus avoiding the difficulties of carrying the canoe across the reef flat and launching it through the surf breaking on the reef edge, but it is also conditioned by perceptions of what is a worthwhile span of time to spend or be seen to be fishing. In addition the decision to go fishing may also depend on activities of the preceding day, especially the success of the previous evening's flying fish expedition. This does not apply to women's activities in quite the same way because many of the raw materials used in their activities (even foods like toddy and babai) are not perishable and can be treated and stockpiled in readiness.

In this way a man's role is seen as being somewhat circumscribed leading to the view neatly expressed by one informant that "men have to be lazy because men's work is only fishing and cutting toddy and women have to do most of the work". While the quantitative data do not entirely support this viewpoint, the attitude in part accounts for the large periods of time given over to these "manly" pursuits regardless of need or effectiveness and have implications for the introduction of new cash-earning activities.

Boys join the main workforce at about age eighteen and from then on are expected to play an increasingly active part in men's activities. As well as toddy cutting (which they do regularly from about 12 years of age) and more sporadic net and float fishing, they are now expected to take part in deep-sea fishing, housebuilding and community work. The range of activities in early adulthood is still restricted but increases steadily with age as involvement in family and community affairs increases which requires both time and demands for ceremonial goods, particularly babai; this is evident in the time devoted to babai cultivation (see Figs 8-1 and 8-2). The range of activities again tapers off with old age when most time is spent in resting, sickness and community affairs while the productive activities are left to the younger men in the household.

In contrast, girls are incorporated into the workforce more gradually and at a younger age. They begin sweeping, cleaning, drawing water and feeding pigs at a very young age. Through assisting older women they learn weaving, cooking and similar crafts while still at school. Much of a woman's early married life is taken up in child tending, but again, depending on the number of other women in the household, this does not prevent her from taking an active part in general domestic duties, handicraft production or copra-making if necessary, nor from participating in church or club affairs although married women no longer take part in choir practice or attend "island nights". The affairs of the home, particularly domestic and commercial handicrafts production take up more of the older woman's time (see Figs 8-1 and 8-2). Contrary to the pattern with men, there appears to be no great increase with age in the amount of time devoted to family and community affairs, and although there were insufficient women over 60 in the sample households to draw statistically reliable conclusions, it seems that women remain active in household duties and handicraft production well into their seventies.

Women and men work together collecting nuts, making copra, clearing lands and tending babai. Men rarely cook or make handicrafts (except swords for sale) and women rarely cut toddy or fish; when they do fish it is with rod and line or nets on the reef.

The age at which individuals cease being active depends to a large degree on household composition. If there are no younger adults present individuals will remain active for as long as they are able. If younger men are present the household head may well "retire" around 50 or even earlier and devote more time to community affairs, family gatherings and church administration.

Activities Quantified

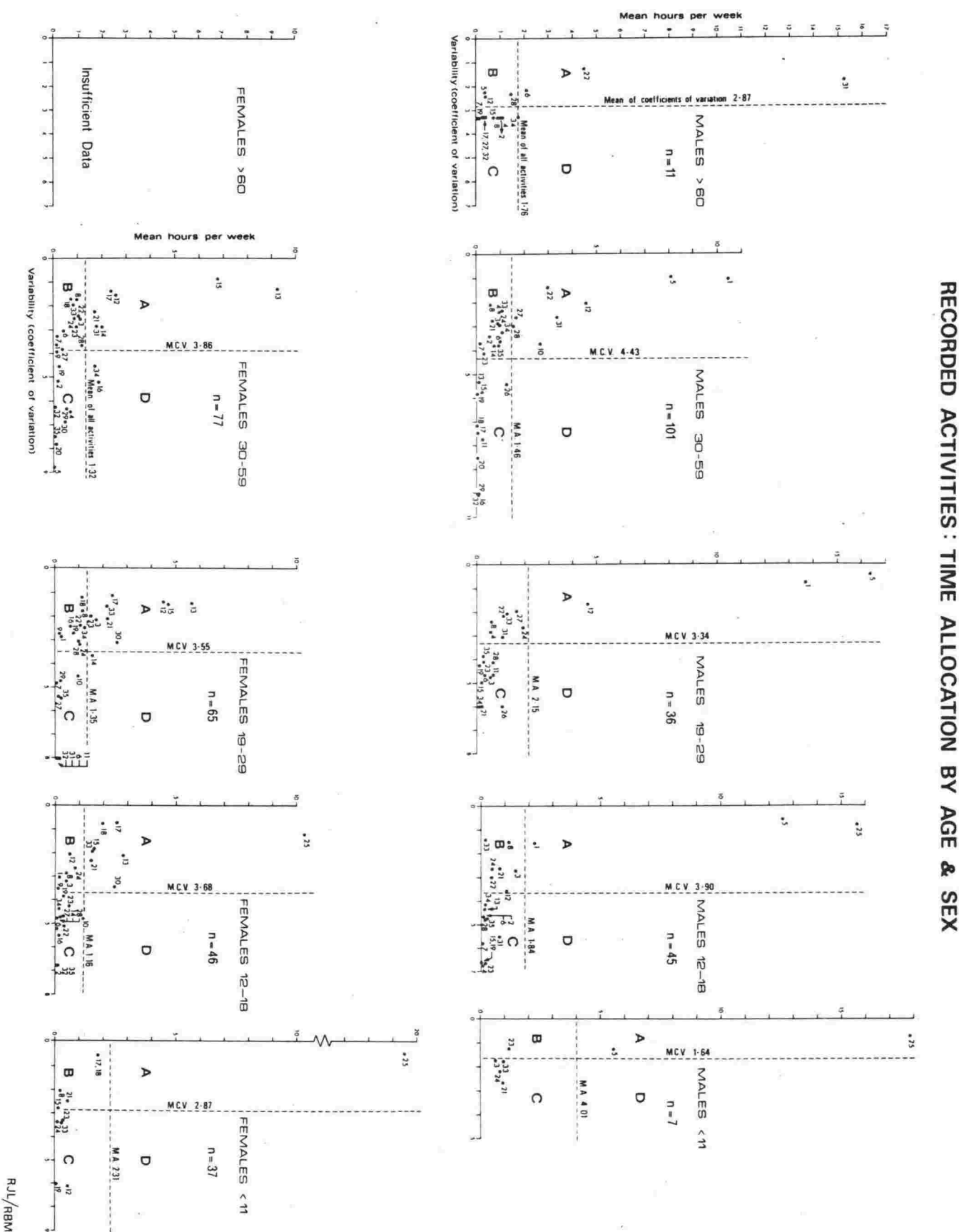
The above observations are apparent in the results of the scattergram analysis presented in Fig. 8-1, in data abstracted from this in Table 8-2, and in Table 8-3 and Fig. 8-2. The scattergram analysis¹ attempts to present the activity data gained from the household survey aggregated into age/sex classes in a manner which not only stresses the differences between classes in the activities performed, but also gives some indication of the length of time involved and variability between individuals in the time allocated to particular activities. The scatter of points obtained for each age/sex class obtained by plotting mean hours per week spent in each activity against the coefficient of variation (see note below) was divided into four segments. Segment A distinguishes the most important tasks for each group, being those done for longer hours per week and by most people in the age/sex group. Segment B identifies tasks done by most individuals but for lesser time spans (i.e. regular but not necessarily time consuming tasks). Segments C and D identify tasks done by few individuals in the group. The fact that so few activities fall within segment D (irregularly performed time consuming tasks) could result from inadequacies in the sampling approach in that the timespans selected for sampling were too short or infrequent to pick up such events, but on the other hand, the few activities isolated (visiting kin, commercial cooking and commercial handicrafts) are consistent with the interpretation.

While Table 8-2 shows that the ranking of tasks for different age groups differs it should not be assumed that the time devoted to particular tasks by these age groups is necessarily different. In fact there are

¹The analysis is concerned with the mean time devoted to each activity and uniformity with which they are practised by members of the age group. The mean hours per week devoted to each activity for all members of the age/sex category as well as the standard deviation were used to this end. The latter is a measure of the spread of individual scores around the mean and thus of variability. To permit comparison between variability around means of different value the coefficient of variation (a standardised measure of dispersal around the mean gained by dividing the standard deviation by the mean) was calculated. The mean hours per week was then plotted against the coefficient of variation for each activity on a scattergram for each age/sex group and the scatter of points obtained arbitrarily divided into four segments using the mean time allocated to all recorded activities and the mean of the coefficients of variation as axes to delimit the segments. For the want of better terms these were denoted as segments A, B, C and D respectively.

Figure 8.1

TAMANA RECORDED ACTIVITIES: TIME ALLOCATION BY AGE & SEX



n = the number of person weeks on which the means are based. All weeks surveyed consist of six 24-hour days, Sundays excluded.

Coefficient of variation = $\frac{\text{Standard deviation}}{\text{mean}}$

A high value for a coefficient of variation indicates a great dispersion about the mean.

For A, B, C and D refer to text.

RUL/RBM

relatively few tasks for which the mean time allocated per week by the two main adult age groups (30-59 and 19-29) differed significantly.¹ Younger men spent significantly more time in toddy cutting and less at court, council and village meetings and feasts than older men; younger women spent more time in care of others (children), going to the store, organised leisure outside the household (choir practice) and less time in babai work, household handicrafts and sickness than older women. Such differences are obvious and expected. However, the fact that there are so few activities in which the two age groups differed significantly underlines the point made earlier that the personnel available in any household is the most important factor in determining who does what. The limited range of essential tasks may also contribute to the lack of specialisation with age.

Table 8-2. Segment A Activities by Age and Sex (ranked in order of diminishing mean hours per week)

Sex	Age				
	>60	30-59	19-29	12-18	<11
Males	Sickness Court, council... Babai work	Fishing Toddy cutting Housebuilding... Sickness Court, council... Paid work, permanent ^a Community work Family feasts	Toddy cutting Fishing Housebuilding...	School Toddy cutting Fishing	School Toddy cutting
Females	Insufficient data	H'hold handicrafts H'hold cooking Housebuilding... Homesite tending Commercial handicrafts Sickness All-island meetings	H'hold handicrafts H'hold cooking Housebuilding... Care of others Homesite tending All-island meetings Leisure outside household Preparing copra Group and club	School H'hold handicrafts Homesite tending Care of others Animal tending Household cooking Leisure outside household All-island meetings	School

^a During the 7 survey weeks 1 individual only was in paid employment.

The regularity of his daily work tends to overstate the importance of employment for the remaining 35 individuals in the age group.

¹ Using the student t test with differences at the 95 percent confidence level.

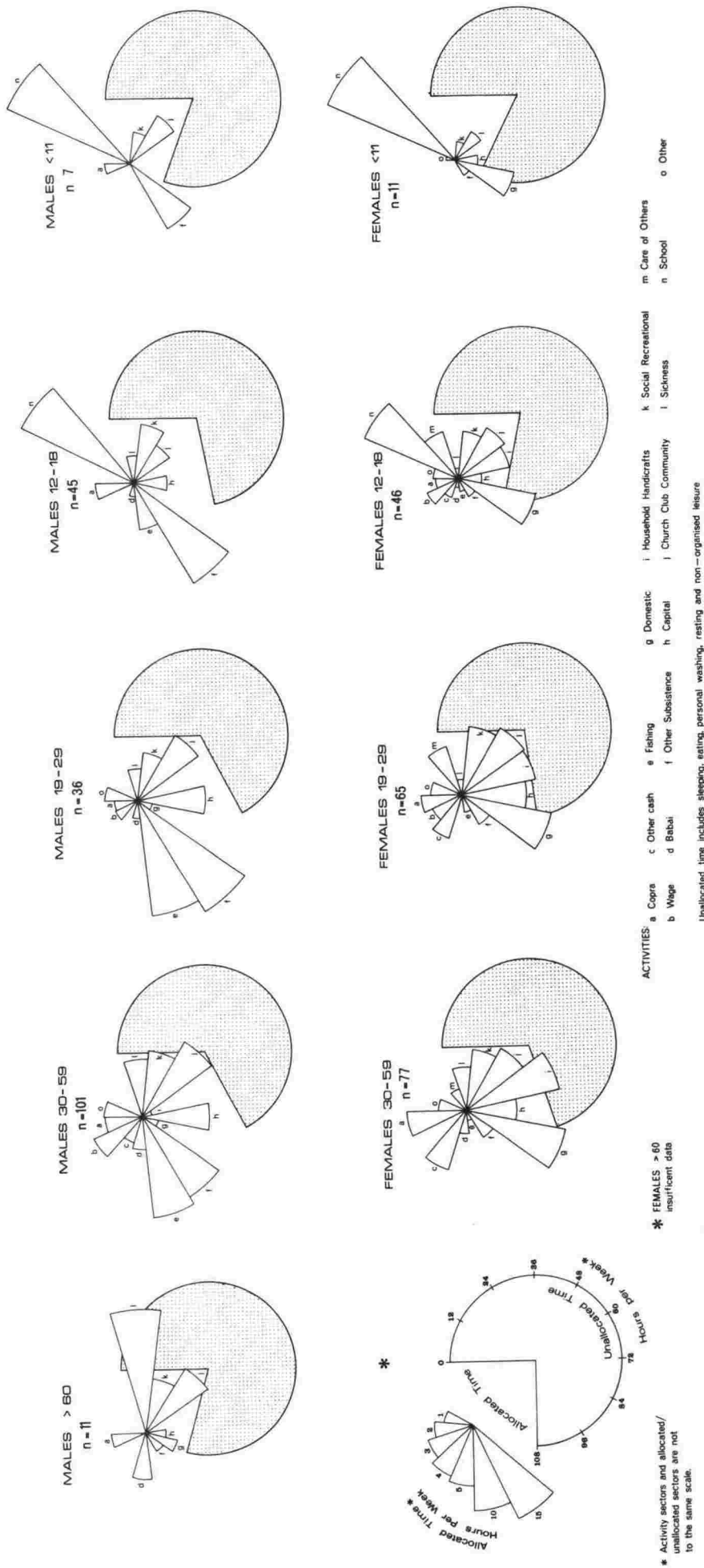
The pattern revealed by the individual time allocation data underlines many of the points made in the preceding section. Contrary to the assertion that "men have to be lazy", Table 8-3 shows that men were active in almost all productive sectors of the economy for more hours per week than women. Fig. 8-1 shows the differences between men and women in the range of activities followed and in the change in activity patterns with age. It also lends support to the contention that girls become involved in a wider range of household activities earlier than boys and that in early adult life at least, women are engaged in a much more varied range of activities than men. With increasing age women's activities remain focussed on the home rather than on wider community affairs. Since women are active, on the average, for fewer hours per week than men, the hours per week devoted to any task must be less than that for men.

Perhaps the most striking factor revealed by Fig. 8-1 is the small number of Segment A activities for males of the 19-29 age group and it is probably this group that gives rise to the conclusion that "men have to be lazy because men's work is only fishing and cutting toddy". In fact men in this age group spend just as much or more time in recognised activities as any other age group and spend substantially more time in subsistence activities and less in social activities than any other adult age group, male or female. They do spend less time in cash-earning activities than older men and women. At this age men are expected to be active fishermen and toddy cutters; providers for their households. They are not expected or even allowed to take an active part in the full range of community activities, many of which tend to be the preserve of older men.

The reasons why this one age group should devote such long hours to a small number of activities (over 16 hours per week to toddy cutting, nearly 14 hours per week to fishing and nearly five to housebuilding and capital repairs) is by no means clear and whether it reflects the needs of the household and an effective use of time is open to question. It is tempting to suggest that it reflects the greater responsibilities of younger household heads to feed their larger number of dependents. However, only half of the data weeks involved are accounted for by males under 30 years who are also household heads.

Critical to this discussion is a consideration of what factors influence individual decisions to end one activity and begin another, and it is almost impossible to obtain reliable data on this. If time is scarce and individuals are economising time in order to satisfy a multiplicity of

TAMANA
TIME ALLOCATION GROUPED ACTIVITIES
BY AGE & SEX



R.U./R.B.M

Figure 8.2

wants, one would be justified in assuming that an activity will be pursued until particular needs are satisfied and no further, but on Tamana that may not be the case. My subjective impression is (1) that activities are often expanded to fill the time available or that (2) future wants assume precedence over immediate needs, or (3) that less efficient group work is preferred over individual work in order to relieve the drudgery of labour. As examples of the former the time taken by the same individual to cut the same number of toddy trees varied substantially from day to day depending on the individual's other commitments.¹ Similarly deep-sea fishing expeditions were not terminated once the household's immediate consumption needs were met. Men often stayed fishing and at times caught vastly more fish than they could use. There appeared to be a socially recognised length of time that it was proper for an active man to be seen fishing and if he brought back very large quantities of fish it added to his mana of being akawa or a skilled fisherman. The distribution of the surplus among kin and neighbours cemented bonds of kinship and friendship and in an activity like fishing where returns are notoriously capricious, increased the likelihood of one's household receiving similar gifts of fish when fishing ventures prove unsuccessful (see Table 9-3). The other two possibilities are both illustrated by the women's airiri groups. Here women devote a fixed amount of time each day or week to working in groups for the benefit of one member in turn. The work is directed to a future rather than immediate need, such as house rethatching and the tasks for which the groups are usually formed are usually disliked, time consuming tasks which would take individuals long hours of lonely work to achieve.

Finally, consideration must be given to whether alternative uses exist for the time devoted to such pursuits. Since no age group devoted much more than 12 percent (Table 8-3) of its time to cash-earning it might be argued that the opportunities for cash-earning were restricted or that the utility of the money earned was such that there was little incentive to encourage individuals to devote more time to it. The data presented in Chapter 10 suggests that there may be an element of truth in both propositions. However, the data presented in the following section relating labour input to household size suggests that social norms and expected work

¹The variability observed here was over and above that observed to accompany such maintenance tasks as the weekly rebinding of the spathes.

patterns, rather than immediate needs, are important in determining labour inputs to subsistence and social activities. This is not unexpected given the limited nature of the reef island environment which together with its isolation provides little scope for innovation. The climate and soils are such that a very restricted range of both subsistence or cash crops are available even if population pressure were low enough to encourage land to be devoted to such risk-taking ventures. In addition the island's smallness means that there is also little prospect for any would-be innovator to physically remove him or herself from the pressure of community censure. Other studies suggest that innovators are more likely to come from outside the community and choose to locate away from established settlements in order to reduce the pressure of censure and also their susceptibility to kinship and community claims (see for example McKinnon 1972b:224-226). All of these factors combine to channel individual activities into a relatively small and socially acceptable range of activities and also exert pressure to maintain certain levels of time commitment to these activities for fear of being stigmatised as being classified as lazy. Given the fluidity of household membership, the general absence of strong centralised decision-making at the household level and the lack of need or prospects for longer-term planning to achieve particular household economic goals, these findings have important implications for household time-using strategies.

Table 8-3. Time Allocation; Age and Sex, by Broad Sectors

Males										
	Age group									
	>60		30-59		19-29		12-18		<11	
	Mean hours per week	Percentage	Mean hours per week	Percentage	Mean hours per week	Percentage	Mean hours per week	Percentage	Mean hours per week	Percentage
Cash	1.23	4.12	5.05	10.70	1.22	2.58	1.54	3.81	0.64	2.28
Subsistence	4.00	13.39	25.17	53.32	35.77	75.78	17.25	42.65	5.57	19.84
Social	9.00	30.13	12.14	25.71	8.05	17.06	5.30	13.11	4.00	14.25
Other	15.64	52.36	4.85	10.27	2.16	4.58	16.35	40.43	17.86	63.63
Total	29.87	100.00	47.21	100.00	47.20	100.00	40.44	100.00	28.07	100.00
Females										
Cash	Insufficient data		4.95	12.10	4.90	12.53	2.12	6.79	-	-
Subsistence			23.89	58.40	19.95	51.01	10.33	33.08	4.53	17.84
Social			8.88	21.70	10.47	26.77	5.53	17.71	1.35	5.31
Other			3.19	7.80	3.79	9.69	13.25	42.42	19.52	76.85
Total			40.91	100.00	39.11	100.00	31.23	100.00	25.40	100.00

Time Allocation at the Household Level

Fieldwork began with the assumption that the household was the significant unit whose activities were regulated and coordinated by individuals for the long-term benefit of the household as a whole. It was soon recognised that households on Tamana were relatively fluid entities rather different from those described in much of the literature on traditional peasant societies. Even though face-to-face relationships are maintained, and members of a household will cooperate with each other more frequently than with outsiders, the extent to which a household can function as a rational economic unit in the allocation of time is questionable. In none of the households in which I spent most time was it common for an individual to direct another adult's activities; individuals seemed to know what was expected of them and acted accordingly. I was never aware of any morning or evening conference being held to map out the coming day's activities and allot tasks among the available personnel. Older men's activities were often decided upon at meetings of various village, mronron or church committees and similarly a woman's are often dictated by her membership of airiri groups, mronron committee decisions to make and sell copra, bread or cups of tea or a women's club to hold a mat-making meeting. In both instances immediate household commitments tend to be fitted in around these calls on the individual's labour. Mention has also already been made of the limited range of tasks commonly followed by younger men and the few acceptable alternative options available to absorb their time. In this way it is perhaps wrong to approach the question of household labour inputs within the framework of the allocation of scarce means to satisfy immediate, competing needs focussed narrowly upon the household.

The Data

Fig. 8-3 and Table 8-4 present the data on mean weekly time allocation by the sample households. Fig. 8-3 gives the more detailed breakdown of household activities and in this the tasks isolated as being important in the age and sex analysis assume equal predominance. The number of active males in a household has an obvious effect on the time spent in fishing and toddy cutting (under "other subsistence") and the few households with members in wage employment also stand out clearly. However, such differences

Table 8-4. Time Allocated by Sector - Sample Households

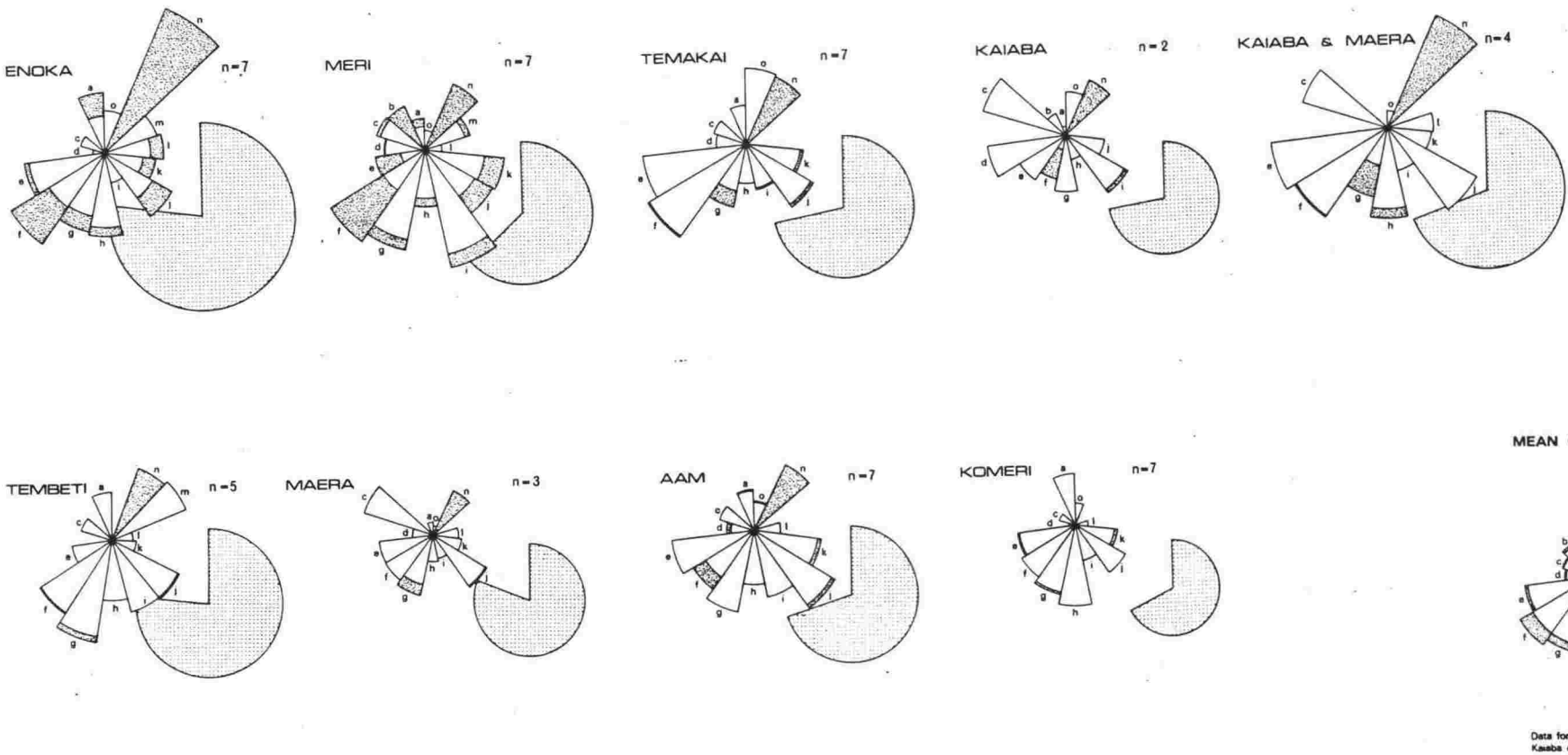
Household	Number survey weeks on which mean is based	Cash		Subsistence		Social		Other		Total	
		Mean hours per week	Percentage	Mean hours per week	Percentage	Mean hours per week	Percentage	Mean hours per week	Percentage	Mean hours per week	Percentage
Enoka	7	14.93	5.48	112.39	41.24	30.08	11.03	115.14	42.25	272.54	100.00
Meri	7 ^b	19.73	8.10	151.39	62.13	44.22	18.15	28.31	11.62	243.65	100.00
Temakai	7	8.54	4.48	112.60	59.04	32.44	17.00	37.15	19.48	190.73	100.00
Kaiaba	2 ^a	27.88	23.38	49.63	41.61	22.50	18.87	19.25	16.14	119.26	100.00
Kaiaba and Maera	4 ^a	26.69	10.13	136.88	51.97	41.64	15.81	58.17	22.09	263.38	100.00
Tembeti	5	11.30	6.49	97.60	56.02	22.00	12.63	43.33	24.86	174.23	100.00
Maera	3 ^a	18.50	22.23	37.74	45.34	16.16	19.42	10.83	13.01	83.23	100.00
Ham	7	9.95	5.38	93.17	50.39	46.47	25.14	35.29	19.09	184.88	100.00
Komeri	7	9.85	9.89	69.18	69.46	18.35	18.43	2.21	2.22	99.59	100.00
Timea	3 ^a	16.33	12.86	43.08	33.94	40.07	31.56	27.47	21.64	126.95	100.00
Barawe	6	6.91	7.24	50.51	52.94	26.49	27.77	11.50	12.05	95.41	100.00
Kaiea	7	6.60	2.76	152.25	63.68	48.94	20.47	31.29	13.09	239.08	100.00
Katirongo	7 ^b	34.46	17.52	77.05	39.16	44.72	22.73	40.52	20.59	196.75	100.00
Bakanoka	7	0.21	0.43	15.32	31.41	4.72	9.68	28.52	58.48	48.77	100.00
Tokintekai	7	9.35	5.84	66.21	41.38	42.86	26.79	41.56	25.99	159.98	100.00
Tebebita	7 ^b	19.14	12.40	62.61	40.56	65.95	42.72	6.67	4.32	154.37	100.00
Kamantoa	7 ^b	16.70	8.78	91.74	48.23	41.93	22.04	39.85	20.95	190.22	100.00
Total		167.67	94.79	1152.02	655.64	469.17	274.58	461.31	274.99	1250.20	
Mean all households		12.90	7.29	88.62	50.44	36.09	21.12	35.49	21.15	173.10	100.00
Mean co-efficients of variation			58.00		48.11		43.37		75.60		

^a Excluded from mean.^b Had individuals in regular wage work during all or part of the survey period.

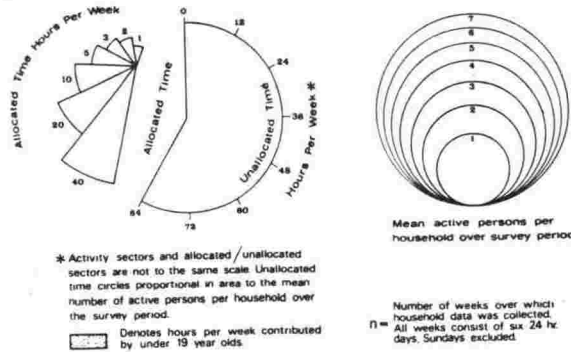
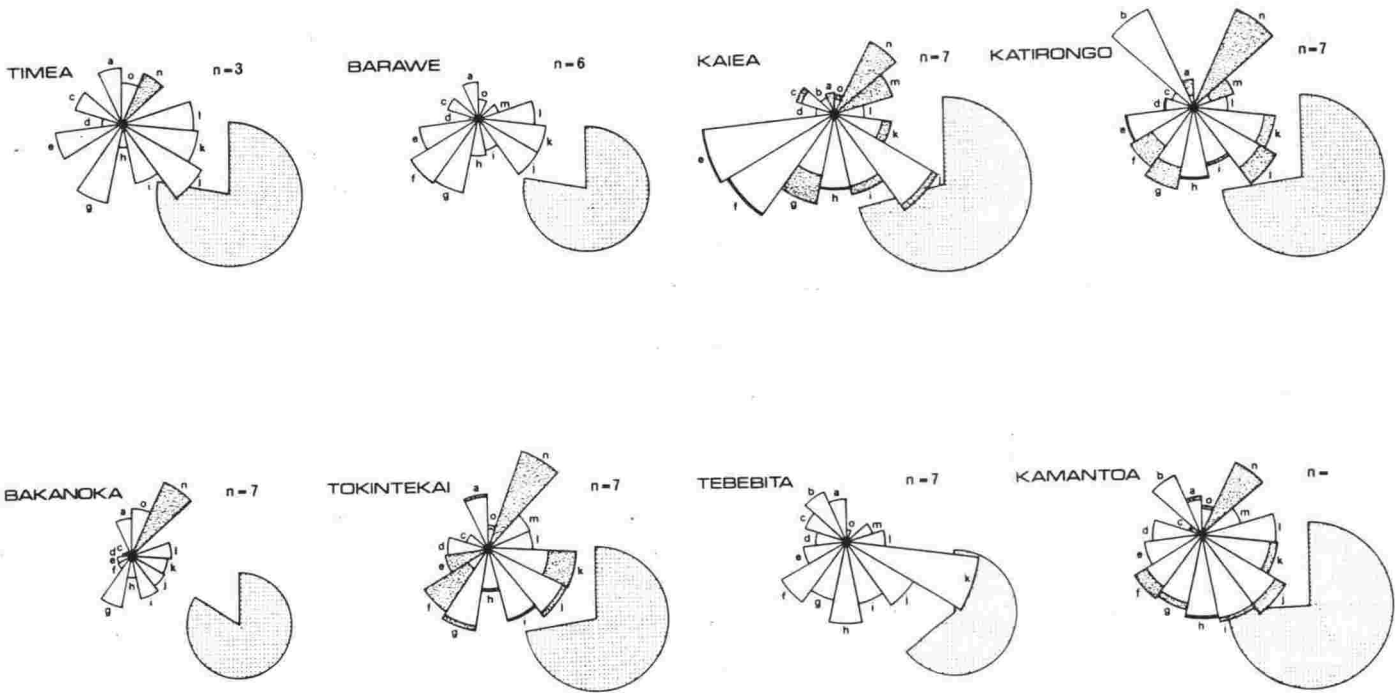
Figure 8-3:

TAMANA
TIME ALLOCATION BY SAMPLE HOUSEHOLDS

HOUSEHOLDS WHERE INCOME CHANGES INFLUENCED MAINLY BY CHANGES IN INCOME FROM LOCAL SALES



HOUSEHOLDS WHERE INCOME CHANGES INFLUENCED MAINLY BY CHANGES IN OTHER SOURCES OF INCOME



RJL/RBM

aside, the overall impression conveyed is one of uniformity with no distinctive household types being immediately apparent.

Table 8-4 shows that the mean household allocates about 50 percent of its time to subsistence activities, 21 percent to social and 7 percent to cash-earning activities. The remaining 22 percent going to miscellaneous activities such as schooling, sickness and child care. The coefficients of variation show that time allocated to subsistence and social activities varies least between households, while cash-earning is more variable and the "other" category most variable depending on the household having babies, school age children or ailing elderly people within it.

The Relationship between Labour Input and Household Size

The relationship between labour input and household size is crucial to the question as to whether labour is economised at the household level and also whether surplus labour exists in the economy. Insight into these questions was gained by correlating mean hours allocated to various activity sectors (subsistence, social and cash-earning) with (1) the size of the labour force (LU labour units per household) and (2) with the ratio of consumers to labourers (the CU/LU ratio) which should give some sort of standardised measure of the household's need to work.

Figure 8-4 shows a strong linear correlation between the total mean hours per week allocated by a household and the number of labour units per household. Because the relationship is strongly linear it can be assumed that there is little variation in per labour unit inputs between households. The relationship between labour input and household size comes most strongly from time inputs to subsistence activities and to a lesser degree from time allocated to social activities. What these two graphs in Figure 8-4 show is that as the workforce increases in size so does the total time allocated to subsistence and social activities increase. The fact that it is a linear relationship means that, as far as the sample households are concerned, the point is not reached where the addition of more labour units results in a smaller increment in hours allocated per week; where more people do less work. No similar relationship could be established for time devoted to cash-earning separately and because of the lesser amounts of time allocated to cash-earning by all households it does not greatly reduce the strength of the relationship between household labour force size and total time allocated.

These conclusions strengthen the impression that subsistence and social activities are conditioned by norms which impinge upon the individual. There is nothing in this data to suggest that households as a unit attempt to economise time and that households with large workforces allocate less time to subsistence activities and divert the time saved to either socialising or cash-earning. No clear relationship exists between workforce size and time devoted to cash-earning activities and this reflects unequal access to cash-earning opportunities (resources from which to make copra and openings for paid employment on the island) and the need for cash (regular remittances from overseas reduce a household's need to participate in cash-earning on the island). In this way the need for cash and the potential for raising it on the island will bear no relation to the size of the household labour force and because of the espoused belief in the ideal of equality and conformity there is little pressure on the individual to devote consistent, socially sanctioned amounts of time to such activities.

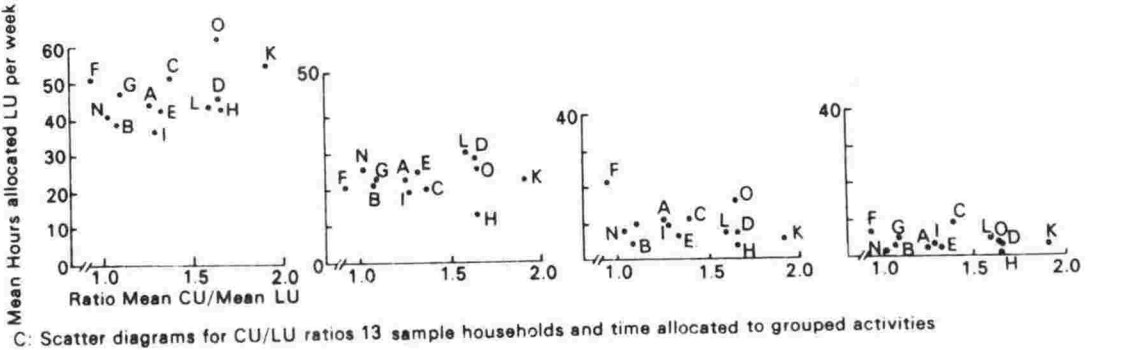
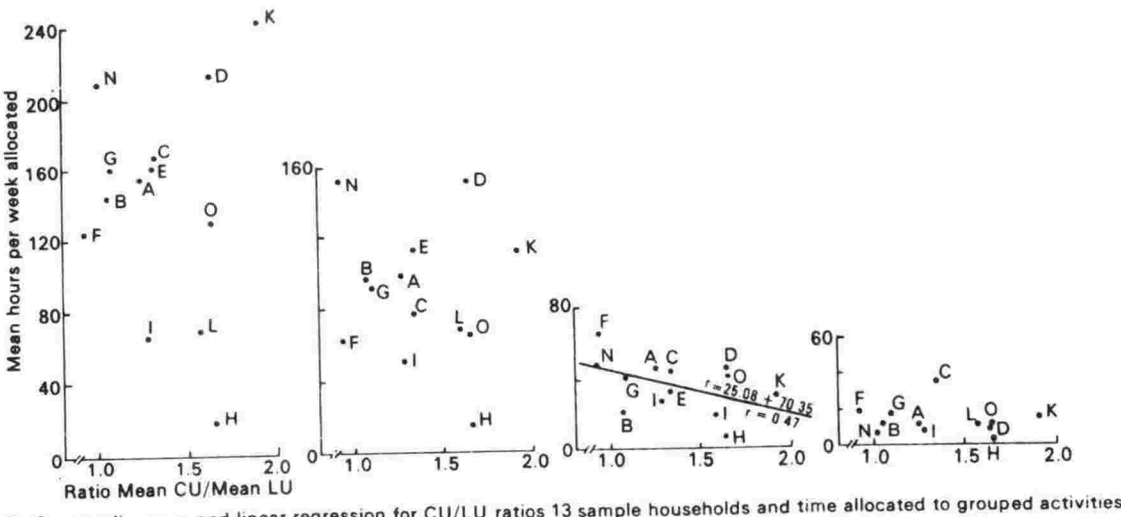
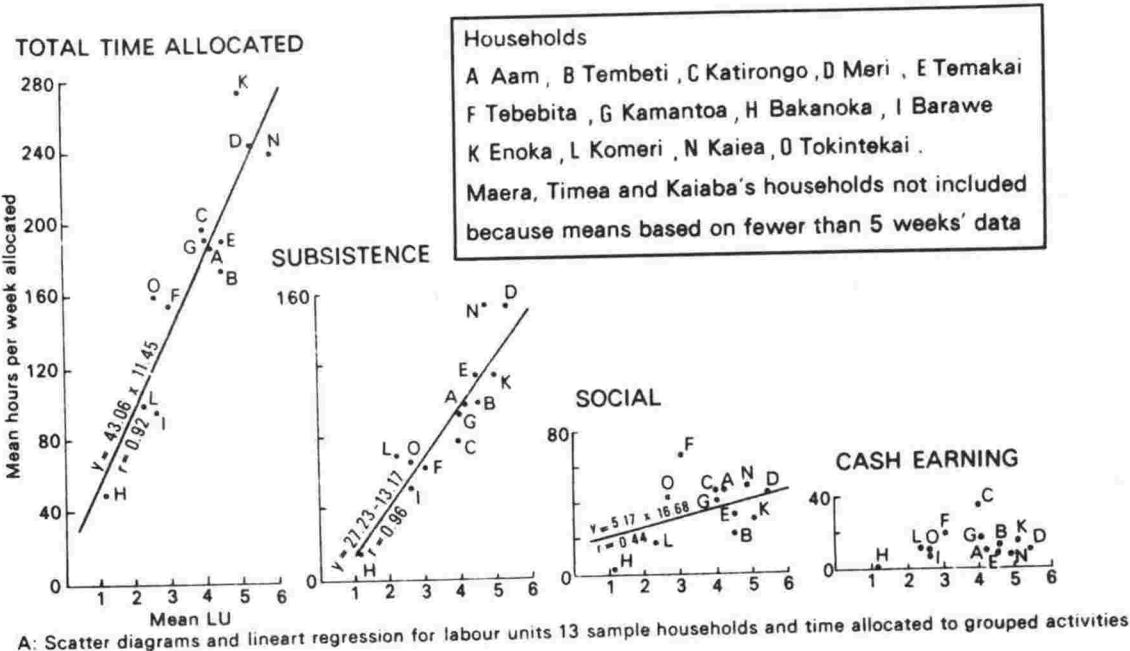
Addressing the relationship between household size, age composition and the need to work,¹ one would expect (if the ratio of number of consumer to labour units in the household is an adequate index of the need to work) the households with high CU/LU ratios to have to work harder to support themselves. However, as the second row of graphs in Fig. 8-4 shows, no significant correlation between CU/LU units and total allocated time, or time devoted to subsistence or cash-earning activities could be found. There is however, a significant negative relationship between the CU/LU ratio and the time devoted to social activities which suggests that as the ratio of consumers to labourers increases the amount of time per week allocated to social activities falls. It might be possible to argue that this is a direct response to needs and that households with high CU/LU ratios are forced to devote less time to social activities and more time to either subsistence or cash-earning activities. If this were the case one would expect a significant positive correlation between CU/LU ratios and hours allocated to subsistence and/or cash-earning, which is not apparent. The reasons for the negative relationship between CU/LU ratios and time allocated to social activities may thus reflect social factors rather than needs and may simply result from the fact that households with high CU/LU

¹This relationship has become known in the literature as "Chayanov's Rule" after the pioneering work of A. Chayanov in Russia (see Chayanov 1925, 1966).

Figure 8.4

TAMANA

SCATTER DIAGRAMS, HOUSEHOLD SIZE, STRUCTURE AND TIME ALLOCATIONS



ratios tend to have larger numbers of children and fewer young adults who are not expected to participate in social activities to the same degree. Again this points to the importance of norms, rather than needs in influencing the pattern of time allocation.

Finally, as the third row of graphs in Fig. 8-4 shows, there is no significant relationship between the CU/LU ratio and the mean hours allocated per labour unit (i.e. how long/hard each labour unit works). The distribution is quite narrow with no apparent trend which suggests that workers tend to allocate roughly the same amount of time to each activity sector regardless of the number of workers in the household or the ratio of consumers to workers.

Time as a Scarce Resource and the Relationship between Sectors of the Economy

The preceding data suggests there is little tendency to economise time. With the exception of cash-earning, time gets utilised in much the same way regardless of the structure of the household labour force. This is further emphasised in comparing the time allocated to different sectors of the economy. It could be argued that if time were a scarce resource the allocation of more time by a household to cash-earning activities would leave correspondingly less time available for subsistence and/or social activities. Testing all possible combinations of cash, subsistence and social activity sectors, singly and together, no significant correlation could be found between the time allocated by a household to one sector and the time allocated to either or both of the other sectors. Since the time allocated in these tests was based on the mean of the survey weeks and this might cause bias in the data; the raw weekly data for individual households was retrieved and tested for the weekly pattern of time allocation between cash, social and subsistence sectors. The sample of seven weeks is inadequate for statistically sound conclusions, but the data such as it is suggests little relationship between the time allocated to various sectors of the economy. This indicates that at present, time is not a scarce resource on Tamana and that an increase in time allocated to cash-earning would not necessarily lead to a decrease in time allocated to socially recognised subsistence and social activities. It appears that extra time is accommodated out of unallocated time (principally non-organised leisure, resting and relaxing) which is not socially regulated

in the same way subsistence and social activities are. There is obviously a limit to the amount of time available (if an individual is to honour his social obligations) and to the willingness of individuals to substitute cash-earning for non-organised leisure and possibly eventually for more formalised social and subsistence-winning activities. The decision will involve a weighing up of the need for money and the value of the activities forgone. Data presented above suggests that this is an individual rather than a corporately-regulated choice.

Allocation of Time and Household Types

A final implication of the established linear relationship between household labour force and time allocated to subsistence and social activities as well as the lack of any clear complementarity between time allocated to the different sectors of the economy, is that easily distinguishable household types with distinctively different strategies are not likely to exist. This reinforces the impression gained from the data presented in Fig. 8-3. Perhaps the most distinctive case presented in Fig. 8-3 is the household of Bakanoka, a 51 year old widow whose only son works on Nauru and who is accompanied only by her 12 year old grandson by her son's previous marriage. The household devoted very little time to most activities: Bakanoka's sickness and her grandson's schooling accounted for 58 percent of the time allocated. Gifts of fish and toddy and remittances from Nauru met most of their food and money needs. Her household is probably typical of a small number of neglected people without close kin on the island. There is no way of telling whether such households are more numerous now than in the past, or whether they are likely to become increasingly common as the pace of permanent outmigration increases. It seems that personality difficulties are a factor common to these neglected people at present and these difficulties either make the individual choose to live apart (often in houses in the bush) or make their integration into other households difficult.

The distinction was drawn in Chapter 6 between households where income changes from year to year reflected changes in income from local sources (copra, handicrafts etc) and those where changes resulted in variations in wage earning or remittances. These differences are not reflected, or do not result from differences in time allocation patterns. The two household types could not be distinguished on differences in the

amounts of time allocated by the households to the broad sectors of subsistence, social or cash-earning activities. Nor were they distinguishable on the basis of the individual categories of wage work, commercial handicrafts and cooking, although the local-dominated households did spend significantly more time in copra production.¹

None of the findings discussed above point to radically differing approaches to the allocation of time by distinctive household types on Tamana. Overall the data can be interpreted to stress the importance of social factors and the value system in providing a context in which the individual, and by aggregation, the household, makes decisions as to the ways in which available time is used. The decisions taken reflect the importance placed on conformity, both in terms of what it is proper for the individual to be seen to be doing, and for the standard of household lifestyle which should be aimed for but not surpassed. They also stress the importance of kin relationships, the preference for working in groups thereby mixing work with sociability and for contributing to the general level of well-being of the community at large, encouraging uniformity and reducing the emphasis on inter-household differences; all factors which would contribute to community harmony and stability in a society with a limited resource base. The importance of these latter environmental factors should not be ignored. It could be argued that the very limited nature of the resource base (particularly the pressure on available land resources, the limited number of subsistence or cash crops that will grow in the local environment and the fact that those which do are mostly perennial rather than annual crops) and the island's remoteness from potential markets so restricts the potential for alternative uses of time that available time gets channelled into the narrow range of activities available often without regard to need or efficiency. The most obvious differences in household well-being relate not to the households' use of immediately available resources of land and labour, but rather to the degree to which household members can activate ties with kin in employment off-island and the way in which the remittance economy ties Tamana to the developing and changing economies of Ocean Island, Nauru and Tarawa.

¹Households with means based on five or more survey weeks only.

Chapter Nine

SUBSISTENCE IN THE ECONOMY

Subsistence activities account for slightly more than 50 percent of the time allocated by the average sample household. This chapter aims to provide descriptive material to fill out the bare bones of the data presented in the preceding chapter on time allocation patterns. Among the patterns identified previously certain tasks stand out clearly as being time consuming, done by most individuals and tend to be associated with one another of the sexes. Men's subsistence activities are focussed strongly on the sea; women's on the home and the land.

The Sea and Its Exploitation

Aspect gives rise to the basic environmental distinction between tanrake (facing east) and tanimainiku (facing west). The distinction derives from prevailing wind patterns and the shift of these with the change from the easterly to westerly seasons. Now that settlement has been concentrated on the leeward side of the island, most fishing activities emanate from here and for most of the year have little difficulty in launching canoes in the shelter of the island. However, in storms during the westerly season launching canoes may be difficult and some fishermen leave from the northern end of the island where the reef is broken up and where deep water is thus closer to the beach.

Each aspect is further divided into the five main zones reflecting the structure of the reef discussed in Chapter 3. Briefly they are the beach zone (te riburibu), the reef flat and its pools (te waiwai), the ridge and spur system (te kawarawara), the shelf (te kamai) and the deep (te karo). The karo is further subdivided into depth zones, aontari ("on the sea") extending from the surface to a depth of 55 metres and the karaiti ("to rewind the fishing line") or the katakitoki ("to try to reach the bottom") below. Each zone presents different opportunities for fishing, both in the fish frequenting the zone, in fish movements or

feeding habits while in the zone and both call for different fishing approaches and equipment. The range of technology used and the fish most commonly caught are presented in Table 9-1. The decision to use one method rather than another will depend on the one hand on the range of equipment available to the fisherman¹ and the possibilities this permits, and the prevailing conditions of tide and weather and the known effect of these on fish feeding habits on the other. The fishermen claim the phases of the moon, wind and current conditions all affect the prevalence of fish in the waters near the island.

Deep-Sea Fishing

While the range and variety of fishing methods described in Table 9-1 is impressive, very few of these methods are used frequently or regularly by most households and Table 9-3 shows that the greatest emphasis by far fell on a small range of deep-sea fishing methods. Tuna, bonito, shark and other deep-sea fish are clearly preferred food and a certain kudos accrues to the active and successful fisherman. The limiting factor is ownership of a canoe or kinship or friendship links with a canoe owner leading to an enduring fishing partnership. In these partnerships the catch is usually shared equally with no additional portion going to the canoe owner, although either man might take the whole catch if he has particular commitments to meet.

Although sailing canoes were in use on Tamana in the nineteenth century, they are no longer used and this may explain why some trolling methods are not used on Tamana. The canoes in use at present are either single- or two-man outrigger canoes constructed of butt-jointed redwood planks caulked with coconut leaf and tied in place with sennit.² As

¹ Appendix 3 shows that most households possess a wide range of fishing equipment, although some households, usually those with no adolescent males, obviously specialise in deep-sea fishing equipment and do not own spears, floats and the like. All fishing lines used now are nylon, cotton or wire trace; fish hooks and lures are steel; and most of this equipment is of Japanese manufacture purchased in Nauru or Ocean Island. Heavy fishing equipment is not available from the island store.

² Nylon fishing line is now used sometimes to replace coconut sennit and while this has certain strength advantages and does not rot, it is not favoured because it cuts into the wood as the canoe works in the water and does not swell to culk the holes.

Table 9-1. Fishing Technologies Used and Fish Caught in Different Marine Environments, Tamana

Basic technology	Type	Description	Zone used	Fish caught ^a
Nets	Kuan	Hoop net 0.5-1.0 m diam. Baited and lowered to bottom from canoe.	Kamai	Bubu, Bokiroro, Kuaua
	Kibena	Fine mesh net with sticks at either end held by 2 people. Usually used with coconut flares at night.	Waiwai	
	Karaun	Gill net. <u>Karaunimarawa</u> where net set in <u>kamai</u> and beaters drive fish out of <u>kawarawara</u> .	Waiwai and Kamai	Aua, Kuaua, Koinawa, Inunikai, Rerebe, Make, Mataboua, Bari, Tewe, Bawe, Tauti, Ikanarina, Arinai, Oningea, Ikamaua, Ribabanni.
	Kainikare	Throwing net. Used with beaters.	Waiwai	
	Nonou	Steel framed net set in channels of <u>kawarawara</u> . Beaters drive fish off <u>waiwai</u> .	Kawarawara	Relati, Kuaua, Bureinawa, Mon, Riba, Oningea, Koinawa, Baba, Tauti.
	Riena	Long handled scoop net.		
	Kibe Riena	Coconut flare and scoop net used at night in shallow pools of <u>waiwai</u> .	Waiwai	Aua, Koinawa, Make, Mataboua, Bari, Rabono, Tewe, Bawe, Ku, Tauti, Ura.
	Kababa	Fishing for flying fish with scoop nets from canoes at sunset.	Kamai, Karo	Onauti
	Tatae	Night fishing for flying fish from canoes using scoop nets and flares to attract flying fish.	Kamai, Karo	Onauti, Make, Aua, Bari.
Lines	Kainroaroa	Rod, line and hook, no sinker. Pole now bamboo bought from store. Wire trace used for eels (<u>rabono</u>).	Waiwai, Kawarawara	Aua, Kuaua, Inunikai, Rerebe, Make, Mataboua, Bari, Rabono, Bawe, Ku, Ikanarina, Arinai, Barere, Relati, Bureinawa, Mon.
	Kainkibukibu	Rod.		
	Kainkibukibu	Rod, line, hook and sinker.	Kamai	Relati, Bokiroro, Kuaua.
	Taumata	Fishing line from wooden float. Fisherman floats at surface and dangles baited line to bottom.	Kamai	Bubu, Bokiroro, Kika.
	Teao n akawa	Line fishing from canoe.		
	Katiki	Trolling with baited hook or feather lure behind canoe. By-laws forbid this form of fishing.	Karo (Aontari)	Onauti, Ana, Te Ati, Ingimea, Bara, Nunua, Ikabauea, Tawatawa, Anaroro, Ikakoa, Barere (with <u>iaia</u> - a fine line)
	Roa	Rod and bait or feather lure.	Karo (Aontari)	Te Ati, Ingimea, Anaroro.
	Kabeibeti	Baited hook and line drifting on surface. Also called <u>kabarabara i aontari</u> , 'kabara on surface'.	Karo (Aontari)	Nunua, Ikabauea, Ingo, Atiati, Bakoa, Ingimea, Tauri, Kama, Rokea, Bara.
	Kaleko	Baited hook and line. Bait can be seen from surface.	Karo (Aontari)	Bakoa, Raku, Anoi.
	Beibeti i aontari	Baited hook and line. Down to 30 m.	Karo (Aontari)	Bakoa, Raku, Ingimea.
	Karaiti	Wire trace, heavy sinker hook and feather lure. Forbidden.	Karo (Karaiti)	Aongo.
	Beibeti	Line large hook and large bait 60-300 m.	Karo (Karaiti)	Onatitima, Bakoa, Ingimea, Raku, Bauteira, Kauato.
	Kabara	Line, baited hook and stone with burley wrapped in uri leaves and fixed with slip knot. When at required depth slip knot pulled allowing stone to fall away and burley to be released 15 m to bottom.	Karo (Karaiti)	Ingo, Atiati, Bakoa, Ingimea, Ikaraura, Raku, Kama, Tababa, Anoi, Bauteira, Kauato.
	Tauri	Line to which is attached wire frame with 3 baited hooks lowered to bottom and pulled up slowly and held at intervals.	Karo (Karaiti)	Ten Atiati, Bakoa, Tauri, Ikaraura, Bara, Rokea, Tababa, Anoi, Bauteira, Kauato.
	Baobao	Similar to <u>tauri</u> but with more hooks. Usually used during daytime.	Karo (Karaiti)	Ingo, Ikaraura, Kama, Kika.
Nooses	Matamea	Baited stick fitted with wire slip noose. <u>Rabono</u> places head through noose to take bait.	Kawarawara	Rabono.
	Kabaeon	Noose slipped over flipper of turtle. Used during mating season when the turtles less wary.	Karo (Aontari)	On.
Traps	Uu	Eel trap baited with fish and put under heavy stone to keep trap in place.	Kawarawara	Rabono.
Spears	Kainikatebe	Now commonly piece of reinforcing rod propelled by a strip of inner tube.	Waiwai, Kawarawara and Kamai	Tewe, Rabono, Tauti, Arinai, Barere, Ura, Kika, Riba, Ribabanni, Oningea, Ikamaua, Koinawa, Baba, Boni, Bureinawa, Bubu, Bokiroro, Mon.
Gaffs and wire hooks	Kainikareke	Used with coconut flares at night to gaff fish sleeping on surface.	Kamai	Ikamaua.
		Hooked piece of wire used to pull fish out of holes.	Waiwai, Kawarawara, Kamai	Kika, Bubu.
Knives	Kibe biti	Used with coconut flares at night to kill small fish in pools at low tide.	Waiwai	As for Kibena.
Battery	Toti n tabotebo	Diving for crayfish at night with underwater torches. Crayfish picked up with hands.	Kawarawara	Ura.
Fish poisons	Kareboki	Large brown Holothurian. Foot scratched with fingernail, rinsed into pool and scratched again until fish affected. Small fish affected rapidly in pool approx. 1 m ³ .	Waiwai, Kawarawara	As for Kibena.
	Mautonga	Black Holothurian used to catch Blennies for bait by rubbing sea slug around entrance to Blennies' hole.	Waiwai	
Hands	Rikorikoa	Collecting shellfish at low tide. Small fish caught with hands in shallow water near beach. Often blown ashore during storms.	Kawarawara Riburibu	Nimatamin. Baiku, Baibai, Tewe.

^aAs far as is possible, these fish are identified and scientific names given in Appendix 4.

canoes are now made only from imported redwood bought while in employment at Ocean Island or Nauru and probably represent the major item of capital investment made by a household, they are treated with great care, carefully maintained and used only by experienced adult males. Older boys fish with floats and spears off the reef edge and women, children and older men fish with rods and nets on the reef flat.

It is important to recognise that deep-sea fishing is not an isolated activity, practised whenever time permits, but part of a cycle inter-relating several distinct fishing activities. The cycle begins with either kababa or tatae fishing for flying fish which are the most favoured bait for deep-sea fishing. In kababa fishing men in canoes line up just outside the reef as the sun is setting. A lookout is kept for surfacing schools of fish; once a school is sighted the sighter plus the two nearest canoes are permitted to chase the school using long-handled scoop nets (riena) to catch the fish. The whole procedure is carefully controlled, initially by custom, now by custom reinforced by local by-laws passed by the Island Council. With tatae fishing the activity begins with the collection of very dry, dead coconut fronds, usually collected by women and children and tied into flares with green coconut leaflets. The ties are made every 40 cm or so down the length of the flare so the rate of burning down of the flare can be controlled. When a brightly burning flame is required the knot of green leaflet is slipped, the flare shaken to free the dry leaflets which then burn vigorously until the constriction of the next knot is reached. Tatae fishing is done on relatively calm moonless nights.¹ The flying fish are attracted towards the light and are scooped from the water with scoop nets. On some nights as many as 60 canoes may be out tatae fishing, visible only by the presence of the bright orange flares. Again, the activity is closely regulated. On other islands pressure lamps have been shown to be more effective in attracting the flying fish than flares, but on Tamana the use of these is specifically forbidden by a local by-law; allegedly to protect fish stocks from the possibility of depletion. If enough flying fish are caught by either

¹ Dead calm nights are unsatisfactory because there is insufficient air movement to fan the flares. Tamana observations do not support Catala's (1957: 122) statement that full moon is the best time for tatae fishing. Tatae fishing was not done on Tamana around full moon as conditions were not sufficiently dark.



Fig 9-1 Setting



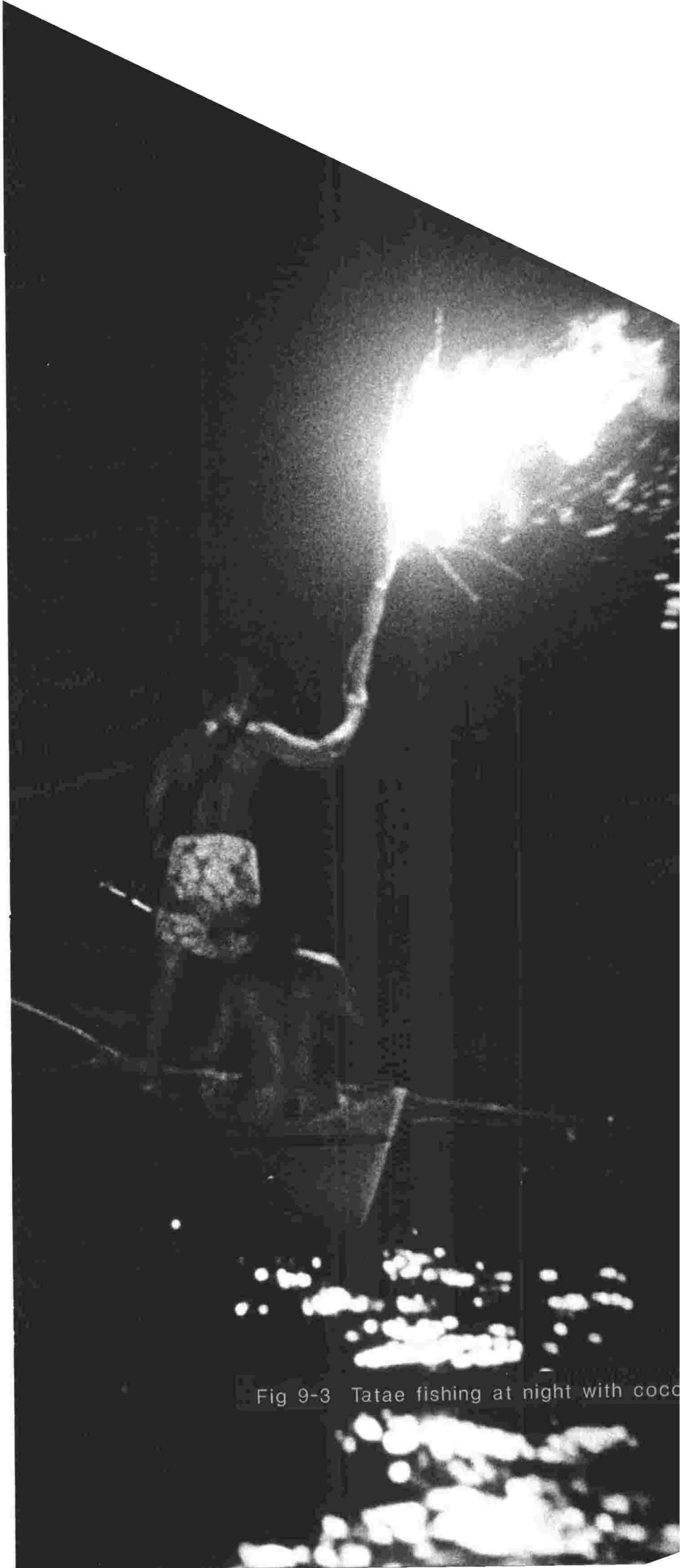


Fig 9-3 Tatae fishing at night with cocc

method they may be eaten, but their greatest importance is as bait for kabara, beibeti and tauri deep-sea fishing. Reef fish, which might be more easily obtained, do not seem to be favoured as bait. Since Tamana is not an atoll there is no ready supply of easily netable lagoon fish.

Once bait had been obtained deep-sea fishing could begin in earnest. Canoes might put to sea straight after kababa fishing if sufficient bait was obtained and fishermen may stay fishing for a large part of the night. Night fishing has, in comparison to daylight fishing, an almost desultory character. Favoured fishing spots (usually known feeding grounds) are made for, lines baited and lowered and the waiting begins. Watchful eyes are kept on the drift of the canoe¹ and if no success is met with new fishing spots may be sought. During daylight hours much more attention can be given to signs of fish; watch is kept on the feeding movements of seabirds because these indicate the movement of sprat on which the larger fish feed and disturb. Because manpower is the only available motive power it is more a matter of anticipating the likely direction of movement of fish and birds and being in a position close by, rather than one of giving chase to fish. Fishing magic was, and probably still is, considered useful in bringing fish to the fishermen. Several examples were recorded. The physical discomfort entailed in spending hours sitting cross-legged on the thwarts of a narrow leaky canoe, often in the fierce sun, and hauling in over 200 metres of heavy line should not be forgotten. Despite this the lure of the hunt remains and fishing retains its position as one of the "proper" things for men to do.

Because of the chance factors involved, the length of time spent fishing bears little relationship to the size of the catch. The decision to quit a fishing expedition appears to bear little relation to the number of fish caught as any surplus finds ready disposal to kin and neighbours, thereby contributing to the fisherman's reputation of being a good and generous fisherman. Surplus fish are rarely sold and only two of the sample households sold fish during the time of the survey and interestingly, both chose the anonymity of selling on a commission basis through the cooperative store. To do otherwise would have incurred shame.

¹The extreme depth of the water of the island makes anchoring impossible.

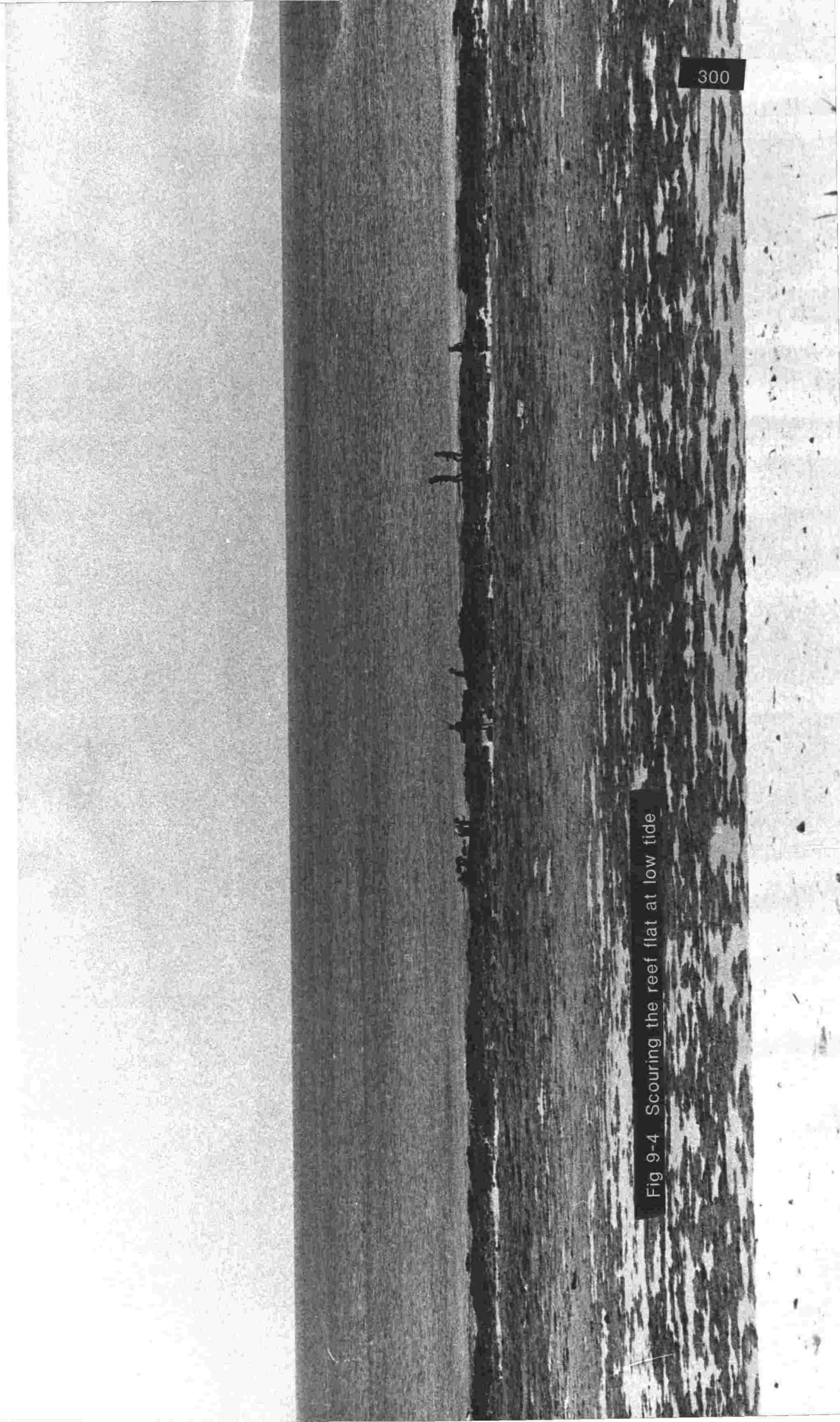
While fieldwork did not cover a full annual cycle, it did cover the changeover period from the easterly to westerly seasons and so activities under both seasonal patterns were observed. The constant easterly winds and settled weather during aumaiaki caused few problems as canoes could easily be launched from the leeshore near the village. Bad weather was more frequent during aumeang when westerlies generated storm waves along the western shores. This made canoe launching difficult and dangerous and many fishermen were loath to put to sea in rough conditions because of the difficulties in getting over the reef and because the constant working of the canoe hull weakened the sennit ties and caused the planks to work and leak. Bad weather was usually sat out in card playing or general inactivity and boredom and protein hunger, especially among smaller children, soon became apparent. Their constant requests for fish made it necessary to resort to other fishing methods, such as rod fishing, or float fishing (which involved swimming through the heavy surf on the reef).

Fishing the Nearshore Waters

The kamai is largely the preserve of the young, active males whose services are not required on the canoes. They spend long hours with masks in the water supported by floats, singly or in small groups using spears, hook and line, wire hooks and nets to catch reef fish among the coral heads on the kamai shelf. These methods are more sure of producing a catch, but the fish caught are clearly not as esteemed as deep-sea fish.

For most of the time the reef flat is deserted. It is largely the preserve of small children and women without husbands, and a few old men. However, at oratakakoro (low water spring tide) when the reef flat is entirely exposed for a longer time span, large numbers of people scour its pools and crevices using rods, nooses, knives, wire hooks, fish poisons and nets for fish, shellfish, worms, eels; most are eaten, the worm bonobono is used in the manufacture of perfumed oil. High water spring tide also seemed to be a favoured time for using throwing nets and gill nets on the reef flat.

Fig 9-4 Scouring the reef flat at low tide



Fishing Quantified

Tables 9-2 and 9-3 present data on the number, type and success of the fishing expeditions mounted by 13 of the sample households during weeks three to seven of the household survey. In comparison with Table 9-1 they show that remarkably few of the fishing techniques known to informants were commonly and frequently used. The importance of deep-sea fishing, particularly line fishing (teao n akawa) is clearly evident in the number of households using the method, the number of expeditions mounted, the duration of each expedition and, when size of fish is considered, the number of fish caught. Inshore methods were less frequently used for generally shorter periods of time and by fewer households. Some households spent practically all of their fishing energies on deep-sea fishing while at the other extreme some households never went deep-sea fishing and mounted only a small number of inshore expeditions. This in part reflects the availability of capital equipment (canoes) and suitable manpower, but this is not unfailingly true. Two households owned canoes but used them only infrequently or not at all, blaming the lack of use on the sickness of older males and the lack of experience of younger men for this. The general principle appears to be that if canoes and manpower are available the emphasis will be placed on deep-sea fishing almost to the exclusion of other types of fishing. The only exception to this rule were the households of Kaiea and Enoka who fished both zones quite actively. (Enoka's score is lower than it should have been because his canoe was wrecked twice during the survey period, once in heavy surf on the reef edge and once when attacked by a shark when heavily laden with tuna.) The reasons for this appear to be that both these households had a large number of older boys and adult males in them. The latter went deep-sea fishing while the former spent their time fishing from floats and any surplus produced was either distributed to kin, the pastor, or neighbours, or dried and salted for future consumption. There appears to have been little attempt to direct the activities of these youths into land-based activities as an alternative, perhaps more productive, use of their time. The only time that active older men fished the inshore zone with floats or nets was when their canoes were out of commission.

Table 9-2. Fishing Expeditions by Sample Households Over Five Survey Weeks

Household	Canoe ownership	Total fishing expeditions	Deep sea expeditions	Percent expeditions deep sea	Expeditions per day
Temakai	Yes	49	46	93.88	1.30
Komeri	Yes	31	29	93.55	1.03
Aam	Yes	29	29	100.00	0.97
Kaiea	Yes	44	27	61.36	1.47
Barawe	Yes	16	16	100.00	0.53
Kamantoa	Yes	15	15	100.00	0.50
Enoka	Yes	30	12	40.00	1.00
Katirongo	Yes	14	11	78.57	0.47
Meri	No	22	7	31.81	0.73
Tebebita	Yes	7	3	42.86	0.23
Tembeti	Yes	12	0	0.00	0.40
Tokinteka	No	2	0	0.00	0.07
Bakanoka	No	0	0	0.00	0.00
Total		271	195	71.94	8.70
Mean all households		20.85	15.00		0.67

Two fishing activities warrant special comment. Shellfish collection does not figure prominently on Tamana, even though this is an important activity on other islands and the reasons for this presumably relate to the absence of extensive lagoonal sand and mudflats on the reef island. Diving for crayfish at night with underwater torches (toti n tebotebo) is a recent activity resulting from the sale of cheap underwater torches on tarawa. The expeditions are highly successful with large numbers of crayfish being caught. Whether these catches can be maintained and whether controls will be brought in to prevent overfishing remains to be seen. The precedent to impose constraints already exists.

Data collection problems hamper attempts to quantify the returns for different fishing methods. Short of tracking down and weighing every fish caught, only very coarse measures of the rates of return to different methods are available. If "successful" is defined as catching any fish at all, about three out of every five expeditions returned with fish. The success rate for various methods differed considerably. Generally, the somewhat scorned inshore expeditions tended to have higher success rates in terms of number of expeditions catching fish, number of fish caught per expedition and fish caught.

per hour. However, the fish caught were smaller and of less valued species.

Table 9-3. Fishing Expeditions and Fish Caught Over Five Survey Weeks

Fishing method	No. households using method	No. of expeditions	Total hours spent	Mean hours per expedition	Successful expeditions ^a	Percentage of expeditions successful	Fish caught	Mean fish per expedition	Mean fish per hour
<u>Methods using canoes over karo and kama'i</u>									
<i>Teao n akawa</i>	8	89	459.75	5.17	62	69.66	633 ^b 191 ^b	7.11 2.14	1.38 0.42
<i>Kababa</i>	9	84	55.75	0.66	31	36.90	177	2.11	3.17
<i>Tatae</i>	8	22	65.00	2.95	16	72.73	258	11.73	3.97
<u>Other methods used in kama'i, kawarawara and waiwai</u>									
<i>Kainikare</i>	7	28	65.75	2.35	18	64.29	332	11.86	5.05
<i>Kainikatebe</i>	3	12	26.50	2.21	10	83.33	95	7.92	3.58
<i>Kainroaroa</i>	4	10	13.75	1.38	6	60.00	53	5.30	3.85
<i>Taumata</i>	3	8	25.50	3.19	8	100.00	83	10.38	3.25
<i>Toti n tebotebo</i>	3	8	11.00	1.38	8	100.00	97	12.13	8.82
<i>Kainikareke</i>	4	5	13.00	2.60	4	80.00	11	2.20	0.84
<i>Kibe riena</i>	1	3	6.50	2.17	3	100.00	19	6.33	2.92
<i>Koroba</i>	1	1	1.50	1.50	0	0.00	0	0.00	0.00
<i>Rikonimatamin</i>	1	1	1.00	1.00	1	100.00	30	30.00	30.00

3 households excluded because data did not cover all weeks.

^a 'Successful' is defined as any expedition where fish are caught.

^b The total of 633 includes all fish caught. The total of 191 relates to the usually larger fish caught in deep water. The remainder are smaller fish caught in the *kama'i* which is fished only if deep sea methods prove unsuccessful. It was assumed that the intent of all expeditions was to catch large fish since no expedition returned with both deep sea and *kama'i* fish.

Nearly 70 percent of deep-sea line fishing expeditions were successful, but rather interestingly kababa fishing appears to be one of the least successful fishing methods despite the large number of households using it. This reflects its importance as a bait fish and the part it plays in the general fishing cycle. It is a recognised part of the day's events; a short and confined activity which can take place at only one time each day and when most fishermen are seen out together. It becomes a sort of competition. Favourable conditions for kababa fishing last for less than half an hour and are easily marred by wind and waves, and even in perfect conditions the schooling fish may simply not appear.

Table 9-4. Species Composition and Meals Provided by Deep-Sea Fishing Methods for Sample Households over Five Survey Weeks

Breakdown of deep-sea catch by species^a

	No. caught	Percentage of catch	No. meals	Percentage of meals
<u>Onauti</u>	435	40.73	34	22.22
<u>Burewa</u>	176	16.48	6	3.91
<u>Bubu</u>	126	11.80	3	1.96
<u>Mon</u>	120	11.24	7	4.58
<u>Ikaraura</u>	47	4.40	21	13.73
<u>Ingimea</u>	32	3.00	52	33.99
<u>Barebu</u>	22	2.06	12	7.84
<u>Tauri</u>	22	2.06	3	1.96
<u>Nunua</u>	16	1.50	2	1.31
<u>Koinawa</u>	10	0.94	-	-
<u>Kama</u>	7	0.66	5	3.28
<u>Ikakoa</u>	2	0.19	1	0.65
<u>Te Ati</u>	1	0.09	3	1.96
<u>Baru</u>	1	0.09	1	0.65
<u>Ingo</u>	1	0.09	-	-
<u>Ikabauea</u>	1	0.09	2	1.31
<u>Tanin</u>	1	0.09	1	0.65
Unclassified	48	4.49		
Total	1068	100.00	153	100.00
<u>Total fish catch</u>				
Fish caught by deep-sea methods	1068	60.75	153	73.91
Fish caught by inshore methods	690	39.25	54	26.09
Total	1758	100.00	207	100.00

^aFor scientific names of fish see Appendix 3.

Table 9-4 gives another estimate of the relative importance of deep-sea and inshore fishing in terms of the number of fish caught, and the frequency with which they appear in meals taken during the survey period. A total of 1758 fish were caught and these appeared in 207 household means, suggesting that on average the households surveyed had three fish meals per week. In terms of the number of fish caught, inshore methods provided nearly 40 percent of the catch but these fish appeared in only 26 percent of the meals implying that on a weight basis returns from inshore fishing are less important than the numbers of fish suggest. Reef fish, mainly burewa and bubu, were usually caught in large numbers only when deep-sea ventures failed. Ingimea (yellow-fin tuna) and onauti (flying fish) stand out clearly as being the most important deep-sea fish in the diet. Although ingimea accounted for only three percent of the catch, the fish appeared in 34 percent of the meals and many of the fish caught measured from 60 to 100 cm in length. The ones that got away were always much bigger. Surplus fish, not given away as gifts, were preserved by filleting, rubbing with salt and sundrying. Octopus and shark skin are similarly sundried and stored. The dried fish is usually stored in airtight tins where available or wrapped in matting and placed in the roof rafters. There is a small trade in dried fish through the cooperative store and this often takes place as a means of getting small amounts of cash for urgent needs. The dried fish is either eaten in its dry form or cooked in water or coconut cream. The differences in taste, texture and oiliness between different species are all well recognised and the characteristics appreciated to their variety. Ingimea, ati (bonito) and bakoa are probably the most prized fish and the infamous baru referred to by Grimble (Eth Doc 1092 Museum of Mankind) as the castor oil fish or ten-tara-waena "Sir-look-at-foot",¹ is a favourite fish to give unsuspecting visitors. Despite fish being the only major source of protein on the island its constant consumption does not discourage people from buying tinned mackerel from the store when fish

¹ This fish when eaten in even moderate amounts narcotises the colon and causes the eater to defecate without warning, much to the amusement of the assembled audience, hence the name Sir-look-at-foot. A meal of baru put a sudden end to a night's census work.

is scarce and money permits. The importance of fish in the islanders' eyes should never be underestimated as their attempts to regulate the exploitation of this resource show.

The Conservation of Marine Resources

Fishing is clearly very important in the lives of Tamana people. The inshore zone provides, under present levels of exploitation, a relatively sure source of protein in albeit small quantities. Returns are small, but the effort is small and success almost assured. The prospect of a bonanza, in the form of a large impressive fish, is not held by these waters and applies only to the open sea where the risks and stakes are higher. The potential for sustained, more intensive exploitation of the inshore zone is uncertain; at present the area is not heavily fished and because of its limited areal extent it is likely that increased exploitation could lead to exhaustion of the resource. The area remains the preserve, almost play area, of boys with floats, spears, nets and lines and is not seriously fished unless bad weather or other factors prevent the use of canoes and the pursuit of more "proper" game. The emphasis of these values and the prevailing preference for deep-sea fish could be interpreted as a strategy to ensure the continued productivity of both resource areas.

However, the concern of Tamana people for husbanding their resources is much more apparent in their continued and largely successful efforts to regulate fishing activities on the island. These are not new or even recent efforts, and stem according to my informants, from pre-missionary times. Since 1954 the regulations have been absorbed into local government and become codified, despite the District Commissioner's thinly disguised derision (GEIC 113/2/16), in the Tamana Island Council (Fishing) By-Laws 1970. Even these by-laws do not cover all the regulations enforced by the Council. The community's and Council's main concern is to prohibit certain activities considered detrimental to sustainable fish yield. The example of prohibiting the use of pressure lamps instead of coconut leaf flares in tatae fishing, and the regulation spelling out the number of canoes from the line permitted to chase the school of flying fish obviously contribute to the

orderly and sustained harvesting of this resource. Explanation of restrictions on trolling (katiki) for deep-sea fish and punishment for allowing ati to escape are not as readily apparent and the reasons proffered appear somewhat fanciful. Trolling with modern hooks or lures is supposed to be more likely to damage the fish's jaw and allow the injured fish to escape. In this case, and that of the escaping ati, the freed or injured fish are supposed to warn remaining fish to leave the vicinity. In contrast to modern fishing equipment, the traditional wooden fish gorges and wood barbed lures were supposed to catch the fish securely or allow it to escape unharmed. The restrictions on trolling are codified in the by-laws; the punishment for allowing ati to escape is upheld by locally accepted sanction. The by-laws make provision for fines of \$20 and up to six weeks' imprisonment. However, no prosecutions have been made since the new by-laws have been enacted and transgressions have continued to be treated in the same way as previously where individuals were barred from fishing for a specified time. Colony ships are directed not to troll within three miles of Tamana shores. The severity of the punishment asked for in the by-laws and the fact that individuals are willing to accept the sanction-supported punishment of bans from fishing, indicate the importance of the sea's resources and fishing to the community.

Exploitation of Land Resources

Land takes on different meaning in different societies and this applies even within the Gilbert Islands. On Butaritari much attention is given to babai cultivation and dependence on fish and coconut is equated with poverty, inadequate land resources and laziness (Sewell 1975: 50); on Tamana it is the norm and no shame is attached thereto. The epitome of Tamana life is to tore; to take a bite of fish, a mouthful of toddy and to suck the toddy through the fish in your mouth. While fish and the sea are very important in the lives of Tamana people, land remains an important symbol of belonging and through this a source of future security because it is by controlling the transfer of land that one can command the assistance and support of offspring who will inherit the resource. Even though land is an important source of food and raw

materials its place as a symbol of security is all-pervasive and tends to reduce the tendency for land to be seen as a resource to be manipulated in the short-term to get a desired level of return or particular short-term goal. The long-producing, perennial nature of most important crops feed this perception.

Title does not imply ownership in the western sense; it gives the registered owner the right to use a particular land during his or her lifetime. The Land Code specifies the manner in which the land can be conveyed to others. No land can be sold and the only examples of the leasing of land were to the government and the church. The registered owner is expected to maintain or improve the productivity of the land so that his or her offspring can be assured of getting a living from it in times to come. Land boundaries are generally known with reasonable precision. Many boundaries were marked with the stone slabs set by the Lands Court, or by crosses cut in trees, or by the even older method where two coconuts were planted in the one hole dug on the boundary.

Neither does title give the owner the right to deny others movement across the land. The registered owner or caretaker has rights to most of the produce growing on the land: to the wood, fruits and leaves of living trees, but not to dead leaves for thatch and compost, firewood, discarded husks and smaller green plants used for pig food and compost. In two areas sanctioned by custom, other people's activities can impinge on a titleholder's use of his land. Because land suitable for babai pits is of restricted distribution, a person wishing to dig a babai pit can bubuti a site for this pit on another's land. The owner of the land has no claim to the produce of the pit and on the maker's death, the pit is inherited by the maker's offspring. It is also possible for an individual to bubuti the use of one coconut tree on another's land for toddy cutting and if the request is properly made, it cannot be refused. The custom probably dates from early missionary times when all households were relocated on the western shore of the island where their traditional kainga lands were no longer readily accessible. In practice this means that landowners with plots close to the village might have quite a number of trees taken by others. While toddy might be cut for only a few months many trees become makoro after being used for toddy and cease to bear for as long as 18 months.

Theft or destruction of produce does occur, but appears to be isolated and not a problem of great magnitude. If a landowner suspects nuts are being stolen or finds a tree being used for toddy without permission, his displeasure is shown by kamainaina, the tying of a split coconut frond around the tree. Continued theft would be reported to the Island Council. Generally, theft is not a major problem, even in times of high copra prices. Most households have access to enough resources to meet their needs or can by bubuti or other strategies, satisfy their needs.

During the last five weeks of the household survey tallies were kept of the lands visited and the purpose for which they were visited. Table 9-5 shows that very few of the households visited all the lands of babai pits they had access to, although many households used other lands not previously recorded. In most instances this was in response to invitations to collect te bero on other lands, but some instances related to the use of coconut lands belonging to people recently joining the household or to close kin now absent.

Table 9-5. Land Holdings and Babai Pits Visited by Sample Households During Five Week Survey Period

Household	No. of lands stated used during land resources survey. See Table 5.1	No. of recorded lands visited during 5-week survey period	Other lands visited which were not recorded in land resources survey	Babai pits ^a stated used during land resource survey	Babai pits visited during 5-week survey period	Other pits visited which were not recorded in land resources survey
Enoka	7	7	1	4	2	-
Tembeti	13	10	2	5	-	-
Meri	5	3	3	1	1	1
Tokintekai	17	5	3	7	4	-
Kamantoa	9	5	-	4	2	-
Barawe	18	4	1	6	-	1
Aam	9	4	2	5	4	-
Temakai	8	5	2	4	3	-
Komeri	11	8	-	5	-	-
Katirongo	4	3	-	3	-	2
Maera	9	5	-	2	-	-
Kaiea	9	5	1	4	1	1
Tebebita	12	4	2	5	1	-
Bakanoka	5	2	1	-	-	-
Kaiaba	14	2	-	3	1	-

^a Groups of *niba* counted as 1 pit

In trying to explain why some lands get used more frequently than others, it is tempting to suggest definite strategies where more distant lands might be visited less frequently and the accumulation of nuts between visits make the lands more attractive for copra cutting. This sort of thinking is rather hard to support when it is stressed that no land on Tamana is more than 12 minutes' cycle ride from the village. However, there are differences in the way people see time and distance. I asked householders to estimate the time taken to bicycle to each land they used. Householders with well tended, regularly visited lands (usually from households with fewer lands and larger families) gave estimates consistent with real times taken. Other households structured travel time in five or ten minute intervals and gave estimates of travel time up to sixty minutes. Despite this there appeared to be no relationship between estimates of travel time and the frequency with which the land was visited. The resources available on particular lands and the need for them are probably much more important considerations. Lands with few trees on were visited less frequently regardless of proximity.

Table 9-6. Trips to Lands by Sample Households over Five Survey Weeks

Household	Coconuts			Babai		Pandanus	Bero	Raw materials ^a	Total trips
	Food	Copra	Tending lands	Harvesting	Cultivation				
Enoka	6	10	5	1	1	-	-	-	23
Tembeti	8	7	1	-	-	-	3	-	19
Meri	11	-	-	4	2	-	6	1	24
Tokintekai	6	3	2	2	4	1	2	-	20
Kamantoa	5	4	-	-	9	-	2	2	22
Barawe	5	4	1	1	-	-	1	-	12
Aam	5	3	-	4	3	-	1	1	17
Temakai	3	2	1	1	4	-	3	1	15
Komeri	2	4	1	-	-	2	1	-	10
Katirongo	5	1	-	-	4	-	2	-	12
Maera	6	2	-	-	-	-	-	-	8
Kaiea	2	1	2	1	-	-	1	2	9
Tebebita	3	3	-	2	-	-	-	-	8
Bakanoka	3	-	-	-	-	-	-	-	3
Kaiabab ^b	1	-	-	-	-	-	1	-	2

^aCollecting of dead pandanus leaves excluded since this was regular and organized by women's work groups not as a response to household needs.

^bUnderestimate since this household was combined with Maera's for 3 of the 5 weeks and used Maera's lands.

Table 9-6 gives the frequency and purpose of visits to the lands used by the households. The table needs little elaboration. The collection of coconuts for food and copra clearly dominate; trips to collect pandanus, bero and babai appear relatively unimportant.

Working the Land

Several factors influence the way in which Tamana lands are husbanded. Coconuts, pandanus and other tree crops are not the only produce of the land. Tamana people have a detailed knowledge of the plants growing on the island, their ecology and the uses to which they may be put (see Appendix 5). For most this may be the rare use of leaves for medicinal or decorative purposes, but many small plants are actively sought for pig feed and babai compost while the differing qualities of woods of larger shrubs and trees are recognised and valued for particular uses. Thus even the scrub is a resource and because of the sparse nature of much of the scrubland on the island, it is not wantonly destroyed. This was amply evident when the Barebuka village workforce was mobilised to clear land communally for the first Coconut Replanting Scheme. This required all scrub to be felled and the Agricultural Officer despaired at the slowness of progress. This did not arise from a lack of enthusiasm on the part of the villagers but from the fact that all useful stems of such shrubs as te uri (Guetarda speciosa) and similar shrubs were being salvaged and set aside as clearing progressed. The Agriculture Department's and villagers' perception of what constitutes a resource is clearly not the same.

Similar conclusions apply to the two parties' perceptions of what constitutes the most appropriate tree density and age structure patterns for coconut lands. Despite officialdom's tacit assumption that coconut planting has never been an important activity of the I-Kiribati in the drier islands of the southern Gilberts, at least there has been a long history of planting, both of coconuts and fruiting pandanus. The last major burst of large-scale planting appears to have followed the severe drought of the mid-1930s when large areas of coconuts died and many landholders were forced to replant. Since then there has been sporadic planting by individuals wishing to improve their palm holdings. Planting

appears necessary in most areas because conditions, while not being generally unfavourable to palm growth, are not such that fallen nuts germinate and grow readily where they fall. Thus planting is necessary to re-establish coconuts on a drought devastated area or to extend coconuts into an area not formerly occupied by them. Underplanting of established palm forest is not common and here the palm forest is left to regenerate through volunteer seedlings whose growth is suppressed and slow until light gaps appear in the canopy.

Despite the long history of planting very few lands have coconut palm densities approaching the figure of 215 palms per hectare (see Table 8-4), the figure recommended by the Agriculture Department. The divergence reflects differences in the purpose of production. The Agriculture Department is concerned to institute a system where maximum productivity can be gained from the land, where competition between individual trees is reduced to a minimum and where growth and bearing rates are at a maximum. This necessitates a uniform age stand which is periodically replaced perhaps once every 70 years and which may be unproductive for as much as 10 of those 70 years. In contrast, the indigenous perception tends to stress continuous productivity, where a livelihood can be gained from all lands all of the time and where coconuts are not the only produce of the land. Pandanus, wood-producing trees and shrubs and similar vegetation are all part of their resource base and not simply competitors with the one "economic" crop, coconuts. However, it is true that there has been a steady rise in coconut planting over time, at the expense of scrub and pandanus as a result of the development of a market for first coconut oil and then copra and because of government policy fostering expanded copra production. There are signs that the wisdom of this trend is being questioned. Several older men questioned the point of the Coconut Improvement and Replanting Schemes which encourage individuals to cut down scrub and low productivity coconut stands to replace them with more coconuts at a time when coconut prices are low, static or falling, and the price of the imported foodstuffs bought with the copra income is rising steadily. These men indicated their intention of planting more pandanus instead of coconuts in a move to augment their food supplies and reduce their dependence on imported foods. To date none had in fact done this.

Clearing Lands

The attention given to tending lands is very varied. However, it should be stressed that in an agricultural system predominantly based on perennial tree crops, the level of labour input required to maintain the system is very low. Individuals who kept their lands relatively free of mao (Scaevola sericea) and similar shrubs which form dense impenetrable masses were recognised as being industrious while those who let them spread to the point where fallen coconuts could not be readily collected were ridiculed for their laziness. Little attempt was made to control mao growth or plant coconuts on the exposed stoney windswept margins of the island to the northern and southeastern ends of the island. Towards the centre of the island, in the tetabo lands where dense palm growth suppressed the undergrowth, little shrub clearing was needed and self-sown coconuts abounded. Fire was used in the past to clear scrub but this practice is now abandoned. Scrub is felled and left to lie or is windrowed with other rubbish and allowed to rot. No attempt is made to remove and replace senile palms. In short, very little effort is necessary to maintain a vegetation pattern which has evolved over several hundred years of occupation.

Planting

In the past planting of coconuts was done simply by digging a hole about 50 cm in depth and diameter and placing a sprouted nut in it. Most landholders have been impressed by the demonstration of better planting techniques which was part of the 1966 Coconut Campaign and where holes were dug to the water table, then filled with humus, planted and later backfilled. However, emulation of these methods has, to date, been restricted largely to sandy areas where the effort of digging is less onerous. In some areas this has even been done for underplanting, indicating the islanders' unwillingness to remove productive trees. Little attempt has been made to plant many of the bare gravel areas with the new technique and this can be attributed in part to the difficulty of digging in these areas but also to feelings of uncertainty about the future of copra production.

Fruiting pandanus are occasionally planted nowadays, usually from side shoot cuttings. Many different varieties are recognised, some said to have come from other islands, and each having supposedly distinctive characteristics making it attractive for particular uses: eating fresh, cooking, preserving and in handicraft manufacture. Remnants of former plantings in rows which are said to have been made after the severe drought in the mid-1930s are still evident, pointing to the greater importance of pandanus in the past. Even dense stands of the seedling riki ni beti pandanus, which are alleged not to bear fruit on Tamana, are purposely left to grow tall and straight to provide housebuilding materials.

Breadfruit is the other important tree crop on Tamana which is consciously planted. The trees are grown only in the village area and are regularly mulched with yard sweepings, old thatch and other humus. They seem to be a particularly marginal crop on Tamana and frequently show signs of moisture stress. Three varieties are present, the mai tarika and mai keang being grown from seed while the mai uea being seedless is propagated from root cuttings. Young plants are planted in deep pits filled with compost and sheltered by matting screens. Despite this care the success rate is low, young trees are relatively uncommon (particularly of the mai uea variety) and many of the established mai uea are obviously post-mature. Storm damage or drought could see the end of many of these trees and the loss of a significant food resource. Pawpaws and te non are also planted in the village area because of their use as food and in medicinal preparations. Decorative shrubs, such as frangipani, lantana and bougainvillea are also planted around the houses for beautification and as a source of flowers for garlands.

Tree Crops in Subsistence

Coconuts

It seems rather trite to comment on the versatility of the coconut palm, but the fact remains that of all the atoll plants it does have the widest range of uses and it is very difficult to imagine how human occupation of these restricted environments could have succeeded

without the coconut. The main varieties distinguished on Tamana are te bunia and te ni, te bunia being the variety with an edible mesocarp. Nuts are eaten at various stages of development. At the moimoto stage the flesh of the kernel is jelly-like and just beginning to harden. The scraped flesh is fed to infants and the water is prized by all for drinking. The moimoto provides a much appreciated drink and snack for workers in the bush. However, custom now as in pre-contact society, frowns on people using moimoto for general consumption. Once the flesh hardens and the husk turns yellow the nut is known as amakai. The water is acid and no longer considered palatable; the flesh can be grated and used in much the same way as mature nuts. It is also scraped and boiled to produce a porridge-like dish called tubwere. The nuts have to be picked from the tree. Ben is the fully matured, fallen nut. It is cut into slivers and eaten with fish, grated and used in many dishes requiring grated coconut and is the source of ranniben (coconut cream) and coconut oil. The water of the ben is not palatable but may be saved and fed to pigs. Ben nuts are fed to pigs and chickens. Now the major use of these nuts is of course copra. Where nuts fall and lie for some time the embryo begins to develop and the sprout appears. The embryo te bebe is eaten and particularly prized as infants' food. The immature husks of te bunia are sometimes eaten, either raw or roasted, again often by children. Most of these uses differ little from what we know of the use of coconut in pre-contact society. Grated coconut is now also mixed with flour and toddy to make a thin gruel called te biti or "man of Fiji"; a recipe presumably brought back by labourers returning from plantation or mine work there. The uses of other products of the coconut palm are myriad, particularly for artifacts which are rapidly constructed for on-the-spot needs. Green fronds are split and woven to provide quickly made baskets and trays; a yoke can quickly be fashioned from a green midrib for carrying loads. For the houses, fronds are woven into blinds, rough mats and inferior quality thatch for canoe sheds, cookhouses and the like. Dead fronds provide flares for night fishing and the midribs are used in the floors and walls of houses, cupboards, tables, trays, drying racks, and the batons onto which thatch is sewn. The thin outer film of the leaflets is boiled in rainwater and used in making grass skirts, fine hats, fans and mats. Leaves are also used as caulking between the planks in canoes and the main vein of the leaflet is used to

fix pandanus thatch to the batons and also as the light framework in many handicrafts. Immature leaves are used in making garlands and feast decorations. Husks provide fibre for sennit as well as firewood and charcoal. The shell is used to make toddy collecting containers, cups and burnt for charcoal. The ing or gauzy material between the frond base and the trunk is used as a strainer and in squeezing the ranniben from grated coconut. During the war when store goods were scarce the ing was said to have been sewn together to make mosquito nets. The trunks are used in house and pig pen construction, both in the round and adzed into planks. The resistance of the timber to termite attack is supposedly improved by soaking the timber in sea water for one month after felling. At the time the missionaries arrived on the island, the planked canoes were made of coconut timber. The flower spathe is of course the source of the all-important toddy. The hard outer part of the spathe is valued as firewood.

Nut Use Quantified

Table 9-7 attempts to quantify the subsistence use of nuts by sample households. The estimates are based on the mean of nuts used in the seven survey weeks scaled up to figures for a full year. Nuts for food are obviously pre-eminent. Comparison between households shows that the nuts eaten per consumption unit vary considerably, ranging from 131 nuts (0.36 nuts per c.u. per day) to 558 nuts (1.5 nuts per day) and a mean for all households of 287 nuts per c.u. per year (0.77 per day). This is considerably below the often quoted, officially accepted estimate of more than four nuts per day (Catala 1957: 43) and is in keeping with figures of 0.9 nuts per capita per day on Nanumea (Chambers 1975: 126) and 0.8 on Butaritari (Sewell 1976: 113). There is no immediately obvious explanation of the differences between households in nut consumption per consumption unit. Because the figures are calculated on a per consumption unit basis, they cannot be attributed to differences in household age structure. Nor do these differences correlate with land or palm resources or with household cash income levels. Households less dependent on wages remittances and which operate mainly in the local cash-earning context (who do usually have lower total

Table 9-7. Estimated Yearly Production and Subsistence Utilisation of Coconuts by Sample Households on Tamana 1972-3

Household	Mean CU per household over study period	Estimated annual nut use					Estimated annual nut production	
		Consumed food	Per CU consumption	Fed to live-stock	Given presta-tion	Total	Annual nut production based on 13 nuts per tree per year ^e	Annual nut production based on 23.1 nuts per tree per year ^f
Meri	8.78	3,038	346	221	89	3,348	871	1,548
Kamantoa	4.35	2,429	558	234	89	2,752	4,147	7,369
Enoka	9.54	2,459	258	221	22	2,702	4,238	7,531
Tembeti ^b	4.76	2,267	476	286	147	2,600	3,523	6,260
Tokintekai	4.23	1,389	328	234	126	1,749	3,770	6,699
Aam	5.21	1,122	215	286	193	1,601	2,561	4,551
Kaiea	5.86	1,174	196	260	111	1,545	2,197	3,904
Temakai	4.49	1,233	208	156	37	1,426	2,600	4,620
Maera ^c	3.90	607	156	624	87	1,318	3,289	5,844
Kaiaba ^d	5.60	1,014	181	286	-	1,300	4,602	8,177
Tebebita	2.80	839	300	338	119	1,296	2,795	4,967
Komeri	3.60	995	276	208	74	1,277	5,811	10,326
Katirongo	5.27	691	131	182	230	1,103	1,547	2,749
Barawe ^a	3.30	763	231	182	130	1,075	5,863	10,418
Bakanoka	1.88	394	210	130	-	524	689	1,224
Total	64.07	18,793.00	3,733.00	2,938.00	1,367.00	22,998.00	48,503.00	86,187.00
Mean	4.93	1,445.62	287.15	226.00	105.15	1,769.08	3,233.53	5,745.80
SD	2.17	823.79	118.52	57.29	64.83	824.52	1,573.65	2,796.24

Projected production and population

Household	Projected potential production assuming Agriculture Department's recommended density of 215 palms per ha and 23.1 nuts per tree per year ^g	Projected additional consumer units supported by present surplus at present levels of consumption assuming 23.1 nuts per tree per year and no copra production	Projected additional consumer units supported by potential surplus at present levels of consumption assuming 23.1 nuts per tree per year and no copra production
Meri	4,003	-4.72	1.71
Kamantoa	35,474	7.30	51.72
Enoka	21,050	17.05	64.78
Tembeti ^b	28,572	6.70	47.55
Tokintekai	35,819	11.97	82.40
Aam	23,051	9.60	69.80
Kaiea	22,637	4.49	80.00
Temaki	20,290	8.95	59.40
Maera ^c	28,503	13.39	80.44
Kaiaba ^d	36,164	29.62	150.19
Tebebita	35,198	7.93	73.24
Komeri	46,171	25.51	126.56
Katirongo	4,486	5.27	10.83
Barawe ^a	54,177	28.60	163.01
Bakanoka	5,176	2.51	16.69
Total	400,771.00	131.16	847.70
Mean	26,718.07	10.09	65.21
SD	14,729.73	9.08	44.53

Source: Fieldwork 1972-74. Yearly estimates calculated from mean survey weeks. Most figures based on the mean of 7 weeks.

^a Figures based on the mean of 6 weeks' data and included in totals using these data.

^b Figures based on the mean of 5 weeks' data and included in totals using these data.

^c Figures based on the mean of 3 weeks' data and excluded from totals using these data.

^d Figures based on the mean of 2 weeks' data and excluded from totals using these data.

^e Estimates arrived at from total number of bearing palms on bushlands (see Table 7-3) by household and Smith-Rewse's figure of 13 nuts per palm per year based on 1 year's observation of over 600 full-bearing palms on the government land on Funafuti in 1913 (see Smith-Rewse, Annual Report for the Ellice Islands for the Year 1912, in MPI442/1914).

^f Based on Catala's estimate of palm productivity on Tarawa which derives from the 1947 census of population and tree numbers and assumed consumption of nuts by people and livestock plus the amount of copra exported (see Catala, 1957:43). This is not a reliable estimate based on productivity of actual trees and compared with the figures above assumed consumption of 4 nuts per day is too high. Catala's study of 138 palms at Bikenikeu from 21 March to 6 August 1951 suggests a production of between 30 and 40 nuts per palm per year. Thus estimates differ substantially, copra production levels in 1973 suggest productivity in excess of 23 nuts per palm per year.

^g Based on area of bushland only (see Table 7-3).

income levels) use more coconuts in subsistence (see Table 10-4), but there is no consistent relationship which might suggest that as cash incomes rise there is an increasing tendency to substitute store-bought foods for coconuts. In fact the household with the highest mean annual per capita income (Kamantoa's) also had by far the highest per consumption unit subsistence use of coconuts.

The Adequacy of Household Palm Resources

By combining the household nut use data with the palm ownership data presented in Table 7-3 it was hoped to be able to make some tentative comments as to the present and likely future adequacy of household palm resources. Two areas of difficulty cloud this aim. Firstly, coconuts are not only used in subsistence; they can be made into copra and exchanged for cash or they can be exchanged directly for goods at one of the many small mronron. The willingness of the individual to do any of these three possibilities will depend on many factors; the total resource available, the price paid for copra, or the exchange rate of coconuts for goods, the householder's access to alternative sources of money and the utility of the money earned from copra-making. None of these factors is likely to remain constant over time, and neither is the importance of one element vis-à-vis another likely to remain constant. The picture is further complicated by the fact that most households' cash incomes are substantially augmented by remittances and gifts from outside and most of which are spent on foodstuffs, particularly rice and flour which appear on the average in slightly less than 15 percent of household meals. Thus any change in incoming remittance levels could effect the household's need or otherwise to use coconuts for subsistence. In this way it is impossible to consider subsistence use of coconuts separately from other uses. The second difficulty arises from the fact that reliable data for palm productivity in the Gilbert Islands is simply not to be had and so it is impossible to derive direct estimates of potential coconut production from the palm counts. To be of any real use this data would have to be collected over a long period to ensure adequate coverage of fluctuating environmental conditions. Only two estimates of palm productivity are available and neither of these are really satisfactory. The first comes from a study made by Smith Rewse in 1913 of 600 full bearing palms on government land

at Funafuti which gave a figure of 13 nuts per tree per year (MD1442 Annual Report for the Ellice Islands for the Year 1912). Whether this represents a drought year or not cannot be established, or how Funafuti's rainfall in that year compared with that of Tamana. The other estimate is even less satisfactory and is derived by Catala (1957: 43) for Tarawa Atoll based on human and pig numbers from the 1947 census, certain inadequately founded assumptions as to human and livestock consumption of coconuts,¹ the number of nuts per ton and the tonnage of copra exported for 1949-50, and assumed palm densities of 231 palms per hectare over 80 percent of the land area of the island. These figures led him to conclude that the average annual production per palm was approximately 23.1 nuts. Catala's record of nut production from 138 trees at Bikenibeu between 21 March and 6 August 1951 (Catala 1957: 40) suggests nut production of 30-40 nuts per tree per year although Catala himself drew no conclusions from the data presented. Given the problems outlined above neither estimate can be regarded as having general applicability and are used here only to give rough estimates of possible production levels; there is no basis for suggesting that they should be regarded as upper and lower levels.

Considering first subsistence consumption only, and accepting the level of subsidy from cash expenditure on store foods, Table 9-7 shows that at 13 nuts per tree per year only one household (Nei Meri's) had a level of subsistence nut use higher than the estimated production of her trees. All other households could sustain present levels of subsistence nut use at this level of palm productivity. If palm productivity were reduced by drought to half this level only six households would have sufficient palm resources to meet their subsistence needs. Column 11 of Table 9-7 shows that if all production at a level of 13 nuts per tree per year were diverted to subsistence use the mean household could support an additional 10 consumption units or slightly more than three times present numbers. Given that most households have as many palms yet to come into production as are at present bearing (Table 7-3) it would seem that palm resources are at least adequate for subsistence needs for some time in the future under normal conditions. However, since subsistence nut use represents only one area of total nut use (Table 10-4) this picture

¹He allowed 4 nuts per day for humans and 3 for pigs.

is somewhat misleading.

At levels of 13 nuts per tree per year nine of the sample households would appear to have insufficient nuts to meet their estimated nut needs and even at 23.1 nuts per tree per year few households would be able to sustain subsistence nut use and the high levels of copra production encouraged by the rise in copra prices in 1973. In fact the high levels of nut use for copra in the latter part of 1973, a time of good rainfall, high nut production and rising prices, were only sustained by using surplus nuts accumulated during the period of low copra prices and by prematurely picking nuts from the trees. This last observation suggests that nut production under good conditions is probably higher than Smith Rewse estimate of 13 nuts per tree per year, but may not be as high as 23.1. It also suggests that present palm resources are, for many households, insufficient to support greatly expanded use of nuts for subsistence and copra-making. Because most prepared foods currently made using rice and flour also use coconut it is not a simple case of substituting one use of coconut for the other. If the loss of remittance incomes were to place increased dependence on coconuts as a source of cash income it is clear that a substantial programme of palm planting is needed. Column 10 of Table 9-7 shows there is considerable scope for this by increasing palm densities to levels approaching that recommended by the Agriculture Department.

The data on Nei Meri's household contained in Table 9-7 warrants special comment. Hers is the only household surveyed which used many more coconuts than the estimated production of the lands claimed to be in use. Her strategies for survival were varied. She used her sister's husband's lands while he was in hospital; she bubutied nuts from neighbouring households when large numbers of nuts were needed for feasts and to get nuts for copra-making she made and sold candies for nuts. The candies were made from boiled down sugar and toddy. The fact that she could operate successfully despite severely limited resources illustrates one of the basic tenets of the Tamana value system: that no one born on Tamana and living there should be denied a living there.

Toddy Production

Toddy or te karewe, the sap of the unopened flower spathe, is the other main food product of the coconut, and provides the other part of tore, the customary eating and drinking. Toddy is fundamental in the diet of Tamana people and always has been. In the severe prolonged droughts of the past when coconut inflorescences failed to set fruit, the population subsisted on a diet of fish and toddy.

The first part of the process of toddy production is the searching out of suitable trees and gaining permission to use them if they are not on land belonging to the toddy cutter or his family. The aim is to select trees which are growing well, young and do not involve more climbing than necessary. Many of the traditions of toddy cutting in pre-contact society described in Chapter 4 are still part of individual utus' toddy cutting lore. The spathes chosen approach the full length of development but before splitting has begun. It is first bound with sennit to prevent it opening, the base is freed somewhat to allow the spathe to be pulled down to a horizontal position and the final 10-20 cm of the spathe removed to expose the ends of flower branches. Other spathes and fruiting branches are sometimes removed. Up to three spathes on the one tree might be tapped for toddy, but this is unusual. After two or three days the end of the inflorescence is cut and this may be done several times a day until the sap flows freely. Once this has happened a coconut leaflet is attached to deflect the sap into a suspended coconut vessel (ibu) and toddy production begins. Thereafter the spathe is cut morning and night. Toddy must be cut regularly in order to keep the sap flowing. If the owner is sick or unable to attend to his trees he bubutis labour (kabeabea) from a relative or friend to cut his trees. However, it is normal for particular trees to remain the responsibility of individuals within the household and thus evidence of their prowess or otherwise at toddy cutting. The amount of toddy produced each 12-hour period depends on the quality of the tree, growing conditions and the skill of the toddy cutter in binding the spathe and shaving the end of the inflorescence. Toddy production is supposed to reach a yearly peak when the constellation Na Kumete is at its zenith when the sun sets. The length of time over which a spathe produces toddy depends again on the quality of individual trees and very much on the skill of the operator. A skilled toddy cutter cuts only a



Fig 9-5 Youth with ibu for toddy



Fig 9-6 Cutting the bound spathe

very thin slice across the inflorescence each time he cuts toddy, cutting only enough to remove the healing surface and renew the sap flow. To cut more increases the rate at which the spathe is shortened and reduces the toddy bearing life of the spathe. Most spathes seem to last about two months, although some were said to last for three months or more, by which time a new inflorescence may have appeared or a new toddy tree has to be sought.

Over the survey period the mean household had 11 spathes in production; the range was from 3 to 19. Boys start learning to cut toddy about the age of 10 when they follow their fathers around their trees; by the age of 12 they are usually cutting trees of their own. A man will continue to cut toddy until 50 or more if he has no sons or sons-in-law to take over. Relatives often cut extra spathes for households without active males. Three women cut toddy on Tamana during the fieldwork period. Two were of somewhat dubious sex and were derided for their toddy cutting activities. The third was a divorced woman with no active males in her household and who had quarrelled with her relatives. Because she was providing for her children she was not censured in the same way.

There seems to be little overall relationship between the size of the household or the size of the workforce and the number of spathes cut. Nor does there appear to be much relationship between the time spent in toddy cutting and the number of spathes cut. Very few individuals cut less than four spathes; most cut between eight and ten and in most households all males between 12 and 50 cut toddy. Both of these factors point to the importance of social rather than strictly economic factors influencing toddy production. The number of toddy spathes cut varied greatly over time and while there was little overall relationship between household size and the number of spathes cut, individual households would increase production if household size expanded. If a young man in the household was soon to be married production increased (usually only his production) so that he could fulfil his obligations to present the required nikira karewe, a daily gift of toddy presented to his wife's kin for three months after the marriage in recompense for the loss of her services.

One of the most important aspects of toddy production is that any surplus produced can be processed and stored. It is boiled down to make kamaimai or toddy molasses which is used as a sweetener and flavouring

agent in drinks and cooking. Surplus fresh toddy is brought to the boil each day to prevent fermentation (after such treatment it becomes katete) and when sufficient has been accumulated it is boiled slowly over a long period to make kamaimai. To most households the handling of small quantities of toddy in this way is unnecessarily time consuming. To them it is more worthwhile to handle larger quantities at irregular intervals. However, this does not result in a strategy to produce large surpluses at any one point in time, but instead several households aggregate into an aiai group which pools resources. Each member of an aiai group cuts one or two shells extra each day and pledges them to the group. The daily total is then given to each member in turn and thus a household gets a large volume of toddy for making kamaimai each time his turn comes around. Aiai groups comprise between 12 and 18 members. Individuals may belong to several different groups or activate more than one share in the one group. Eight of the sample households belonged to aiai groups. Those not belonging either had a large toddy cutting workforce and continually produced worthwhile surplus or were large households with relatively few toddy cutters and where all production was consumed as fresh toddy by the household.

If toddy is left in the shells or the shells are not properly cleaned it soon ferments and becomes kamanging. Kamanging is used as a leavening agent in bread, pancakes and doughnuts and is drunk as an intoxicating liquor. Generally this is frowned upon; several of the young males of the sample households got drunk during the survey period. Two were severely thrashed by their fathers. Only one adult was known to be an habitual kamanging drinker and was gaoled twice during fieldwork. He had no dependents and when not in gaol lived with his brother and his wife.

Pandanus

Pandanus is important in two main areas: the fruit as a source of food and the leaves and stems for raw materials in building and handicraft production. The differing uses are closely tied to aspects of pandanus botany already discussed on p. 93. Fruit are obtained only from stock propagated vegetatively and consciously selected and planted, while building and handicraft materials are more likely to come from the riki ni beti pandanus growing wild in the scrubland from the seed of fallen fruit. The

latter often produce taller straighter trunks better suited to house construction and the leaves are supposed to be superior for mat making, being whiter and more flexible.

While pandanus may have been an important food source in pre-contact times, it is now not a regular part of the diet and its greatest importance may lie in the fact that it has a high vitamin C content (Catala 1957: 58). The fruit is eaten raw, most often by children or adults working in the bush, the fleshy basal part of the drupe being chewed and the resulting pulpy juice sucked from the fibres. A dish called kiriwaka is also made by thinly slicing the basal part of the drupe across the fibres and mixing the sliced fruit with coconut cream. Kabubu and tuae (see p.93), so important as a food stored against drought in pre-contact society, are still made, stored and occasionally eaten, the latter after being soaked in coconut cream when it becomes known as te beo, important as a feast food at weddings.

Pandanus timber is prepared in the bush. The tree is felled and the branches and the corky bark-like covering of the stem removed. Most of the housebuilding initiated during fieldwork was renovation in preparation for weddings. Dead pandanus leaves for thatch are collected from the ground by women, usually working in airiri groups. The magnitude of this collection is mind-boggling. A group of 12 women representing 12 households would collect 17,280 leaves each round of 12 working days. Since most households belong to airiri groups and collecting leaves for thatch seems to go on most of the year, the total figure must be enormous. After collection the leaves are soaked in a pit for one month then taken out and allowed to dry. The leaves are then flattened and cleaned by pulling the leaf back and forth around a vertical stake after which they are wound into large flat rolls for storage until they are sewn onto batons for thatch. By operating membership of three airiri groups (a bobanikaina group for the collecting of the leaves, tororau for the cleaning and rolling of the leaves and waerau for the sewing of the leaves onto batons) a household is able to accumulate thatch over a long period by a small but continuous effort. Houses are rethatched about every seven years.

Dead leaves are also used in making te roba, the large coarse mats put down first on floors or sleeping platforms. The leaves are prepared much as for thatch and woven in double thickness with the spiny edges of the leaves turned inwards. Rauara is the smooth side of the pandanus leaf

which, when dead and dry, is stripped off and used as cigarette papers. Dead leaves can be collected from any land without the owner's permission. Certain trees are recognised as producing better cigarette papers than others.

Fine handicrafts are made from green pandanus leaves. The leaves are cut and steeped in boiling water for a few minutes then laid out in the sun to dry. The centre rib and the spiny edges are removed and the leaf is wound into a tight roll and pounded on a coral block with a heavy rounded mallet. The leaves are usually stored in this condition. Next, the leaf is shredded by drawing it over a series of small metal blades set in a wooden handle. The width of the strips is determined by the type of mat or handicraft being made. Coarser strips are used for sitting mats; sleeping mats are finer and more thoroughly beaten to make the mat softer and more flexible. Patterns are achieved by using dead leaves or by dyeing white leaves by soaking them in salt water and burying them with burnt and rusty tins. Imported chemical dyes are also used now, but most commonly for commercial handicrafts. Some women are recognised as having particular weaving skills, particularly knowledge of complex and difficult patterns. Mat- and basket-making goes on intermittently all year, but becomes an all-day activity when the wedding of a kinswoman or neighbour approaches. Most village women's clubs organise mat-making days each week or month when members bring their prepared materials and enjoy an afternoon of socialising and weaving.

Breadfruit, Bero and Pawpaws

Breadfruit is probably more important in the Tamana diet than either pandanus or babai. On the southern islands it is very difficult to establish whether production is seasonal or continuous. Because the fruit is eaten in an immature state picking can proceed over a long period and the rate may exceed the rate of development of the fruit thus giving apparent fluctuations in production. Breadfruit were eaten during the whole period covered by fieldwork (December to May) and this conflicts with Catala's statement that the season lasts from May to July (Catala 1957: 61). Production is obviously adversely affected by drought conditions. Most households have access to at least one tree. The fruit

is usually dry roasted over coals, baked in an oven or boiled and eaten without further preparation although cooked fruit is sometimes covered with ranniben or pounded and mixed with ranniben to form the soupy tubu ni mai (tubu meaning "soup" which may suggest that such preparations are non-traditional post-contact introductions).

Te Bero (Ficus tinctoria) forms quite a frequent part of the Tamana diet. The small berry-like fruit is usually collected by women and children from bushes around the house site, although longer expeditions to particular lands in the bush are also organised. Subjective impressions suggest that te bero was more important as a food source when copra prices were low and people had less money to buy rice and flour. Data is inadequate to test this. Te bero fruits can be dried and stored. The fresh fruit is usually mixed and drunk with toddy (katokabero) but also mixed with toddy and grated coconut in various puddings.

Pawpaws (mwemweara) are grown around house sites and have also established themselves from seed in the lower damp places towards the centre of the island. Their fruit is not greatly valued and is occasionally eaten in an unripe state boiled with ranniben as tubu ni mwemweara. Boiled ripe fruit is fed to babies and is one of the few soft easily digested foods available. Male flowers (designated female by the I-Kiribati) are valued for garlands.

Very few other plants are grown for specific purposes. Te non (Morinda citrifolia) is grown near houses for medicinal purposes. Taro is grown occasionally in babai pits but rarely eaten. Bananas have been planted and grow very poorly in old babai pits. Pumpkins have been grown by a few households but the fruit is not prized and is usually given to visitors to the island or the more sophisticated, and probably more hungry, members of the government station.

Babai in Subsistence

The real importance of babai in the subsistence economy of Tamana is difficult to establish. With the exception of a few taro plants stuck in around the margins of a babai pit, it is the only crop grown in any



Fig 9-7 Harvesting Katutu babai

Fig 9-8 Babai planted in niba cut through hardpan



numbers and cultivated in the sense of being planted out in a specially prepared site and carefully tended throughout its life. But even here comparison with other crops and other agricultural systems should be made with care. The crop does not have a distinct growing cycle and plants established at the same time neither grow, mature nor require harvesting at about the same times. It may take a plant two years to reach a useable size and individual plants can be left to grow for several years without deterioration as long as composting and mulching is maintained. In the past prestige accrued to the growing of rootstocks of enormous size for presentation at weddings and other celebrations. Now babai levies are raised in terms of so many bowls of grated babai rather than specially grown rootstocks of ikaraoi babai and the reasons for this may stem in part from a decline in the cultivation of specially cultivated plants, and being grated, there can be no comment or shame as to the size or type of babai presented; the other factor could be to avoid, for the "owners" of the feast, the laborious and disliked task of grating large amounts of babai in readiness for the feast's babai pudding.

Although babai is by no means a staple food and does not appear in the diets of most households it is very important in the minds of the people. It is spoken of as a preferred food by most and its indigestibility is cited as a virtue because, as one informant put it, "it sits in your stomach all day and makes you feel as if you have eaten something. If you eat rice you feel full, then in an hour it is gone and you feel hungry again". Its greatest importance probably lies in its role in social relations. It is an important part of most kin and village feasts. Important occasions must be honoured with babai and without babai one cannot take part. This finds expression in the following way. The nature of the feast is determined by the event being celebrated; the "owner" of the feast then directs the participants to provide certain foods and goods. If it is an important feast it is sure to include a bora ni banaba mainiku, literally an "Ocean Island-sized"¹ basin from the east". A lesser feast might call for a bora ni banaba maeo or

¹Basin and mug sizes are distinguished by the adjectives banaba (i.e. coming from Ocean Island) and amerika (coming from America or more probably brought by the Americans during World War II). Bora ni amerika are understandably bigger than bora ni banaba and have about 2 litre capacity. Bora ni banaba is a 1 litre basin.

bora ni banaba inaomata, a "basin from the west" or a "free basin". The symbolism of east and west is clear-cut on Tamana. The east is seen as the source of refuge of tradition hence the "basin from the east" demands traditional foods and babai in particular. If one cannot provide this one cannot participate and fulfil one's social obligations. A "free or western basin" leaves the choice to the bringer's discretion. It could be babai, but is more commonly rice or other imported starches.

The data presented in Table 8-5 suggests that the importance given to babai cultivation varies greatly between households with some potential resources going unused, either because of lack of interest or conditions in the pit becoming unsuitable for babai cultivation. Only five new pits and 84 new niba have been dug during the active life of present household members and informants claim that it is about 20 years since the last large pit was excavated. Several new niba were dug during fieldwork with the neat regular holes being cut through the soft, freshly exposed hardpan with picks, mattocks and crowbars. The emphasis now on babai cultivation is one of using existing resources rather than expansion and it would seem that this is a declining emphasis as well. The time allocation data (see p.277) suggests that babai tending is largely the preserve of older household members. Whether this can be taken as further evidence of a lack of interest in babai by younger household members is open to question. Younger members may not yet have been introduced to the considerable lore that surrounds babai cultivation and it is likely that households with older persons in them by virtue of their age structure are more likely to be involved with the life cycle ceremonies which demand the production of babai. Often the announcement of an approaching marriage saw both a flurry of housebuilding and repairing and a similar increase in the attention given to babai tending.

All katutu and ikaraoi babai varieties require humus-enriched soils and their roots need to be in direct contact with fresh water. Even small increases in salinity adversely affect babai growth. Increases in salinity lead to the abandoning of pits and natural variations in the salinity of the water lens under the island meant that some past landowners had no land suitable for babai pits and had to bubuti to dig pits on another person's lands. A rising water table in a pit can also be detrimental to young babai plants.

After construction the floor of a babai pit would usually be covered by 15-20 cm of standing water to which was added large quantities of compost. Over time, the material falling in from the sides of the pit, the compost added to feed the babai plants and other vegetable refuse breaks down to a soft oozy mud reaching almost to the water surface and in which the plants are grown.

The principal difference between ikaraoi and katutu babai varieties is in the manner of division and the methods needed to propagate them. Within both groups distinct varieties are recognised on the basis of leaf form and colour, presence or absence of spikes on the leaf stalk, rate of growth, taste and water requirements. Katutu varieties sucker spontaneously from the base of the parent rhizome and hence propagation is not difficult, and plants can be left for long periods to multiply without special attention. Propagation is simply a matter of replanting the side shoots when the rhizome is harvested. Ikaraoi varieties need much more attention. They do not sucker freely and side shoots may not develop for three or four years. Propagation is achieved by using the top part of the rhizome with the terminal bud and petiole bases. This is cut at harvesting and placed either in a drier part of the pit or perched on sticks until its own root system is developed. If placed straight in the water immediately after cutting it would most likely rot. Once established ikaraoi varieties would presumably grow to the same size as katutu plants without further attention. However, these varieties are treated with special care to get them to grow to a greater size. Their rhizomes, in the past at least, were needed to celebrate special occasions.

The techniques followed for the fertilizing and mulching of ikaraoi plants are many and varied and surrounded by lore which is the property of particular utus. About nine months after planting the terminal bud the newly propagated shoots are ready for planting out. These are planted in a hole dug in the pit mud and filled with dead leaves of the uri tree. The newly planted shoot is then covered with finely sieved te bon, the black humus-rich soil which develops in damp low-lying areas. Care is taken to ensure that the junction between the leaf stalk and root system is above water level. The plant is then surrounded by a coiled length of plaited pandanus leaves which contain added soil. Once the plant is established and new shoots have appeared regular feeding begins. Again the pattern of feeding depends very much on the individual grower and

procedures differ with the age of the plant; much less green compost is added to plants only recently established. The composts used include the green leaves of kaura (Sida fallax), uri (Guettarda speciosa) and ren (Messerschmidia argentea). In some cases these are dried and crumbled before being used, in others shredded and allowed to wilt. Care is taken to prevent the heat generated by decomposition of this green compost from burning the plant roots. Several layers of different composts, green and dead and well rotted may be added as well as finely sieved black soil. The observed condition of the roots and the stage of development of the leaf stalk to some degree determines the practice followed. The care lavished on babai is thus extraordinary and underscores its importance as a ceremonial food rather than an everyday staple. The long and involved procedures followed may also contribute to the decline in interest in babai in some households. Catala (1957: 69) likens the process to growing plants in pots and concludes that babai grows in these conditions "only because it is rooted in an artificial and aerated medium"; perhaps a forerunner to hydroponics and a novel solution to plant cultivation in a difficult and limiting environment.

Babai is eaten roasted in an earth oven or boiled with coconut cream poured over it. If prepared in this way the larger ikaraoi rhizomes are used. Katutu rhizomes are usually used in prepared babai dishes such as te bekei and buatoro. These are puddings of grated babai or cooked mashed babai mixed with kamaimai flour or grated coconut and boiled or baked wrapped in leaves in an earth oven. Again, these dishes involve lengthy preparation and are not a food for everyday consumption. The principal importance of babai is not its place in everyday life but as a resource, the maintenance of which ensures that one's social responsibilities can be met and one's position in the community maintained. These needs are not readily predictable and because babai is so slow-growing cannot be met by a strategy of sporadic intensive activity but rather requires a small but continuous effort over a long period to ensure that any such calls for the activation of social commitments can be met. The effort involved in babai production and the important position it holds in social ceremonial life means that great shame is incurred if one has to bubuti for babai and that the crop production is unlikely to become commercialised, either for sale on Tamana or for export to the urban market on Tarawa.

Livestock

While all households kept pigs and chickens, they do not play an important part in everyday economic life. Chickens are husbanded in a haphazard fashion. They are a food item eaten only at major island feasts and weddings, and eggs are rarely eaten. Pigs are kept in pens behind the village and fed on coconut, scraps and several plants gathered from the bush. They are sometimes killed for family feasts celebrating the New Year and are also regular fare for wedding feasts. Surplus meat is salted and stored.

Cooperative Subsistence Production

The preferred manner of organisation of some subsistence tasks on Tamana involves the orchestrated cooperation of a considerable number of individuals from a similar number of households. Their organisation draws on traditional non-kin based groupings. They include airiri and aiai groups and the bubuti for labour, the kabeabea.

Airiri Groups

These illustrate the activation of some imported attitudes towards work on Tamana. Firstly, they are used to execute work that is tedious, unpleasant and time-consuming. It would take the women of any one household many weeks to amass the material produced during the operation of one cycle of an airiri group. It would involve their concentrated attention to the task in hand and the neglecting of other subsistence or social activities. Airiri involvement revolves around constant small commitments of time to some future goal rather than an immediate end. It stresses preference for and obvious enjoyment gained from working in a group and the benefits of this in reducing the tedium of the task at hand. This applies particularly to work relating to house repair and maintenance which requires the accumulation of large quantities of thatch or other building materials. This is a task that will confront all households sooner or later. By working with an airiri group sufficient materials will be accumulated by the time this need arises through the regular expenditure of small amounts of effort.



Fig 9-9 Airiri group returning from the bush

The airiri groups studied involved the cooperation of 18 to 20 households. The woman member undertakes to perform a specified task for other members of the group in turn. Tasks commonly organised on an airiri basis include the various stages of thatch-making, string making, the manufacture of coconut leaf shutters and the collecting of coconut midribs for walls. Each major activity has a group associated with it: a borau bobanikaina group for collecting and soaking pandanus leaves for thatch; a tororau group for cleaning, flattening and rolling the leaves into whorls for storage; the wairau group sews the thatch leaves onto batons; the tao kora group makes string, collects midribs and makes coconut leaf shutters. Membership is drawn from within the village boundaries. Not all households belong to all four groups. Forseeable needs and other responsibilities affect membership. The amount of work required of each member is specified. With the borau bobanikaina group each member is directed to bring 12 bundles each of 20 leaves to a soaking pit belonging to the member whose turn it is and the leaves are put in to soak. Thus, if the group has 20 members, each member will get 4,800 leaves once during the cycle. Membership of other groups ensure that these are processed for further use. Once the cycle is completed participants can elect to remain members and begin another cycle or drop out.

Behind all this work is the price in having a "living" house in good repair and a place of respect in the community because of it. It permits this goal to be achieved without having to engage in long lonely hours of intensive work at the expense of other social and productive activities. It also demonstrates that time is not allocated only to satisfy immediate ends and that social norms play an important part in the way time is allocated. Some airiri groups have recognised the potential for organising cash-earning activities in a similar manner.

Aiai Groups

Much the same reasoning as that behind airiri groups forms the basis of aiai groups. These are basically toddy-accumulating groups for the production of kamaimai. This process involves the boiling down of fresh toddy to form a syrup. If a household wished to create a surplus of size sufficient to make kamaimai production worthwhile, it would have to double its toddy-cutting effort and would then more than satisfy its

likely needs for kamaimai well before the productive life of the toddy spathes had ended. Instead producers form an aiai group and produce only slightly more than their daily consumption needs. Usually, each household donates one ibu of toddy to the group and the surplus is taken by one household in turn. This gives a household enough toddy to make kamaimai once every few weeks without a great increase in effort.

Kabeabea

'Women have airiri groups. Men have kabeabea.' The kabeabea is a temporary group formed to carry out a particular task communally. Most informants were adamant that it was not a kin-based group. Kin always work together and so no special name was needed for such a group. A kabeabea could involve a small request, like a haircut from a man known to be skilled at hair cutting, to much more complex, involved and time-consuming tasks, such as house-building or canoe building. The organizer of a kabeabea approaches potential labourers and requests their help on a particular day. Kin relations do not form the basis for recruiting but on the other hand affinal and consanguineal kin are not specifically excluded. Villages of residence and sometimes village of birth define the limits of potential kabeabea participants. No payment is made and the organizer is expected to reciprocate in a like matter at some future date. The organizer is expected to provide food, usually special store food, for the workers. The amount and quality are related to the task. The relationship must be reasonably standardized because individuals are able to estimate whether they have sufficient cash to purchase the food for a kabeabea. A canoe house built during fieldwork took 2 days to complete, including the necessary socializing and card playing, and the cost of food was \$25-30. Food for housebuilders is said to cost \$40.

These groups illustrate the strength and vitality the subsistence sector continues to enjoy on Tamana today. They also underline the important community values of working together, maintaining conformity and standards within the community and community participation. These characteristics are also evident in cash-earning activities such as mronron activities and also in the community's attempts to capitalise on the potential of the large urban market on Tarawa.

Chapter Ten

THE CASH SECTOR

Money and monetary transactions have long been part of Tamana life. In many ways the part they play in village life is a measure of the degree to which the village economy is incorporated into the "modern" market economy. This process of incorporation is the outcome of the penetration of capitalism into the area, and the extent to which specialisation in production for the market occurs is taken by such theorists as Fisk (1975: 53) to be a measure of "development". On Tamana the situation is not quite as simple as this. The penetration of capitalism has affected the lives of the people in two distinct but interacting areas. In the first instance it provided a market for some of the island's agricultural products¹ and introduced new commodities that could be purchased with the proceeds. In addition investment in mining and the growth of colonial administration created several employment nodes within the region which were capable of drawing migrants from the rural areas and generating a reverse flow of goods and remittances. In this way the penetration of capitalism has produced what Curtain (1981: 189,203) has termed dual dependence and the generation of a "straddled economy" where the household bridges the village economy and the urban/mining sector (in Curtain's New Guinea case, the plantation sector). The Tamana cash economy today bears the marks of the interplay between the village and the nodes. The fact that the two elements are so unequal in scale and in their capacity to provide income and access to desired goods and services, colours the islanders' expectations and influences their responses to opportunities available to them. The combined effects of the limitations of the atoll environment and the implications of the straddled economy have tended to downplay the overall importance of locally-based action and the role of commercial agriculture in development, giving rise to a situation of incomplete incorporation into the cash economy. This chapter seeks to describe the characteristics of the present cash economy on Tamana, to identify the major elements in household income, expenditure and consumption, the relationship between them, and to describe the household strategies involved. In the following chapter the issues of change and

¹The penetration of capitalism did not succeed in introducing any new crops of which the cultivation might have replaced traditional subsistence food crops.

development will be taken up.

The island's first experience of western capitalism began with the arrival of the whalers and involved the direct exchange of coconuts, pigs, chickens, kamaimai and women's favours for tobacco, hoop iron and metal tools. Whaling declined in importance after the 1850s and was replaced first by the coconut oil and later the copra trade. The establishment of resident traders may have greatly increased both the prospects for earning money and the range of goods that could be purchased with it. However, it is probable that the utility of money was limited by the paucity of store goods available and by the diversion of large amounts of money into church collections. From the traders' point of view, the limited land area, remoteness from the main centres of copra trading in the Group, high population densities and low, unreliable rainfall made Tamana a relatively unattractive trading proposition. For many years before World War II the island had no resident trader and was serviced only by visiting trading vessels. However, in the post-war era, government intervention in internal shipping, copra handling and merchandise distribution removed many of the previous disadvantages experienced by Tamana producers. They now enjoy the same prices for their produce, have as regular and frequent a shipping service and as good a range of store goods at the same prices as any other island in the Group outside the urban centre on Tarawa. In fact, the high quality of recent management of the Tamana Cooperative Society has meant the islanders enjoy a store with a wider range of goods and which experiences fewer shortages than stores on many other islands.

Despite these factors (which affect the cash-earning potential of Tamana in respect of other islands in Kiribati) the potential of commercial village agriculture on Tamana remains severely restricted by the peculiar nature of the atoll environment; particularly the low and unreliable rainfall, minute land areas, carbonate soils and limited range of commercial crops adapted to it. The problems are compounded by high population densities and competition for land and resources from subsistence needs. This results in exceedingly small volumes of commercial product and accentuates the already great transportation problems arising from the dispersed nature of this nation of islands and its remoteness from world markets. Thus the range of possibilities for production for the market is extremely limited and major alternatives to the present major crop, copra, are unlikely to be found. Market prospects for copra are not good. Prices to the producer have fluctuated markedly over recent years with a general downward trend over the long-term. This is the context in which commercial village agriculture must operate.

However, the commercialisation of agriculture is not the only area of capitalist penetration that has impinged on the economic life of Tamana. Foreign investment in plantations (Fanning and Washington Islands in what is now Kiribati and in the past in Samoa, Fiji, Queensland and New Hebrides) and mining (notably Fiji, Ocean Island and Nauru) has generated demands for labour in the region and created opportunities to earn money, acquire capital goods and travel; opportunities far in excess of those available in village life. In the early years of "blackbirding" this labour may have been forced but with the emergence of imperial control the system became regulated, contract-based and an integrated part of the village lifestyle. Absences were temporary; the worker left and returned after a few years with capital goods to augment village life, and while away he maintained ties with the community through the sending of remittances. Because the labour migration was contract-based and the migrant had no rights to permanent residence in the centre of employment, there was no possibility of his becoming a permanent member of an urban elite. The same cannot be said of migration to the urban centre on Tarawa. The growth of this node does not result from foreign investment in production, but rather reflects the consequences of a change in colonial administrative policy from one of "indirect rule" to one of more direct involvement of the government in the provision of services. In the case of Kiribati this reflects the government's success in pressuring the B.P.C. to pay higher royalties for phosphate and high phosphate prices on one hand and a change in colonial policy on the other which provided external aid to fund welfare and development programmes. The bureaucracy associated with the implementation of such policy generated employment opportunities and substantial migration to Tarawa. While this resulted in a reverse flow of remittances to the rural areas, it seems unlikely that a pattern of circular migration similar to that to the phosphate centres will develop. On most migrants' part is the expectation that the move is permanent; that it is the exchanging of one way of life for another.

The effects of this labour migration on performance in the village cash sector are likely to be felt in two areas. The remittances received will affect the islanders' needs for cash and the options chosen to satisfy them. In the longer-term the prospect of urban employment increases the range of life choices available to the islander. The future is not simply one of whether or not to intensify effort in commercial agriculture

to satisfy ever-rising expectations and needs for cash. It may provide him with the possibility of leaving rural life altogether, exchanging what he sees as the drudgery, uncertainty and deprivation of rural existence for the perceived security of wage labour and the benefits of urban life. This uncertainty about the future quite probably explains the present general lack of interest in improving the island's coconut resource base unless given added immediate cash incentives through replanting schemes, and also the interest in schooling as a means of access to employment.

The cash economy on Tamana is thus a binary economy like Curtain's straddled economy and composed of two quite distinct elements. The first involves the locally-generated incomes from copra, handicrafts and other goods where prices and other external influences impinge on household response. The second element is external and largely beyond the individual's control. It revolves around remittance incomes and, to a lesser extent, wage employment on the island. Access to remittances depends largely on whether a householder has relatives in employment off the island and their willingness or ability to remit money regularly or respond to requests for assistance. Opportunities for wage employment on the island are exceedingly limited and also largely beyond the individual's control. It has been government policy not to station personnel on their home islands and the policy of the Island Council and Cooperative Society is to spread the limited opportunities for wage employment as widely as possible. Changes in personnel are thus frequent and this means that few individuals can look forward to a life of wage labour on the island. The significance of these two elements in the economic strategies of the sample households on Tamana will be analysed and developed in more detail below.

The last century has thus seen a steady rise in both the use and usefulness of money on Tamana. The aim of this chapter is to assess the nature and extent of involvement in the cash economy. This will involve consideration of the islanders' attitudes towards cash and cash-earning, both on-island and off-island; the way production is organised and its relation to consumption and investment; and finally, the scope for and impediments to expanding commercial activities on the island. From this it should be possible to assess the extent to which the village economy has become incorporated into the market economy, to place it in the context supplied by some of the models of economic change and development and to indicate possible directions of future change.

Present Attitudes Towards Cash and Cash-Earning

On Tamana at present money is the main means of exchange for obtaining store goods, paying taxes, receiving payment for sales of copra and handicrafts and receiving gifts from relatives in employment overseas. However, it is not yet a medium for exchange at the inter-household level. Indeed, the use of money in such transactions would be seen as an affront to current morality because any attempt to profit by the sale of surplus local produce would demonstrate that the important ideal of equality did not exist. Instead surpluses are given as gifts or in response to bubuti requests and reciprocation at some future time is expected. The potential for trade in local products is recognised but the fear of moral censure is evidently strong enough to stifle individual attempts to capitalise on it. This is left to corporate groups such as mronron or carried on infrequently through the relative anonymity of the Cooperative Society store. These factors, plus the restricted nature of local demand and the small size of the market help explain why cash-earning activities are focussed so heavily on the production and sale of a small range of goods.

Another factor of importance in understanding individual responses to cash-earning opportunities is the way in which money itself is perceived. Some people on Tamana¹ distinguish two distinct types of money; karinimane and kabirongorongo. The distinction reflects differences in prospects for earning particular quantities of money and the uses to which this money can be put. Kabirongorongo ("money that you spend") denotes small sums of money which can be raised at any time from sales of copra or handicrafts and are spent on everyday needs. Karinimane is "money that you keep" and refers to money in larger amounts which is banked or held in safe keeping. It is used for such larger and less frequent expenditures as payment of taxes or school fees and purchases of large quantities of food for family feasts or the feeding of helpers during house or canoe building. Karinimane has become associated with work off the island and the bringing back of a nest egg from which school fees or taxes can be paid if kabirongorongo is unavailable for the purpose.

¹Many more people recognised the terms but did not attribute any great importance to the distinction between different types of money; which could be taken to indicate that the distinctions were of little significance or that the people concerned operated entirely within a kabirongorongo context and had no prospects for earning karinimane.

Informants were unanimous that karinimane could not be raised on Tamana; one must work off the island to obtain it. This perception has a further dampening effect on cash-earning activities because it becomes a self-fulfilling prophecy; that sort of money cannot be raised on Tamana and so there is little attempt in trying. Any money raised on the island is kabirongorongo, the sort of money to be spent on everyday items rather than aggregated for the purchase of less readily obtained objects. Several mronron have attempted to encourage the accumulation of karinimane through the payment of mronron divisions into members' bank accounts which are publicly checked each week to ensure the money has not been withdrawn. Remittances do not necessarily constitute karinimane because in many instances they are used in everyday expenditure.

Karinimane thus has some attributes more akin to capital than cash, but it is never productive capital. It is simply money in the bank for future needs and does not have potential for investment and the expansion of future cash-earning and consumption. In the context of commercial agriculture the lack of interest in investment is not surprising. Land is held in individual title and cannot be readily bought and sold. The only important agricultural crop is a tree crop which takes as long as ten years to come into full production. Investment opportunities in agriculture are thus limited and unlikely to produce desired changes in income in the short-term anyway. However, attitudes towards karinimane as nest egg money are also carried over into other ventures. This is strikingly illustrated in the case of a skilled worker returning from many years employment on Nauru. He planned to set up a store on Tamana to sell imported "Irish Plumcake" tobacco. His prime motive for setting up the store was to ensure a steady flow of income to buy milk powder for his infant daughter. Although he had \$900 in his bank account none of this money was invested in the venture. Stock was purchased with income from the sale of mats on Nauru, made first by his wife and later by neighbours as well. A friend on Nauru acted as an agent and sent back the proceeds in tobacco. The money in the bank was strictly for his daughter's school fees and future tax payments.¹

¹ The venture did not prosper. Even though "Irish Plumcake" was a much desired commodity, most people thought the entrepreneur was going outside the custom by trying to better himself in this way (even though it was ostensibly only for his infant daughter's sake, and not for himself). The entrepreneur lived in constant fear of being a target for bubuti.

The attitudes towards money discussed here are particularly important in understanding the degree of involvement in the cash sector on Tamana. There is obviously some scope for redistribution of money through the Tamana economy by intra-village trade. While this is recognised by individuals, it is not capitalised on, presumably because it conflicts with the value system. Groups, rather than individuals, are outside this morality and can operate successfully. However, the level of activity in this and other sectors of the cash economy will be limited by the peoples' views of the utility of money. In a society like Tamana where the subsistence economy has retained its strength and vitality, money is seen as useful in two areas; in satisfying limited everyday needs, and as a form of insurance against future institutional demands. The needs for both of these are limited; people do not strive to increase the consumption of these goods and so the impetus to increase income is limited. The distinction between kabirongorongo and karinimane parallels the split between the local and external sectors of the binary economy. Kabirongorongo is largely the fruit of locally-generated production augmented by remittances and can satisfy everyday needs only. Karinimane is needed for major items of expenditure, particularly those associated with the acquisition of capital goods; the purchase of a bicycle or the large quantities of food needed to feed labouring guests during house construction. People are convinced that this sort of money cannot be earned on Tamana and must come from periods in employment off the island. This suggests that the islanders hold the view that the local resource base is incapable of being manipulated to produce access to even the most basic of desired consumer durables. This perception is in some respects realistic because the Cooperative Society store does not stock these sorts of goods anyway and thus does act as a stimulus to target production. The data presented later in this chapter suggest that the resources available on the island are in most instances adequate to substantially expand production levels in both copra and handicrafts. Thus the problem is one of incentive rather than resource constraints. It seems that accumulation of capital goods has simply come to be associated with work off the island. Because of this the Cooperative Society stocks items of everyday consumption rather than consumer durables and this then dampens incentive to produce more than satisfies immediate consumption needs. It is probable that the islanders see capital goods as being more easily accumulated off the island; the goods are readily available, and the employer provides ration allowances for everyday needs leaving wages

for capital accumulation and remittances. Work off the island is an acceptable means of accumulating wealth without incurring sanctions for breaking the ethos of equality and it is easier to evade or ignore bubuti requests coming by letter rather than face-to-face entreaties.

The expectation that the local economy is incapable of satisfying anything but everyday needs is intensified by the ever-widening gap between the goods and services that can be enjoyed in the urban centre in comparison with those in the rural areas. If local production is seen as being incapable of providing the wherewithal to buy bicycles, can it produce a motorbike? The level of outmigration seems to suggest that rural dwellers have little faith in village agriculture's ability to produce desired goods, and the economic strategies of individual households would tend to support this view. Whether the wider economy, so heavily dependent as it is on phosphate and external aid, has the ability to sustain the present levels of employment and provision of services, let alone provide jobs for all the would-be urban dwellers, is quite another question. Here the islanders' perceptions might be unrealistic, but the critical thing is that they effect decision-making in rural production and the decision to leave rural life altogether.

The Household Economy Quantified

Data Sources and Problems

The data presented in this chapter differ from many of the similar studies of small economies in several respects. Firstly, the fieldwork covered a longer time span which enabled some insight to be gained into responses to changing economic conditions, particularly copra price changes. Secondly, because Tamana is a small island it has only one store. A large proportion of its monetary transactions are channelled through that store, which keeps detailed records of its transactions with members. In addition much of the cash coming into the island as remittances and as wages for government employees has to pass through the island's Post Office Telegraphic Money Order system. Thus it was possible to obtain a second and more continuous set of income and expenditure data covering an even longer period of time. This provided some means of checking the validity of the survey-derived sample household data.

Data on cash income and expenditure thus came from two main sources: (1) the survey of income and expenditure of sample households over seven selected weeks, and (2) a composite picture of monthly incomes of household members over the period from February 1970 to January 1974 from the books of the Tamana Cooperative Society, the Post Office Telegraphic Money Order Journals, savings account passbooks and the cash books of various mronron.

The quality of the first data source depends not only on the representativeness of the households selected and the willingness of respondents to divulge accurate information, but also on the degree to which the seven surveyed weeks are representative of the households' activities through the year and how representative any one year is of the rest.¹ The data have the added problem that the mean is used which aggregates observations made over the period from February 1972 to December 1973; a period when important changes in cash-earning and expenditure were known to have occurred. The mean figures tend to mask such changes, leaving insufficient raw data to generalise meaningfully about behaviour under differing economic conditions. Because of these factors, and because cash-earning, the receipt of remittances, and to a lesser extent expenditure were infrequent and intermittent events with little surety that they would be picked up in any of the weeks surveyed, the survey data tends to be of more limited value.

On the other hand, the other records contained a wealth of data recorded on a day-to-day basis. The Tamana Cooperative Society books record details of a wide range of transactions. The Daily Copra Record records daily sales of Grade I and II copra by membership number. Time permitted the scanning of Grade I registers only, but since this accounts for between 96 and 98 percent of all copra sales the picture gained must be reasonably complete. The Handicraft Journals record daily sales of handicrafts, saltfish, sharkfin, string and kamaimai by members to the Society in a similar manner while the Empty Sales Book records sales of members' goods through the store on a commission basis. The volume of sales recorded was neither large nor regular and included such items as

¹ This problem assumes greater significance on Tamana because cash-earning activities are relatively rare and infrequent events.

fresh fish, coconut oil, mats, bread, scones, doughnuts, needles, marbles, brassieres and grass skirts. The Society's books also contained records of payments to individuals by the Society for wages, committee members' honorariums, payments for casual labour in copra, handicraft and cargo handling and store and shed maintenance. The Daily Cargo Register which records the cash value of individual sales by membership number proved too daunting a task to process for expenditure data, and instead expenditure had to be reconstructed from the Interest and Bonus Paid Book which records the annual bonuses paid to members on copra and handicraft sales, goods, beer, liquor and film show ticket purchases. There are some discrepancies between annual totals for copra and handicraft sales derived from the daily registers and the Interest and Bonus Paid Book, and these could arise either from my or the Society's staffs' errors in abstracting data from the former. They are, however, usually not large (see Fig. 10-2). The value of this data depends firstly on knowing all membership numbers used by the households and secondly on the consistency with which members use their own numbers. It also assumes that these numbers are not used by people outside the household. As far as could be ascertained this was the case. It also depends on the assumption that goods are not sold through other outlets. For copra this is valid, although copra income will be underestimated by the value of coconuts used in lieu of cash for mronron purchases. In the case of handicrafts a few handicrafts were sold direct to Nauru but this was not usually done by individuals. For selling other goods there is a social stigma attached to selling "local" goods to "local" people and generally this is not done.

The Telegraphic Money Order Journals record details of the amounts, point of origin, destination, recipient and sender's name of incoming and outgoing remittances. Wages of government employees are also paid through by telemo.¹ Unfortunately, the data from this source are incomplete. The journals for the period June 1972 to July 1973 disappeared just prior to an enquiry into a government employee's activities. It is perhaps a small comfort to know that no remittances could have been received between the end of October 1972 and the end of January 1973 anyway because the island's radio transmitter was out of order.² The journals do not, of course, cover remittances posted or brought to the island as

¹Telemo: Telegraphic Money Order.

²No attempt is made to adjust remittance figures in Table 10-2 for these discrepancies.

cash; nor do they cover subsequent redistribution of remittances among kin. The data presented in Table 10-1 suggest that together these could be sizeable.

The mronron cash books give details of dividends paid out to members but provide no records of sales of goods to the public.

Some idea of the level of saving of surplus income or supplementing consumption with previously obtained income comes from the Tamana Cooperative Society Deposit Books which record deposits and withdrawals from members' savings accounts. Similar information was not available for accounts held with the Bank of New South Wales, the only commercial bank operating in the country, but all except three household members readily made their passbooks available. No estimate could be made of cash surpluses held in households or hidden in the bush.

Finally, if one works on the assumption that one cannot spend what one has not got, then the expenditure data from the Interest and Bonus Paid Book, known payments of taxes, school fees, dog licences and the like, plus the excess of savings over withdrawals during the period should provide a further check of the validity of other income estimates. In Table 10-1 this is labelled "Index Income" and must still be regarded as an underestimate because it does not include mronron expenditure. It will also underestimate the income of those households whose expenditure is less than income where the surplus is not placed in a savings account. Table 10-1 provides a comparison of estimates of mean annual income for 1971-73 from these various sources.

Comparison of the data presented in Table 10-1 suggests, as one might expect, that the survey data provides the least reliable estimate of income and expenditure, underestimating the income of most households while overestimating others and tending to underestimate the expenditure of most, again without any consistent pattern. The discrepancies presumably arise from the irregularity in occurrence of the activities being sampled. One might have expected store purchasing to have been more reliably reflected, being a more frequent event. However this is not the case. Estimates of income based on all recorded sources and expenditure (index income) suggest that most households had larger incomes than those recorded in the survey. Further, the index income figures suggest that a substantial amount of income derives from untraced sources, most probably from remittances during the period for which records were lost,

Table 10-1. Estimate of Annual Income and Expenditure for Sample Households from Different Sources.

Household	Estimated Mean Annual Income 1971-1973			Estimates of Mean Annual Expenditure 1971-1973		
	Estimated from mean weekly income of seven survey weeks	Calculated from all recorded sources	Index Income estimated from store expenditure tax and fee payments and savings	Store Expenditure		Mronron Expenditure
				Estimated from mean weekly expenditure for seven weeks survey	Based on interest and Bonus Paid figures from Co-op	Estimated from mean weekly expenditure for seven survey weeks
Maera	47.47 ^a	65.47	74.02 ^f	45.50 ^a	66.16	16.16 ^a
Tembeti	40.04 ^c	46.19	75.12	32.55 ^c	65.00	17.99 ^c
Meri	192.92	89.73	85.84 ^f	23.70	71.88	7.87
Komeri	13.89	65.05	100.60 ^f	50.29	89.51	30.16
Bakanoka	-	59.70	100.75	20.87	94.63	1.49
Kaiaba	62.31 ^a	79.11	101.74 ^f	51.18 ^a	93.83	10.89 ^a
Temakai	8.84	51.10 ^e	102.87 ^e	6.68	92.23	6.46
Enoka	11.29	53.34	108.66	81.82	89.76	36.01
Timea	7.97 ^d	57.39	141.14	57.89 ^d	116.78	38.13 ^d
Barawe	- ^b	81.22	141.56	23.92 ^b	126.02	31.81 ^b
Tokintekai	-	132.53 ^e	164.32 ^{f e}	57.27	153.79	19.46
Aam	148.57	107.36	190.61	122.94	180.12	10.99
Kaiea	111.43	88.71	200.10 ^f	287.26	183.04	12.78
Tebebita	237.71	190.94 ^e	242.78 ^{f e}	89.37	224.63	20.28
Katirongo	225.83	182.46	266.87	63.07	209.59	17.19
Kamantoa	908.59	989.14 ^e	570.02 ^{f e}	91.52	557.26	29.19
Total	1899.11	2339.44	2667.00	951.26	2414.23	241.68
Mean	146.09	146.22	166.69	73.17	150.89	18.59
S.D.	246.53	229.04	122.57	72.77	119.96	10.71

^a These households combined for part of the survey. Means based on income and expenditure when separate and half income and expenditure when combined. Excluded from total.

^b Based on six weeks and included in total.

^c Based on five weeks and included in total.

^d Based on three weeks and excluded from total.

^e Data on savings and withdrawals from savings incomplete.

^f Index income an underestimate because income from all recorded sources greater than expenditure.

gifts of cash coming directly into the island or the redistribution of remittances among kin. It should be remembered that the index income is still an underestimate because it does not include mronron transactions. For these reasons more use will be made of the data from recorded sources to assess income levels and patterns, while the survey data is of some use in discussing the more qualitative aspects of income-earning activity.

Sources of Income

Despite the all-pervading coconut vegetation, the long tradition of the copra trade in the islands and the obvious potential for a handicraft industry based on the ubiquitous pandanus leaf and the islanders' impressive mat-making skills, copra and handicraft sales together account for only just over 17 percent of the mean household's annual cash income. Table 10-2, and the rank orderings of income derived from it (Table 10-3), demonstrate clearly the startling importance of remittance income and untraced sources of cash. These are the most important income sources for most households; accounting for as much as 45 percent of the average household's cash income, and for two of the households it provided more than 80 percent of it. For most households the next most important source of income is the dividend paid out by the Cooperative Society each year. Given the relative unimportance of copra and handicrafts as a source of income to most households, the size of these dividends must rely on the bonus paid on store purchases. In essence this is the recycling of remittance incomes through the store. In contrast, only two households received more than 50 percent of their income from the sale of goods, the production of which they themselves controlled. The goods include copra, handicrafts and other goods (saltfish, sharkfin and kamaimai). Wages form important income sources for a few households, but except in the case of the qualified nurse and school-teachers, wage employment on the island is more chance than economic strategy. The data are a stark demonstration of the importance of remittances and the external economy in determining the levels of cash income on Tamana. These factors must have far-reaching ramifications for both the character of the island's cash economy and the response of individual households to cash-earning opportunities.

Table 10-2. Mean Annual Income from Various Sources for Sample Households 1971-73

Household	Local sources										Other sources						Total																
	Copra			Handicrafts			Other goods			Mronon divisions			Wage and casual work			Remittances ^a			Withdrawals from savings			Cooperative dividends			Shortfall of all ^b known income of known expenditure			Mean annual income from all sources			% of mean annual income from local sources		
	\$	¢		\$	¢		\$	¢		\$	¢		\$	¢		\$	¢		\$	¢		\$	¢		\$	¢		\$	¢		\$	¢	
Local-dominated households																																	
Tembeti	15.53	20.67		5.26	7.00		4.52	6.02		9.67	12.87		0.33	0.44		6.67	8.88		-	-		13.88	18.48		19.26	25.64		75.12	34.98		45.56		
Maera	7.06	8.45		47.88	57.33		1.55	1.86		2.33	2.78		1.36	1.63		-	-		-	-		7.63	9.13		15.71	18.81		83.52	58.82		70.42		
Tenakal	3.87	3.76		16.03	15.58		2.40	2.33		9.67	9.40		4.33	4.21		8.42	8.42		n.d.	-		15.79	15.35		42.11	40.93		102.87	31.97		31.07		
Mari	11.39	10.74		6.95	6.55		0.47	0.44		12.98	12.24		50.00	47.14		1.67	1.57		-	-		19.25	18.15		3.36	3.17		106.07	31.79		29.97		
Komari	22.94	21.26		8.44	7.82		0.31	0.29		19.31	17.89		-	-		10.00	9.27		-	-		23.37	21.66		25.53	21.81		109.90	51.00		47.26		
Enoka	14.37	13.22		16.96	15.61		5.74	5.28		2.33	2.04		5.83	5.10		10.00	9.20		-	-		6.26	5.76		55.33	50.92		108.66	37.07		34.11		
Kalaba	3.71	3.24		52.48	45.89		8.87	7.76		2.33	2.04		-	-		-	-		-	-		8.22	7.18		32.92	28.79		114.36	67.39		58.92		
Aam	21.78	11.43		16.29	8.54		2.44	1.28		10.00	5.24		-	-		46.67	24.48		0.02	0.01		20.16	10.58		73.25	38.43		190.61	50.51		26.49		
Subtotal Local dominated house-holds	100.65	170.29		26.30						66.29			61.85			83.68			0.02			114.56			267.47			891.11	363.53		40.89		
Mean	12.58	21.29		3.29	19.15		2.96			8.29	7.46		7.73	6.96		10.46	9.41		-	-		14.32	12.88		33.43	30.02		111.39	45.44				
SD	7.47	18.44		2.93						6.44			17.22			15.24			0.01			6.43			22.75			34.82	13.44				
Other dominated households																																	
Bakanoka	4.47	4.44		1.77	1.75		0.25	0.25		-	-		-	-		43.67	43.34		-	-		9.54	9.47		41.05	40.74		100.75	6.49		6.44		
Tima	4.23	3.00		1.67	1.16		-	-		6.33	4.48		8.00	5.67		28.33	20.07		1.67	1.18		13.50	9.56		77.41	54.85		141.14	12.23		8.66		
Barawe	5.23	3.69		6.18	4.37		0.58	0.41		19.31	13.64		-	-		41.00	28.96		-	-		28.23	19.94		41.03	28.98		141.56	31.30		22.11		
Tokintekal	31.66	16.12		6.77	3.45		-	-		19.31	9.83		-	-		63.33	44.74		n.d.	-		30.77	21.74		44.53	22.68		196.37	57.74		29.40		
Kalea	2.89	1.38		24.25	11.60		6.57	3.14		19.31	9.24		8.67	4.15		8.67	4.15		3.08	1.47		34.59	16.55		100.98	48.31		209.01	53.02		25.36		
Tebelita	1.66	0.67		5.43	2.16		0.10	0.04		6.00	2.29		135.00	53.76		17.00	6.77		8.33	3.32		23.41	9.32		54.16	21.57		251.09	13.19		5.25		
Katirongo	4.23	1.59		5.00	1.87		0.79	0.29		9.67	3.62		106.67	39.97		40.33	15.11		8.00	3.00		17.44	6.54		74.74	28.01		266.87	19.69		7.37		
Kamantoa	1.44	0.15		8.17	0.83		1.20	0.12		25.31	2.55		859.33	86.88		68.33	6.91		N.D.	-		50.66	5.12		25.30	surplus		989.14	36.12		3.65		
Subtotal other ^c dominated house-holds	54.37	51.07		7.77	7.30		8.29	0.64		79.93			258.34			242.33			21.08			157.48			433.90			1306.79	193.66				
Mean	7.77	7.30		1.18	1.08		1.18	0.64		11.42	6.12		36.91	19.77		34.62	18.54		3.51	1.61		22.50	12.05		61.99	33.20		186.69	27.67		14.82		
SD	10.60	7.74		2.39			2.39			7.91			58.04			18.27			3.78			9.33			22.97			61.46	20.50				
Total all households ^c	155.02	221.36		34.59						146.22			320.19			326.01			21.10			272.04			701.37			2197.90	557.19		25.37		
Mean	10.33	14.76		2.31	10.08		2.31	1.57		9.75	6.66		21.35	14.58		21.73			1.62	0.96		18.14	12.39		46.76	31.91		146.52	37.15				
SD	9.07	15.74		2.81			2.81			7.08			42.65			20.37			3.05			8.71			26.50			61.13	18.83				
Level of significance of difference between means of 2 household types	below 90.00%	90.00%		below 90.00%			below 90.00%			below 90.00%			below 90.00%						95.00%			90.00%			95.00%			98.00%	90.00%		90.00%		

Source: Tamaana Cooperative Society Books, Telmo Journals and Mronon Cash Books.

^a Remittance data incomplete for period June 1972-July 1973 owing to disappearance of Telmo Journals. Means quoted must be incomplete and an underestimate. Some remittances contribute to shortfall of known income of know expenditure column, but this could also contain money brought or mailed to the island and the redistribution of remittances, wages, and other gifts of money.^b Either index income based on known yearly expenditure or income from all recorded sources, whichever is the larger.^c Data for Kamantoa's household excluded because wages for this household account for 27 per cent of total income for all households.

Table 10-3. Rank Ordering Importance of Recorded Income Sources
in Mean Household Income 1971-73

Household	Copra	Handicrafts	Other Goods	Mronron Divisions	Wages	Remittances and Shortfall	Withdrawals from Savings	Cooperative Dividends
Tembeti	2	5	6	4	7	1	8	3
Maera	4	1	6	5	7	2	8	3
Temakai	6	2	7	4	5	1	ND	3
Meri	4	5	7	3	1	6	8	2
Komeri	3	5	6	4	7	1	7	2
Enoka	3	2	5	6	6	1	6	4
Kaiaba	6	1	3	7	5	2	7	3
Aam	2	4	6	5	8	1	7	4
Bakanoka	3	4	5	6	6	1	6	2
Timea	5	6	7	4	3	1	6	2
Barawe	5	4	6	3	7	1	7	2
Tokintekai	3	5	6	4	6	1	ND	2
Kaiea	8	3	6	4	5	1	7	2
Tebebita	7	6	8	5	1	2	4	3
Katirongo	7	6	8	4	2	1	5	3
Kamantoa	6	5	7	4	1	2	ND	3

Household Income Changes: the Implications of the Straddled Economy

While the mean household data presented above give some indication of the relative importance of different income sources it cloaks other more distinctive facets of the Tamana economy. This applies particularly to the variability of income levels from year to year and the way in which households respond to changing external influences, both in the level of income received from external sources and to price changes and other influences affecting production in the village sector.

It is here that the implications of dual dependence and the straddled economy are most clearly evident.

In an attempt to illuminate the pattern of change and the factors affecting changes in household income a form of graphical presentation provides a useful analytical tool (Fig. 10-1). Each household's income was assumed to be made up of two main parts: locally-generated income from the sale of copra, handicrafts, saltfish, sharkfin and kamaimai; while the second element of incomes derives from remittances, gifts and wages. It is also assumed that the sources of income are influenced by separate factors; the latter being largely beyond the individual's control. By plotting one source against the other it should be possible to identify the major contributor to changes in income and the effect of one source on the other. The analysis begins with the plotting of each household's income for the year from local sources against the index income less this figure for the years 1970 to 1973 inclusive (Part A, Fig. 10-1). The length of the line¹ joining the same household's position in graphs of successive years gives an indication of the size of the change, while its direction and slope indicate whether it is an increase or decrease and which income source contributed most to the change. By aggregating all households' lines on a new set of axes denoting increases and decreases in both income sources (Part B, Fig. 10-1), a generalised picture of the changes experienced by all households from year to year can be depicted.

Part B of Fig. 10-1 shows very clearly the response of the households to prevailing economic conditions, and the changes in income from local sources are surprisingly consistent. Almost without exception incomes from local sources rose in 1971, fell in 1972 and rose again in 1973. The reasons for these changes are price changes for copra and deliberate, externally-initiated campaigns to boost handicraft production which will be discussed more fully in later sections of this chapter. The pattern of change in income from other sources is not so clear-cut or consistent. In 1971 and 1973 about as many households experienced falls and rises while in 1972 all but three households experienced rises in other sources of income. Viewed against the fact that locally-generated incomes for all households fell during the same period this may indicate increased requests to relatives in employment overseas to supplement

¹These are the lines drawn for each household in Part B of the diagram.

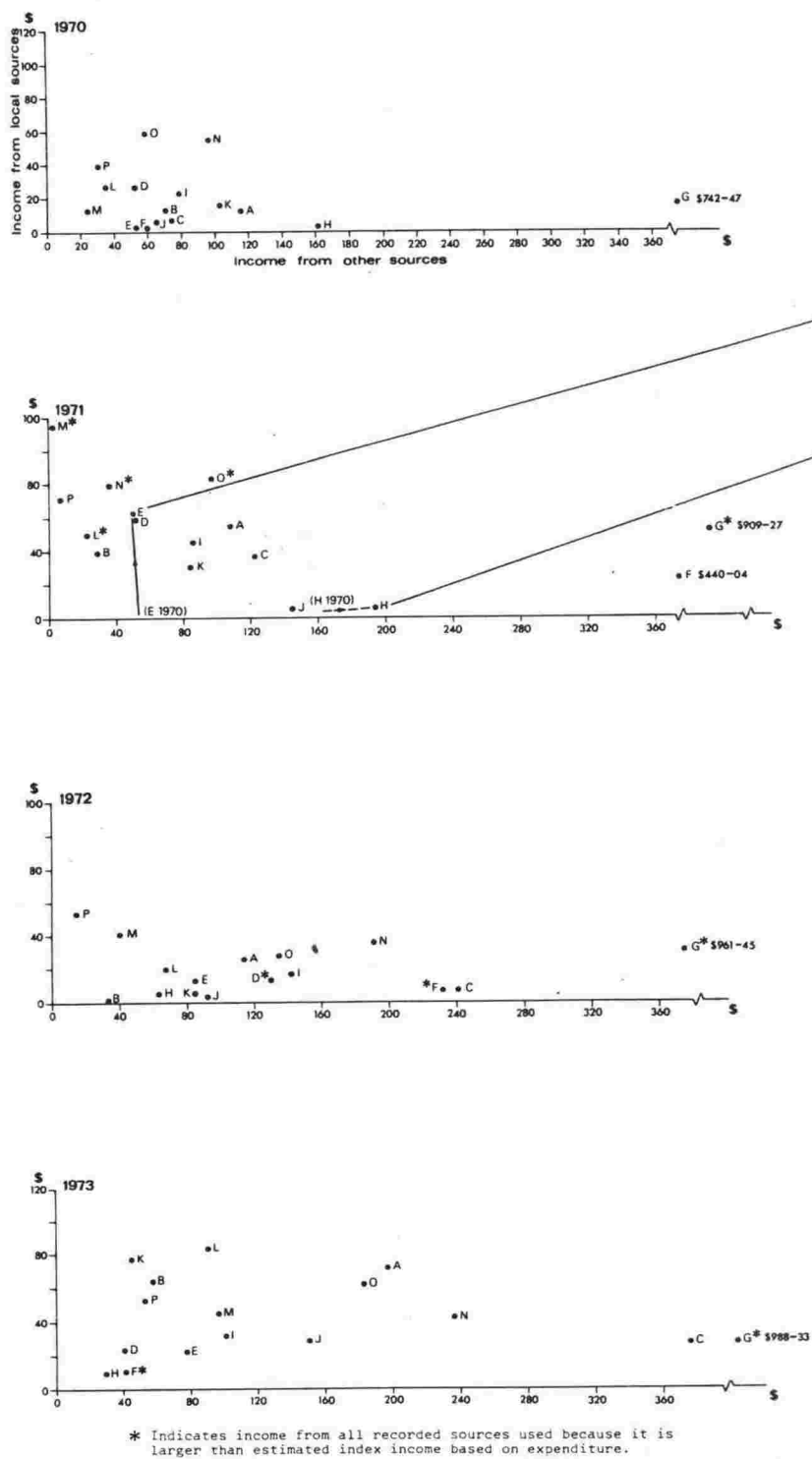
Figure 10-1

TAMANA

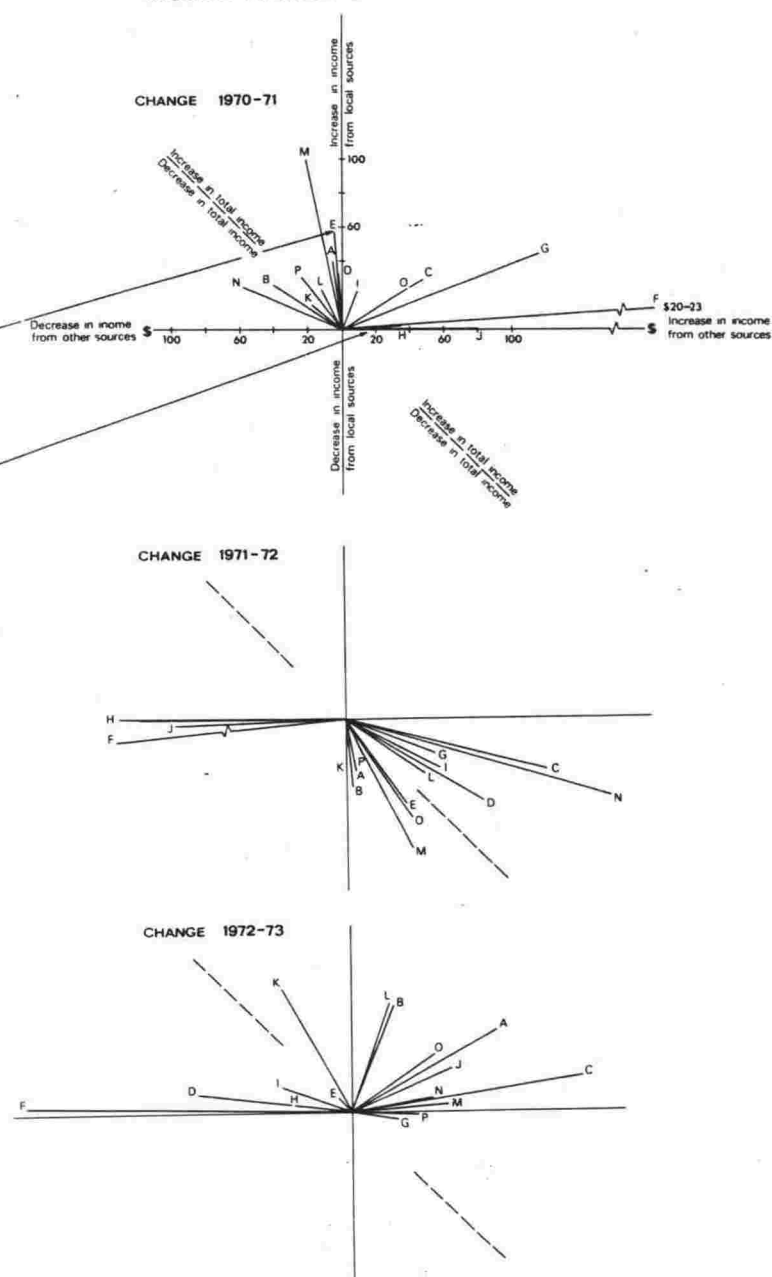
CHANGES IN INCOME FROM LOCAL AND OTHER SOURCES FOR SAMPLE HOUSEHOLDS 1970-73

A

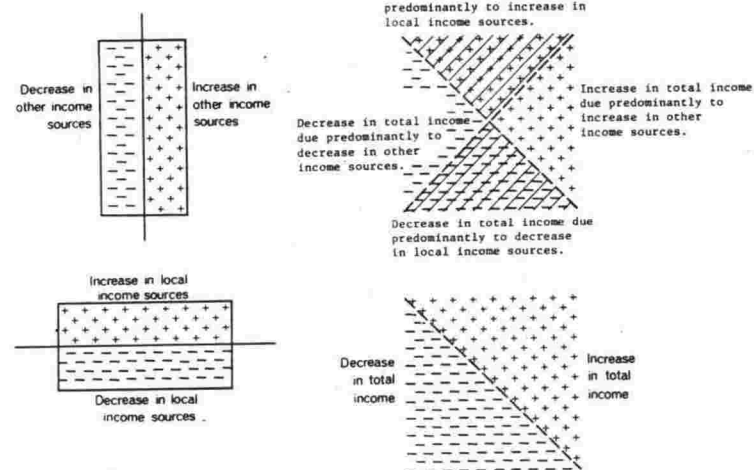
INCOME FROM LOCAL & OTHER SOURCES

**B**

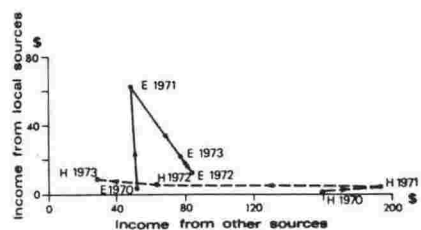
INCOME SOURCE CHANGES



KEY TO SECTION B



- | | |
|-------------|--------------|
| A Aam | J Timea |
| B Tembeti | K Enoka |
| C Katirongo | L Komeri |
| D Meri | M Kalaba |
| E Temakai | N Kaia |
| F Tebebita | O Tokintekai |
| G Kamantoa | P Maera |
| H Bakanoka | |
| I Barawe | |

CINCOME SOURCE CHANGES
FOR TWO SELECTED HOUSEHOLDS

E a locally-dominated household, H an other-dominated household

RJL/RBM

declining local incomes. Even so the increase was not large enough to prevent seven households experiencing a decline in total income.

The impression generated by the analysis in Fig. 10-1 provides the further support to the conclusion reached earlier that the cash economy is a binary one composed of two quite distinct and separate elements. The first reflects locally-generated incomes and is responsive to price and other external influences to which all households respond in a similar manner regardless of the relative importance of this income source to their total income. The second element is external and largely beyond the individual's control. It reflects the input of remittances and gifts from those in employment off the island and from the limited opportunities for wage labour on the island. Although there is some evidence to suggest that relatives in employment off the island remit more when conditions for cash-earning on the island are unfavourable, these are in most cases insufficient to prevent total income declining and more heavy reliance upon the subsistence sector for sustenance. Thus a major part of most households' incomes are likely to be subject to fluctuations over which the individuals have no control. Since all households display substantial year-to-year fluctuations in total income, there is little evidence to suggest that households seek to maintain a particular level of income and cash suggestive of a threshold or minimum income level below which no self-respecting household would wish to fall and indicating an overall level of commitment to the cash economy. Falling incomes from external sources do not necessarily lead to increased efforts in local production and vice versa. All households responded in the same way to externally induced changes in prospects for local production. In total this suggests a rather tenuous connection with the cash economy, reflecting a situation where the individual sees himself as having little control over the level of income he enjoys, and where fate or tibanga rather than individual action is the ruling principle. When opportunities arise individuals participate in cash-earning and enjoy higher incomes and consumption of the store foods that this allows. When conditions get more difficult withdrawal occurs and more heavy reliance on subsistence production prevails. If one has kin in employment off the island they may respond to requests for assistance.

This analysis also demonstrates the on-island implications of what Curtain (1981: 189) terms the strategy of dual dependence where rural households straddle two modes of production - the pre-capitalist

and the capitalist - in a situation where they are physically separated but linked by a migrant labour system. The evolution and continuation of such a strategy depends on several conditions. On the island it calls for a strong and viable subsistence economy where neither land nor labour have been committed primarily to the capitalist mode of production by the indigenes themselves, nor pre-empted by the establishment of an externally-owned plantation sector. It depends also on an agricultural system which is undemanding in its requirements of skill and manpower, hence enabling productivity to be maintained with a reduced and possibly less skilled workforce. Chapter 9 suggests that these latter factors are met in the subsistence economy on Tamana, which has strong hunter-gatherer elements and in which cropping patterns reflect the unique characteristics of the coconut ecosystem. For the migrant's part there must be the assurance of continued access to rural resources, particularly land. On Tamana individualised land tenure and the rights of all offspring to inherit land from both parents ensures this. The provisions in the Land Code for disinheritance because of neglect also encourages migrants to continue to remit money and respond to requests for assistance. The contract-based nature of recruitment to Ocean Island and Nauru prevents the labourer from becoming proletarianised because it does not give him the option of remaining in the capitalist node and ensures that he remains dependent upon his home economy once employment has terminated. The same may not be true of the more recent growth of labour migration to the urban centre on Tarawa. Here the shape of relations, and indeed the character of both economies will depend on the ability of the urban economy to maintain and expand employment with diminished income from phosphate and increasing dependence on external aid. However, at the present moment the manner in which the village economy straddles the two economies effectively accounts for the tenuous linkages between village commercial agriculture and the market.

Household Types

The data presented in Table 10-2 and the analysis above underline the overriding importance of remittances, gifts, wages and other external income sources in determining the level of many households' incomes. Part B of Fig. 10-1 suggests that some households move predominantly within the

vertical quadrants, while the remainder move within the horizontal ones. This reflects the fact that the former households' income changes are predominantly the result of changes in the level of locally-generated income, while changes in external sources of income are more important for the latter. This is the basis of the distinction between "local-dominated" and "other-dominated" households. The question now arises as to whether this distinction reflects distinctive economic strategies pursued by individual households, or whether in fact they result from situational factors over which the household has very little control.

The distinction is paralleled in certain other socio-economic characteristics; local-dominated households have younger heads, larger households, higher C.U. to L.U. ratios and fewer offspring or offsprings' spouses in employment. Table 10-2 demonstrates that other-dominated households have higher remittance incomes, which because of their importance, translate directly into higher levels of total income. The difference between types in level of locally-derived income (which is really the only cash-generating production over which the villager has any control) is not large enough to be significant. Even the household that received over \$800 per annum in wages still had a sizeable income from local sources. In addition the time allocation data already discussed in Chapter 8 did not indicate significant differences between these types in the time devoted to commercial handicraft production or cooking.¹

On Tamana there is nothing directly comparable with the economic and social differentiation described, for example, by T. S. Epstein for the Tolai of New Britain. The distinction she draws between "migrant" and "villager" on the basis of experience in European employment (Epstein 1968: 59) does not have the same significance on Tamana because most males over 30 years of age have had work experience off the island (see Table 7-7). Appendix 3 also suggests that bubuti ensures the substantial redistribution of the goods brought back. However this situation may not continue into the future. The loss of employment on Ocean Island, the future closure of Nauru, the growth of urban employment and the change from contract-based to less regulated employment will

¹ It appears that local-dominated households did spend more time in copra production but, rather surprisingly, this is not reflected in higher copra incomes (Table 10-2). The apparent contradiction arises because the time allocation data was based on the seven survey weeks, while the income data was derived from Tamana Cooperative Society data for 1971-73. The latter data are more likely to reflect the actual situation.

undoubtedly effect opportunities to migrate to temporary employment and acquire the capital goods needed to supplement life in the rural areas.

Similarly, the economic stratification reflecting age distinctions between elders, middle farmers and single men households (Epstein 1968: 63-4, 82) and positions of privilege within the matrilineage has no real parallel on Tamana. Land on Tamana is held in individualised tenure and is often unofficially transferred to offspring well before the demise of the parent. Thus no particular age class can assume responsibility for the management of landed property. The emphasis on fishing and continuous productivity of the coconut does not impose the same need for agricultural cycles and a coordinated programme of production. This allows greater flexibility of movement between households and far greater variability in household structure. Thus no clear process of household aging and development emerges where household needs and ability to satisfy them changes with the age and work capacities of its members. This is then not translated into differing economic strategies.

Finally, the ethos of equality and conformity and the absence of any community of outsiders or part-Europeans who consider themselves outside prevailing morality has prevented the emergence on Tamana of any entrepreneurial class comparable with that described by Watters (1977: 206) on Abemama.

Given the overriding importance of the external economy as a source of cash income for the islanders and their as yet unsophisticated demands for goods and services, the main factors contributing to differences between households are situational rather than the result of conscious strategy. The socio-economic factors which contribute to the higher incomes of some households reflect the fact that these households have older children, some of whom, or whose spouses, may be in employment off the island. The local environment provides relatively few prospects for generating income and certainly no possibility of matching the level of income coming into the economy from employment off the island. Because of these factors, diminishing household size, rising labour to consumer ratios or such factors can have little effect on the level of income enjoyed by the household. Accordingly, many households tend to rely on external income sources and cut their consumption cloths accordingly, satisfying limited wants with as little effort as possible. Time is not a scarce resource and so even households with income from external sources still engage in local production, particularly when it is associated with communal action such as mronron activity or a handicraft campaign to raise funds for the church.

Behind all this is the implicit assumption that local production is incapable of meeting needs for cash and that the community's ultimate future lies in employment and urban life.

Local Production and Cash Income

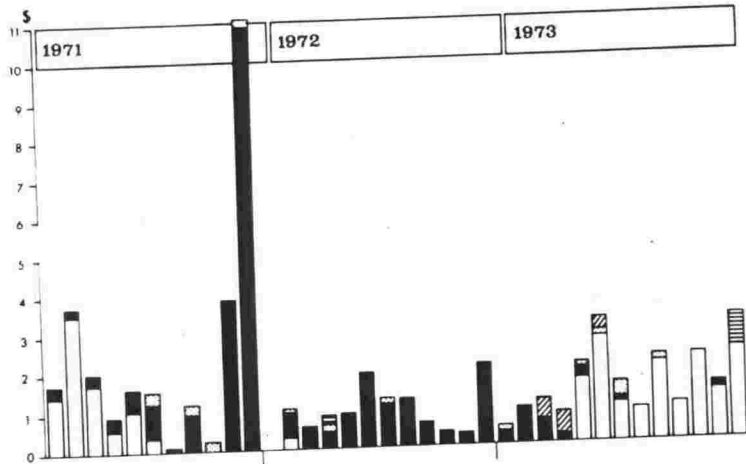
The main opportunities for local income-raising on Tamana revolve around copra production, handicraft manufacture and the sale of a limited range of non-perishable local products, particularly saltfish, dried sharkfin and kamaimai. All copra sales and a very large proportion of other sales are made through the Tamana Cooperative Society store. Prices paid to the producer for copra are set by the Copra Board and the same prices are paid throughout the Group. Sales are made at the store which is the only buying point on the island. The producer is paid at the time of sale and purchasing is suspended only on rare occasions when shipping is disrupted and the copra sheds become full. The Federation of Cooperative Societies handles the retailing of store goods, and sets the quality standards, purchase price and the type of handicrafts that will be purchased. A small quantity of handicrafts and saltfish are sold through friends and relatives on Nauru at prices considerably above those obtained from the Cooperative Society, but the volume of this trade is small. Figure 10-2 indicates that the income earned from these sources by the households studied varied greatly from month to month and that the source of income also often differed. This pattern is also evident in the island-wide mean. The graphs seem to suggest that households concentrate on the production of one or at the most two commodities in any month. It would be attractive to argue from this that the changes in emphasis reflect a conscious economic strategy, but the question of scale should not be ignored. The sums of money involved in any month are small and in most cases represent, for copra at least, one or possibly two sales in the month, thus underlining the infrequent and discontinuous character of household cash-oriented economic activity. Despite this the data do indicate a clear response to the changing conditions impinging on the producer as the following discussion will demonstrate.

Figure 10:2

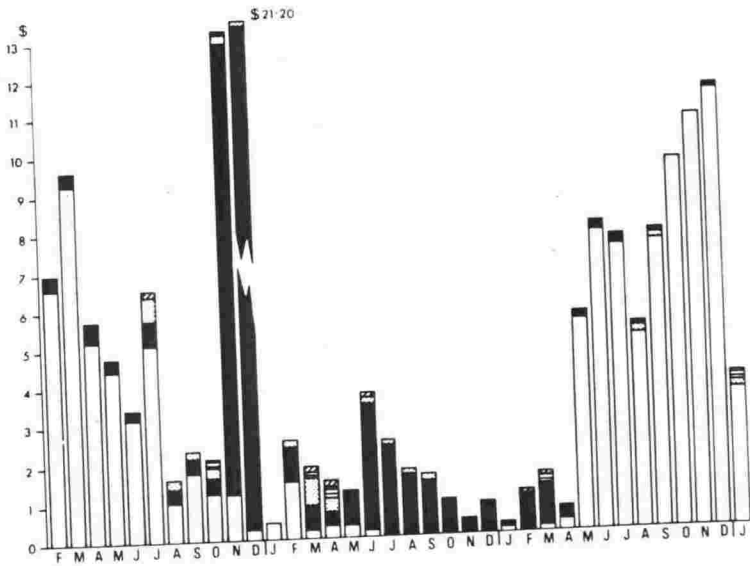
TAMANA

INCOME FROM SALES OF GRADE 1 COPRA, HANDICRAFTS, SALT FISH AND SHARKFIN, KAMAIMAI AND MEMBERS GOODS TO TAMANA CO-OPERATIVE SOCIETY BY SAMPLE HOUSEHOLDS

MEAN SAMPLE HOUSEHOLDS



ALL ISLAND MEAN**



- Copra
- Saltfish and sharkfin
- Kamaimai
- Members goods
- Handicrafts

- [R] Indicates remittance received during month
- [W] Indicates wage work during month

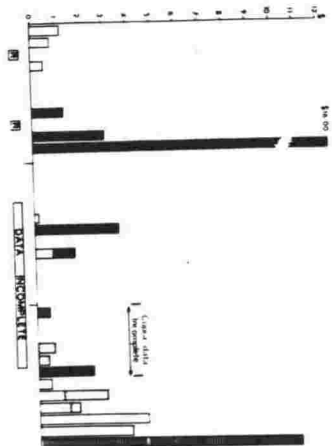
** Total Sales through Co-Operative Society Store divided by number of households on island

Discrep. - indicates a discrepancy between annual total based on writer's scanning of Daily Copra Record and Handicraft Journals and annual totals recorded in the Tamana Co-operative Society's Annual and Bonus Paid Book.
C = Copra. H = Handicrafts + indicates writer's total greater than Annual and Bonus Paid Book total.

HOUSEHOLDS WHERE CHANGES IN INCOME DOMINANTLY FROM LOCAL INCOME SOURCES

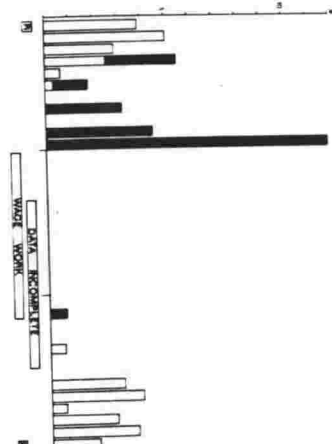
ENOKA

C-80-04 1978 Decemp H-80-04 1973 Decemp H-80-11



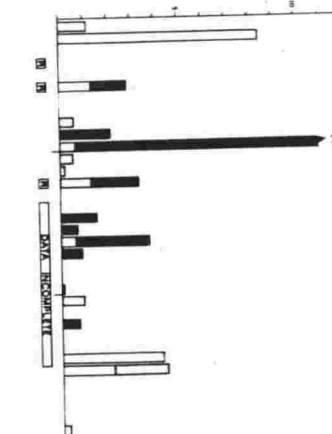
MERI

C-80-04 1978 Decemp H-80-04 1973 Decemp H-80-11



TEMAKAI

C-80-04 1978 Decemp H-80-04 1973 Decemp H-80-11



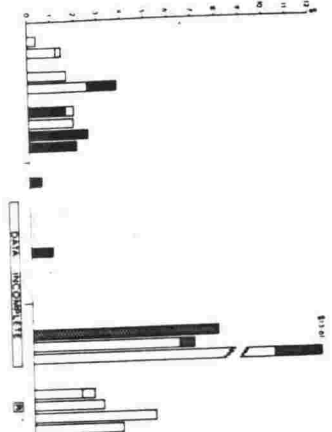
KAIABA

C-80-04 1978 Decemp H-80-04 1973 Decemp H-80-11



TEMETI

C-80-04 1978 Decemp H-80-04 1973 Decemp H-80-11



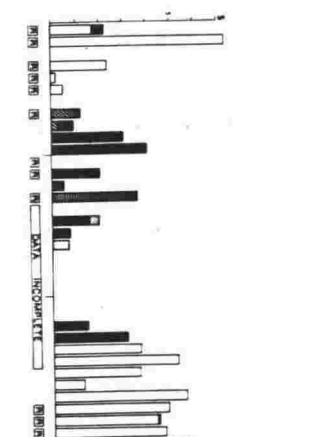
MAERA

C-80-04 1978 Decemp H-80-04 1973 Decemp H-80-11



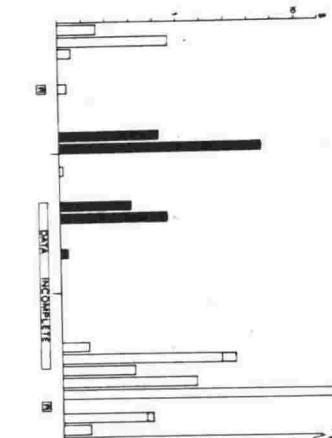
AAM

C-80-04 1978 Decemp H-80-04 1973 Decemp H-80-11



KOMERI

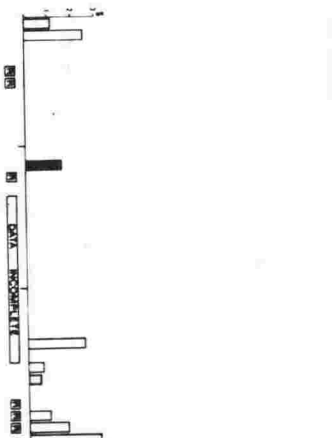
C-80-04 1978 Decemp H-80-04 1973 Decemp H-80-11



HOUSEHOLDS WHERE CHANGES IN INCOME DOMINANTLY FROM EXTERNAL INCOME SOURCES

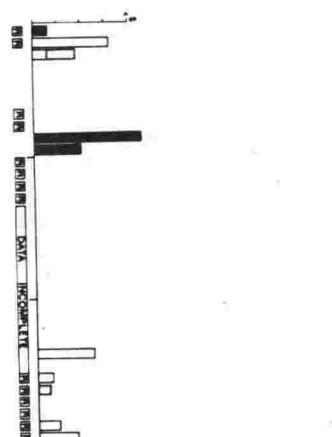
TIMEA

C-80-04 1978 Decemp H-80-04 1973 Decemp H-80-11



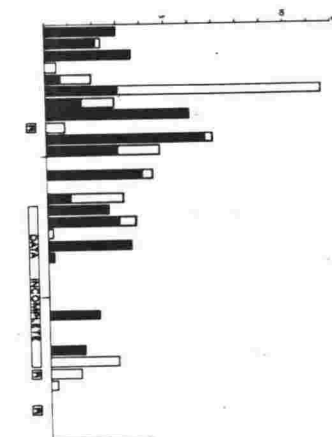
BARAVE

C-80-04 1978 Decemp H-80-04 1973 Decemp H-80-11



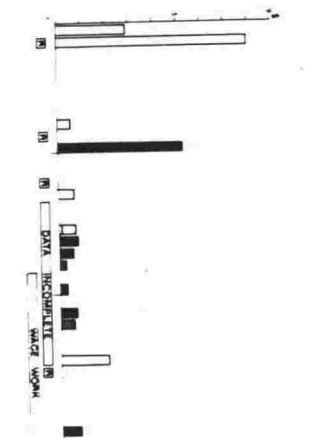
KAIKA

C-80-04 1978 Decemp H-80-04 1973 Decemp H-80-11



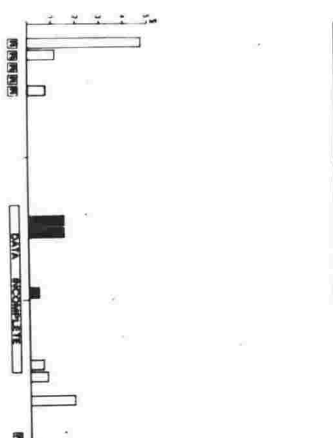
KATIRONGO

C-80-04 1978 Decemp H-80-04 1973 Decemp H-80-11



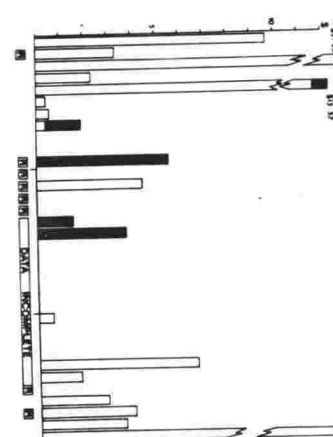
BAKANOKA

C-80-04 1978 Decemp H-80-04 1973 Decemp H-80-11



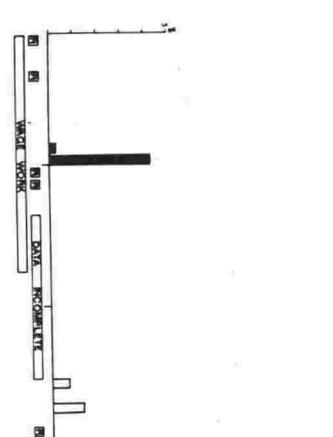
TOKINTEKAI

C-80-04 1978 Decemp H-80-04 1973 Decemp H-80-11



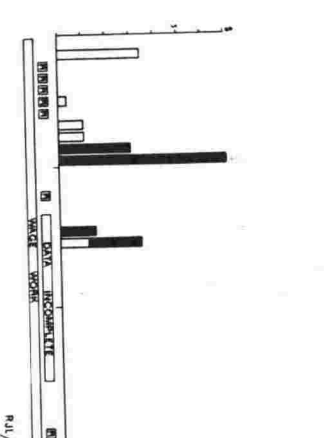
TEREBITA

C-80-04 1978 Decemp H-80-04 1973 Decemp H-80-11



KAMANTOA

C-80-04 1978 Decemp H-80-04 1973 Decemp H-80-11



Copra

The volume of copra produced on Tamana varies markedly from year to year. Rainfall is the reason most frequently appealed to to explain the fluctuations. Catala (1957: 30-1) states that the productive capacity of the palm may be maintained for a period of 18 months after drought onset [not defined] after which time the palm becomes less productive. This statement applies to palm productivity, and for it to have any relevance to copra production a situation would have to prevail where all nuts produced are consumed either in subsistence or commercial use. Table 10-4 indicates that this might apply for some households at least and this would explain why over a longer period Tamana copra production is positively correlated with rainfall in the preceding year (Geddes et al. 1979: 51). However production is also correlated with price¹ and factors affecting the willingness of individuals to turn coconuts into copra are clearly very important.

Over the 1971-73 period prices for Grade I copra fell from 8.8 cents per kg (4 cents per lb), to 5.5 cents (2.5 cents per lb), then to 4.4 cents (2 cents per lb) before rising again to 6.6 cents per kg (3 cents per lb). The effect on household copra production was swift and dramatic. Once the price fell to 5.5 cents most households ceased production and did not resume until the price rose again. In the pre-price fall period (Feb.-July 1971) the sample households sold 1500 kg in 83 sales giving a mean of 0.86 sales each of 18 kg per household per month. During the period when prices fell to 5.5 cents per kg or below only 10 sales totalling 126 kg were recorded (0.10 sales per household per month, each of 12.6 kg and following the price rise in May 1973 production began again in earnest with 157 sales totalling 3686 kg being made in the nine months after May 1973 (giving a mean of 1.64 sales of 23.5 kg per household per month).

The households are clearly very responsive to price. Once the price fell below 5.5 cents per kg they were obviously convinced that production was not worthwhile and it all but ceased, not resuming until the price rose again. However, as far as the household data is concerned price and production are not related in a direct and simple manner. Prior to the price fall in July 1971 prices had remained at 8.8 cents per kg

¹Price and rainfall in the 12 months preceding explain 45 percent of the variation in Tamana copra production (Geddes et al. 1979: 51).

since January 1970. Table 10-4 indicates that over the period Feb-July 1971 the average household devoted something like 370 nuts per month to copra production. Once prices fell nut use in copra production was negligible, amounting on average to only five nuts per household per month. After the price rise nut use in copra production rose sharply and over the first nine months after the price rise stood at 535 nuts per household per month. Thus copra production proceeded at a higher rate after the price rise in 1973 than before the price fall in 1971 even though the price per kilogram in the earlier period was greater. Table 10-4 also implies that most households would have had nut surpluses during the earlier period and could have expanded production, had they wished to.¹ The reasons for the sudden upsurge in copra production after the price rise in May 1973 lie most probably in the fact that most householders were feeling deprived of income and income-earning opportunities after the long period of depressed prices. In addition a large surplus of nuts must have accumulated¹ when copra production all but ceased. When copra production began anew this must have made nut collection a more rewarding and less time consuming task. There is also no surety that further increases in price would produce additional increases in production. Table 10-4 suggests that palm productivity could become a limiting factor. Field observations support this because by January 1973 many of the nuts being brought to the mronron had been picked from the trees rather than collected from the ground after falling, indicating that utilisation was beginning to outstrip production.

Copra Production Strategies

With household copra sales being such an irregular and intermittent occurrence involving small volumes of produce, it is rather difficult to talk meaningfully of production strategies. For most households copra was made when income was needed and money from easier sources was unavailable. To this end a special trip would be made to a particular land or lands to collect nuts with 45-50 nuts being strung together, wound around the

¹In theory climate germination is slow and fallen nuts do not deteriorate rapidly. Copra was made from sprouted nuts which may have lain on the ground for 18 months after falling.

Table 10-4. Estimated Production and Utilisation of Coconuts in Cash Earning and Subsistence, Sample Households 1971-73

Household	Estimated mean annual nut use 1971-73						Estimated annual production		Estimated annual surplus of nuts					
	Copra ^a	Mronron purchases	Subsistence	A Total	B Total with copra at 1971 pre price fall levels	C Total with copra at 1973 post price rise levels	Assuming 23.1 nuts per tree per year	Assuming 13.0 nuts per tree per year	Based on total A	Based on total B	Based on total C	Cash value of surplus A at 3¢/lb	Projected potential surplus from 215 palms per ha, 23.1 units per tree per year and present levels of use	Cash value of potential surplus at 3¢/lb
Local-dominated households														
Tembeti ^a	1817	1175	2600	5592	5021	10050	6260	3523	668	1239	-3790	5.49	22980	188.87
Maera ^b	828	1023	1318	3169	2886	5211	5844	3289	2675	2958	633	21.99	25334	208.22
Temakai	378	698	1426	2502	3392	2772	4620	2600	2118	1228	1848	17.41	17788	146.20
Meri	1274	958	3348	5580	6364	7795	1548	871	-4032	-4816	-6247	-33.14	-1577	-12.96
Komeri	2730	891	4007	7628	3282	12288	10326	5811	2698	7044	-1962	22.17	38542	316.78
Enoka	1724	2853	2702	7279	5987	12148	7531	4238	252	1544	-4617	2.07	13771	113.18
Kaiaba ^b	421	849	1300	2570	2681	3476	8177	4602	5607	5496	4701	46.08	33594	276.11
Aam	2517	275	1601	4393	4284	10316	4551	2561	158	267	-5765	1.30	18658	153.35
Total	11689.00	6850.00	15684.00	32974.00	33897.00	64056.00	48857.00	27495.00	10144.00	14960.00	-15199.00	83.37	169090.00	1389.75
Mean	1461.13	1141.67	2614.00	5495.67	4237.13	8007.00	6107.13	3436.88	1268.00	1870.00	-1899.88	10.42	21136.25	173.72
SD	895.35	891.55	992.44	1893.22	1418.04	3794.32	2662.49	1498.39	2784.87	3571.53	3942.98	22.89	12344.27	101.46
Other-dominated households														
Bakanoka	501	267	524	1292	1565	2242	1224	689	-68	-341	-1018	-0.66	3884	31.92
Barawed	597	2513	1075	4185	4308	5489	10418	5863	6233	6110	4929	51.23	49991	410.88
Tokintekai	3394	1969	1749	7112	12514	10658	6699	3770	-413	-5815	-3959	-3.39	28707	235.94
Kaiea	352	1114	1545	3011	2659	4041	3904	2197	893	1245	-137	7.34	19626	161.31
Tebebita	195	869	1296	2360	2311	2845	4967	2795	2607	2656	2122	21.43	32839	269.90
Katirongo	406	1315	1103	2824	4364	2744	2749	1547	-75	-1615	5	-0.62	1662	13.66
Kamantoa	140	1426	2752	4318	4806	4319	7369	4147	3051	2563	3050	25.08	31156	256.07
Total	5585.00	9473.00	10044.00	25102.00	32527.00	3238.00	37330.00	21008.00	12228.00	19663.00	4992.00	100.41	167865.00	1379.68
Mean	797.86	1353.29	1434.86	3586.00	4646.71	4619.71	5332.83	3001.14	1746.86	2809.00	713.14	14.34	23980.71	197.10
SD	1155.93	730.59	699.32	1871.01	3674.64	2885.69	3098.53	1743.75	2400.45	2373.84	2923.16	19.74	17077.24	140.36
Total all households	17274.00	16323.00	27028.00	58076.00	66424.00	96394.00	86187.00	48503.00	22372.00	34623.00	1323.00	183.78	336955	2769.43
Mean	1151.60	1255.62	1930.57	4467.38	4428.27	6426.27	5745.80	3233.53	1491.47	2308.20	88.20	12.25	22463.67	184.63
SD	1044.40	781.11	991.47	2055.63	2614.79	3718.45	2796.24	1573.65	2531.48	3004.68	3707.31	20.31	14259.50	117.20
Level of significance of difference between means of 2 household types	below 90.00%	below 90.00%	95.00%	90.00%	below 90.00%	90.00%	below 90.00%	below 90.00%	below 90.00%	below 90.00%	below 90.00%		below 90.00%	

^a Copra figures based on Tamana Cooperative Society Interest and Bonus Paid Book totals and Daily Copra records assuming 3.65 nuts/lb which was the yield of 1,000 nuts made into copra in December 1973. Mronron and Subsistence use estimated from mean of 7 survey weeks 1971-73.

^b Based on the mean of 3 or fewer survey weeks and included in totals involving the use of these figures.

^c Based on the mean of 5 survey weeks and included in totals involving the use of these figures.

^d Based on the mean of 6 survey weeks and included in totals involving the use of these figures.

Production figures based on palm counts for each household, bushland only.

handlebars of a bicycle and brought back to the house site for processing. Some households reserve larger and more distant lands for copra production and use smaller, closer lands for food needs, but this is by no means universal. Copra is made at the house site involving batches of 150-300 nuts. Several reasons are cited to justify the transporting of nuts rather than less bulky dried copra. All copra is sun dried and drying can be more carefully supervised at the house site. Bush dried copra often gets wet and goes mouldy, ending up as Grade II rather than Grade I copra. Drying at the house site also reduces the chance of theft. Since coconut husks and shells are an important source of firewood, bringing the nuts back to be husked also ensures a steady supply of fuel. When copra production was low people spent many hours scouring the bush for firewood. The nut is husked, split and laid out in the sun to dry, being either taken inside or turned over during rainshowers. The dried copra is prised from the shell (usually with a blade made from a pig jaw), cut into pieces and bagged. The extra labour involved is justified on the grounds that it reduces bulk and allows more copra to be packed in each bag. Some households kept a basket of copra pieces in the house in case cash was needed in a hurry, although the need for this disappeared when the copra price rose and mronron were more willing to accept coconuts in lieu of cash for purchases of store goods.

Only one example of large-scale copra-making was seen during fieldwork. Here Komeri and his wife scoured a large land (1.76 hectares) which had been neglected for over a year and collected over 1000 nuts. These were carried to the beach, tied into long strings and floated to another land more suited to drying. The nuts were split without being husked and the split nuts were left unattended to dry in the sun before the flesh (much of it discoloured and mouldy) was scooped out of the shell, bagged, transported by bicycle to the store and sold. Komeri had no immediate need for the money, nor was the money spent for some time. Copra production strategies of this nature were uncommon and restricted to landholders with large blocks of land in more remote localities.

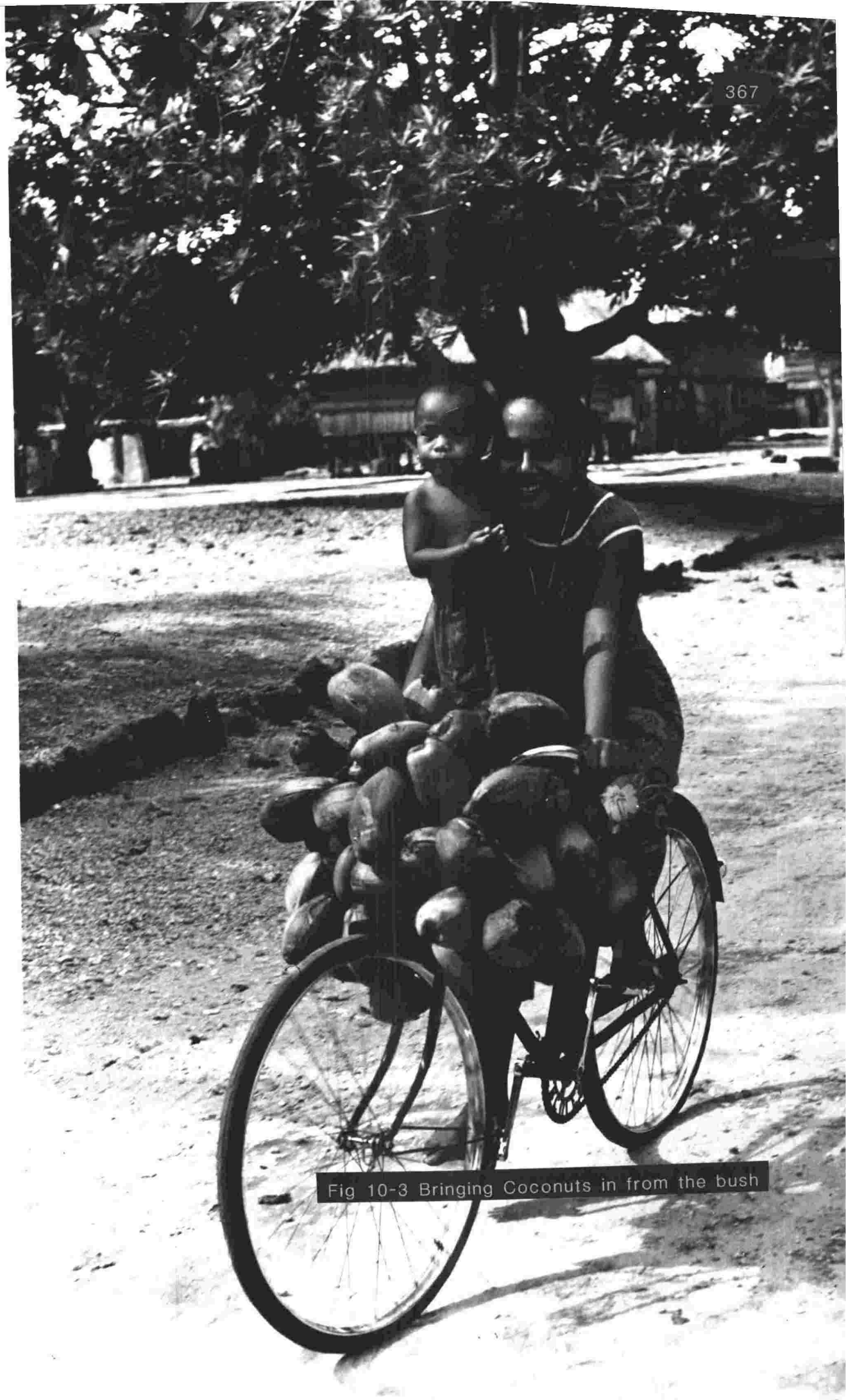


Fig 10-3 Bringing Coconuts in from the bush

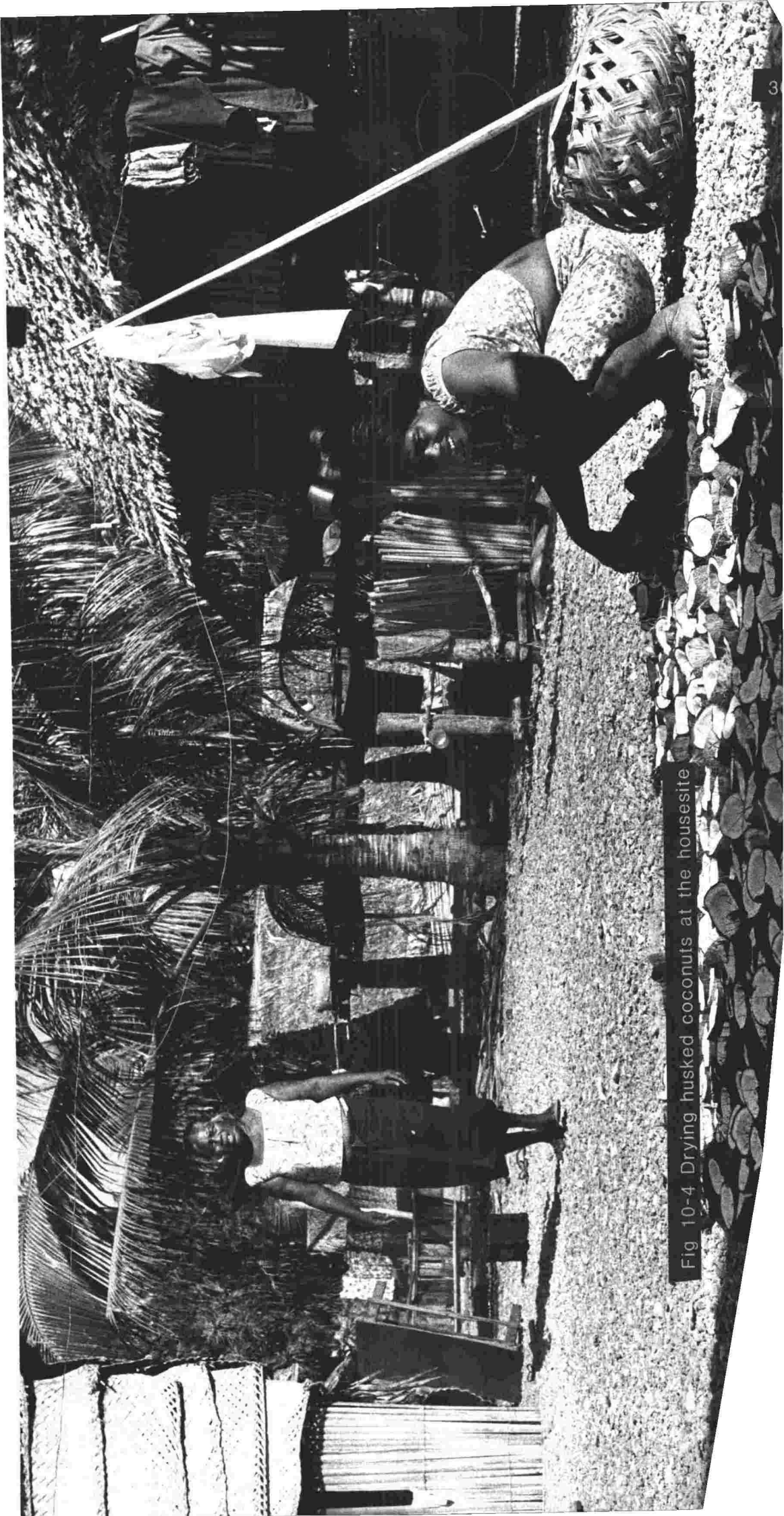


Fig 10-4 Drying husked coconuts at the housesite



Fig 10-5 Drying split nuts in the bush



Fig 10-6 Cutting and bagging dried copra for mronron



Fig 10-7 Copra store, Tamana



Fig 10-8 Weighing copra



Fig 10-9 Loading copra

Levels of Copra Production and Household Resources

Given the relatively minor importance of copra income as a proportion of total household cash income it is not surprising that no relationship between resources (bearing palms, Table 8-2) and level of nut use in copra production or total nut use in both subsistence and copra production exists. Price is clearly an important factor in influencing individual households' decisions to participate in copra production, and for the island as a whole over the 1963-74 period there is a strong positive correlation between production and price (Geddes *et al.* 1979: 51). However, it stands to reason that at some point palm productivity must limit the producer's ability to respond to further price increases. Since production and rainfall in the preceding year are also significantly positively correlated (Geddes *et al.* 1979: 51) it seems likely that the island is close to the point where present palm resources could become a limiting factor in copra production. This is evident in the estimates of household nut use and production presented in Table 10-4.

Table 10-4 shows that with present palm resources, estimated levels of nut use over the period 1971-73 and using Catala's estimate of 23.1 nuts per tree per year¹, all but four of the households would have had surplus production² over total utilisation for subsistence and copra production. If however, palm production were to fall to 13.0 nuts per tree per year as the result of drought conditions the same level of nut use would put eight households into deficit and total nut use by all households would exceed production.

The estimates of nut use in copra production are somewhat misleading because they relate to mean copra production over the 1971-73 period when prices and production varied greatly. Some refinement is attempted in columns B and C where nut use before the 1971 price fall and after the 1973 price rise are estimated assuming no change in subsistence consumption.³

¹See notes to Table 9-7.

²Surpluses are not necessarily wasted. It is not common on Tamana to see large numbers of fallen nuts on any lands, which suggests the surplus is utilised by others, with or without permission. The former applies to use of relatives' lands, temporary caretaking, and outright *bubuti* or gifts. Some households gained nuts from others by selling candies. Because of the dry climate nuts can remain on the ground for up to 18 months without deteriorating.

³This appears to be a valid assumption since most households would, on the basis of these estimates, have surplus production and because the diet data provide no basis to suggest the substitution of store foods for coconut (see p.415).

Column B represents a situation where prices had been stable for the preceding 19 months at 8.8 cents per kg and hence nut use is not likely to show the influence of recent price fluctuations. Here four households would have had a nut deficit while the remaining 12 could, if all the surplus were directed to copra production, have substantially increased production. The situation after the price rise in 1973 is different; for eight households the rate of nut utilisation exceeded the assumed rate of production. If the estimates have any validity it would seem that the 1973 rates of production could only have been sustained by utilising the surplus accumulated over the low price period, by diverting nuts from subsistence use to copra production,¹ or if actual production were much higher than 23.1 nuts per tree per year because of high rainfalls in 1972. The estimated total annual surplus overall for all sample households together is down to 1323 nuts, which as copra at 6.6 cents per kg would have yielded only \$10.87 in additional income. Thus it would seem that on the basis of these estimates total nut utilisation must have been close to assumed levels of production, and field observations recording the premature picking of nuts from the trees would seem to support this (see p.364). However, the last two columns of Table 10-4 suggest there is considerable scope for expanding nut production by increased planting and bringing lands up to the 215 palms per hectare recommended by the Department of Agriculture. Whether such a goal could be achieved is difficult to predict. In the past islanders have shown a willingness to augment palm resources by planting, but now low and declining returns from copra, reliance on remittance incomes and aspirations towards wage employment and urban living have tended to reduce the incentive and at least in part explain the initial difficulties in implementing government-sponsored replanting programmes (see Chap. 11).

Copra as a Cash Crop and Models of Economic Change

The data presented in this section are entirely consistent with the characterisation of the cash economy presented earlier in the chapter. Although copra is the only cash crop suited to the island

¹ This appears to be a valid assumption since most households would, on the basis of these estimates, have surplus production and because the diet data provides no basis to suggest the substitution of store foods for coconut (see p.415).

environment, copra production remains a somewhat desultory activity. For all but a few households it is a relatively unimportant source of income, particularly in comparison with such external sources of income as remittances. Producers show little commitment to cash-earning, entering and withdrawing from copra production in response to price changes and a variety of other individualistic reasons. Price falls are met by wholesale withdrawal from production and increasing reliance on other (usually external sources of income) and on the subsistence economy rather than intensification of production to make good the loss of income.

For these reasons it is perhaps inappropriate to attempt to place the present Tamana cash economy in any of the usual stage or continuum type models used to characterise the transition from traditional village subsistence economies to cash crop economies. In some of the more widely quoted examples (e.g. Fisk 1962, 1964, 1975; Fisk and Shand 1969; and Epstein 1968) the writers appear to tacitly assume that the process of incorporation into the market economy will be by way of increasing specialisation in cash crop production for export and an increasing dependence on the market for all other goods and services required. Other possibilities of gaining access to cash go unconsidered and Epstein (1968: 166) justifies such an approach by claiming that:

evidence from the Tolai, as well as from other culture areas, indicates that in the early stages of growth an indigenous population if given the choice, will prefer to sell produce rather than labour. This reaction appears to continue until urban centres in the area progress so far as to offer great attractions such as cinemas, restaurants, coffee shops and beer halls not available in the rural hinterland.

This clearly does not apply to Kiribati where an established tradition of labour migration exists. The islanders have shown a remarkable willingness to leave their homes, crew on whaling ships, and either work on plantations or in phosphate mining activities. The remittances arising from this employment far outweigh the income generated by local copra production and here, on the smaller drier islands like Tamana, have probably always done so. This in turn diminishes the islanders' need to rely on cash crop production and generates the response pattern described above. While remittance incomes are an important factor in understanding responses to cash crop production the pattern is reinforced by the particular ecology of the coconut economy

of the atoll and reef island situation. These islands must represent one of the few situations where the dominant element in the prevailing tree cover is both the only suitable cash crop and a major food source as well. Thus the choice between production for subsistence or production for the market does not arise. Given the dry environment of the southern islands and the slow germination of fallen nuts, actual decisions on utilisation for either end can be delayed for up to 18 months after the nut has matured. Surpluses can thus be accumulated without loss. Such characteristics permit an exceedingly flexible approach to utilisation which does not necessitate agriculture production strategies of the type taken as being "normal" by Epstein and Fisk. In addition the capital requirements of copra production are small and the scope for expanding productive resources in the short-term limited. The crop is a tree crop which may not bear for 7 or so years after planting. Little response in the short-term can be gained from fertiliser application, increased cultivation, seed selection or other technological changes. Thus the crop does not call for a commitment to production for cash-earning and does not respond readily to the usual avenues of investment of labour and capital in seeking to expand production and levels of income.

Handicraft Production

Trade in curios and handicrafts began in the earliest phase of European contact. In more recent years a wide range of handicrafts including mats and baskets of pandanus leaf, panama hats, fans of coconut leaf and shark-tooth weapons have been produced for sale. The trade was initially fostered by touring District Officers who sold the goods on Tarawa or to contacts overseas, but was later put on a more secure basis when the Cooperative Societies took over the purchasing of handicrafts for export and sale through such outlets as overseas tourist stores and Oxfam.

For the most part handicraft production is the preserve of women and men make only those items such as shark-tooth swords and tobacco pots which involve wood-working. With the exception of swords, panama hats and ornate fans, the handicrafts produced for sale are basically the same as those in everyday use on the island, so no conscious decision to produce for either cash-earning or subsistence use is involved.

In fact the decision could be left until after the completion of the item. Sales are often stimulated by the unexpected need for a small sum of money. Thus for most households handicraft production remains an intermittent and largely social activity carried out when no other more pressing activities present themselves and when women can socialise and weave mats or baskets at the same time. In contrast, in the few instances where there was a conscious decision to produce mats for sale the approach was to finish the mat as quickly as possible requiring many hours of concentrated work in the home. Such work was regarded as dull, tedious and lonely and a pursuit which restricted one's abilities to fulfill communal work and social obligations. This, and the low rates of return to time spent in handicraft production, compared with copra production (which women also engage in) meant that very few households showed any real interest in handicraft production during fieldwork. However, the Cooperative Society data demonstrate that this was not always so and reveal elements that require special comment.

Table 10-2 implies that commercial handicraft production was for many households at least as important a source of cash income as copra, if not more so. However, Figure 10-2 demonstrates that handicraft income, like copra income fluctuated markedly over the 1971-73 period. For most sample households and for the island as a whole income levels from commercial handicraft production were quite low prior to November 1971. The months of November and December showed quite dramatic increases in income from this source only to be followed by a dramatic decline again. This pattern bears little relation to copra price changes since price falls occurred in July 1971 and March 1972, although it seems that interest in commercial handicraft production all but evaporated for most households after copra prices began to rise in May 1973. The dramatic rise in handicraft production in November-December 1971 represents a response to a unique combination of events; the coincidence of an active campaign by the Federation of Cooperative Societies to stimulate handicraft production by a vigorous advertising programme and raised prices to producers with a fundraising drive by the church to raise money for the purchase of a generator for the lighting of the church. Mean household incomes from handicraft sales approached \$11 for December and several households had incomes in excess of \$20 for the month. It is impossible to determine how much of the increased production can be attributed to



Fig 10-10 Weaving panama hat

either cause because the church's target was reached at the same time that the Cooperative Society curtailed purchases of some handicraft lines because of oversupply and the poor quality of the goods produced. For the remainder of the period, despite low copra prices and depressed local incomes few households engaged consistently in commercial handicraft production. The households of Maera, Kaiaba and Kaiea are the obvious exceptions but there are no obvious common factors which link these households and explain their behaviour. Neither Maera nor Kaiea would have had sufficient coconut resources to get the same income from copra production. Maera's high level of cash-earning during 1972 may have been related to his intention of building a new house and the need to accumulate money for the food, tobacco and other goods needed to feed the workers responding to his kabeabea. Neither he nor his wife had close relatives in employment off the island.

The reasons for the general lack of interest in handicraft production are not difficult to find. Sustained handicraft production is regarded as a lonely and tedious activity and the estimated rate of return to mat-making, the most common activity is in the order of \$0.04 per hour. Even shark tooth sword-making, which requires the additional input of scarce shark's teeth only returns \$0.07 per hour. This compares very unfavourably with copra production which even at 4.4 cents per kg returns \$0.17 per hour.

Having said this it now becomes necessary to put the high levels of production during November and December into context. The levels of production attained clearly indicate what is possible, but clearly the households had no wish to maintain production at such levels. It is probable that in these months ends rather than means took precedence and the social pressures exerted through the church fundraising campaign, the desire to achieve a community status symbol of having an electrically-lit church and a genuine wish to cooperate with the "government" in its campaign all contributed to the sharp jump in handicraft production. In the longer-term the interest could not be sustained without these goals.

Sales of Other Goods

Income earned from the sale of kamaimai, fresh and saltfish and shark fin is at present of very minor importance. No households gained a regular income from this source although in some months a few households earned as much as \$10 from the sale of saltfish or kamaimai. No attempt is made to create a surplus specifically for sale. Rather, most households keep a supply of such goods for their own use and if the sudden need arises for cash and this cannot be met from other sources some of this supply or dried shark fin is sold to the store to obtain the needed cash. Households with several active males are more likely to produce surpluses of fish and kamaimai but even here the potential is not exploited. Traditional approaches to surplus toddy production for kamaimai manufacture through membership of aiai groups and the pooling of small surpluses from large numbers of producers stress the satisfaction of needs with a low level of sustained effort. With fishing the size of any surplus is largely dependent on chance rather than the amount of effort expended. The frequent small surpluses generated are usually distributed among kin and neighbours to cement social bonds. Larger surpluses may be similarly distributed, more rarely sold as fresh fish or preserved for later use and/or sale. Social pressures against the sale of fresh fish or concentration on commercial saltfish production ensure that the former are rare and conducted through the store as an intermediary and that the latter, apart from infrequent sales, remains the preserve of mronron. Bottle shortages, pilfering and high transport costs discourage efforts to expand commercial kamaimai production either on an individual basis or through the Cooperative Society, although ready markets for this produce exist in Tarawa and Nauru.¹ Again, several mronron have expressed interest in tapping these markets.

Mronron Divisions

Mronron profit divisions make up a surprisingly large part of locally-generated household cash income. Since mronron membership is usually determined on a residence basis (the kainga) access to this source of income depends on whether the kainga on which one lives runs a successful mronron.

¹ Sales of kamaimai seem to have been successfully organised through island-owned stores on Tarawa.

Thus the differences between households in the income from this source evident in Table 10-2 could reflect this factor rather than any lack of motivation. Similarly, the few households that chose not to join their kainga-based mronron when it was founded now find that they cannot afford the cash outlay necessary to buy into membership of a successfully running mronron and so are debarred from this income source.

Cooperative Cash-Earning

In Chapter 6 and earlier sections of this chapter it was argued that fear of incurring community censure for attempting to raise oneself above the rest of the community and attempting to get more than one's share of resources (thereby prejudicing the livelihood of others) are important factors in explaining the almost complete absence of individual entrepreneurial activity on Tamana. However, entrepreneurial activity and innovation are qualities amply evident and alive in the small cooperatives or mronron which have become an important part of Tamana economic life. The critical factors in explaining the preference for corporate rather than individual or even kin-based endeavour seem to be that the individual can avoid censure by demonstrating that he is working for the good of a wider group; in addition, the fruits of labour belong to the group and are thus exempt from bubuti from kin; and, in a more positive way, mronron activity stresses the pleasure that derives from working together for the benefit of the group, pooling resources to make goals easier to achieve and raising the level of achievement of the community as a whole.

Mronron are indigenous businesses which sell basic store goods (at prices slightly higher than those charged by the store but in smaller units at times outside normal store hours and accept cash or coconuts in payment) as well as some prepared foods such as doughnuts, bread and cups of tea. The equivalence of coconuts for cash is set to allow a small profit to compensate for the labour involved. The name "mronron" on Tamana has connotations of roundness, bringing together and circulation; making money circulate. Small scale cooperatives have had a long history in Kiribati and Tuvalu. The earliest known examples were set up by D. G. Kennedy on Vaitupu in 1926 and by H. E. Maude on Beru in 1931. The

rapidity with which cooperatives were accepted suggests that their principles were in accord with traditional custom and found fertile ground. By 1934 about 34 small cooperatives were known to exist in Kiribati and by 1941 they were doing a large part of the trading in the islands (Watters 1977: 133). If any cooperatives were set up on Tamana during this period no record of them survives and few if any of the mronron currently active were established before the recent upsurge in interest in them which dates from 1968. The reasons for this upsurge seem to stem from the demonstration effect of an R.A.K.¹ project to organise food supplies for feasts. Households were grouped on a kainga basis to provide food for church feasts. Since the levies required store foods, and hence cash to buy them, it was suggested that each household provide a certain number of coconuts and cut copra as a group to raise the cash for the store purchases. Thus the idea behind most current mronron was born. Most mronron are a simple elaboration of this process where the same sequence is followed except that the goods purchased are resold for a small profit, the group cuts copra from any coconuts received in lieu of cash and more stock is bought with the proceeds. Profits are declared and distributed among members.

At the time of fieldwork there were 18 active mronron on Tamana. Many began operations or revived operations only after the rise in copra prices. Most mronron involve the cooperation of 16-20 households and are usually kainga-based which means that the member households form a contiguous unit within the village. Many are the same groups as those established by the R.A.K. A few mronron are associated with choirs or string bands which means that member households could be more widely dispersed through the village. In most instances a particular individual is influential in providing the stimulus to start a mronron and in guiding its early fortunes. However, the mronron rarely comes to be regarded as belonging to that person and nor does he get a bigger share of profits than any other member. Indeed, in keeping with the ethos of equality and sharing, and in an attempt to ensure the spread of responsibility and know-how through the group, some mronron insist that the post of manager be taken by each member in turn. Most mronron are given fanciful and always feminine

¹Reita n Aine Kamatu, Association of Protestant Women.

names which indicate members' pride in and expectations of them. Examples include Nei Biriakina (to grow fast), Nei Karema (small things from many places), Nei Autau (the vessel that never empties) and Nei Katia (to increase or augment).

The activity pattern of most mronron are variations on a theme. Interested parties subscribe capital of coconuts or handicrafts. Store goods are purchased and resold from members' houses rather than a centralised store and each member thus becomes responsible for a particular commodity. The range of goods stocked usually includes flour, rice, sugar, soap, tea, kerosene, matches, batteries and tobacco. Members often make bread, doughnuts and tea for sale on several days of the week. Unlike the Cooperative Society store, goods can be purchased on credit, even by non-members, but debts must be paid at the end of each week. On a set day each week members meet, record takings for the week and stock in hand, fines in punishment of members who ran out of stock during the week are handed out and cash is distributed for the purchase of new stock. Arrangements are also made to cut copra from accumulated nuts. At set times each year activities are reviewed and profits declared. This often coincides with members' needs for sizeable sums of money to pay school fees and such like. Usually some profit is retained to finance the continued running of the venture although several mronron collapsed in 1972 because too much profit was distributed leaving insufficient capital to finance continued trading.

Individual mronron histories reflect as well as external economic conditions, the interest of its members, internal feuds, loss or renewal of interest and drive, loss or gain of key members, changes in members' assessments of the purpose of the mronron and attempts to pursue new and different goals, some of which may be cash-oriented while others are community-oriented. They are not static entities and respond to changes in all of these factors, as is demonstrated in the following analysis of the Nei Toromi mronron, the mronron to which about half of the sample households belonged.

Nei Toromi Mronron

The Nei Toromi mronron commenced operations in 1969. Initially there were 16 member households all drawn from the Barebuka kainga. The actual meaning of membership is not clear. Membership is supposedly individual but the household is the unit involved in the mronron activities. Membership requires that labour be provided on request from both men and women but whoever provides it does not have to be a registered member. If a household moves away they may nominate others to take their place and thus keep their membership alive or, alternatively, terminate membership and claim a share of the accumulated capital. Given the mobility of Tamana population and the constant changes in household personnel this flexibility is important because it maintains a constant labour force and continuity of effort regardless of changes in its constituent households. New members can be admitted if they are resident on the kainga and pay an amount into mronron capital equal to the total capital and liquid assets divided by the number of current members. Several households in the Barebuka kainga chose not to join at the time the mronron was set up (the joining fee then was 20 coconuts) and cannot join now because they cannot afford the membership fee. In three years the initial membership capital share of \$0.22 (20 coconuts) had grown to be worth \$12.25.

The mronron is run by an elected committee from which a manager and a book-keeper is appointed. It is expected that each member will eventually serve a term in both posts, thus ensuring that all members gain the necessary skills and that the enterprise does not become too closely associated with any particular individual. The driving force behind the setting up of the mronron was a 34 year old ex-store assistant with some secondary schooling. While he is no longer manager he keeps an eye on the books and activities of less experienced managers and book-keepers.

Weekly meetings collate details of transactions by members selling goods and set dates on which labour is required for copra cutting, bread baking and the like and the books are checked by the manager.

Special meetings are called to declare dividends, usually several times a year, particularly when taxes or school fees fall due and households need largish sums of money. Profit divisions follow set rules; the meeting is called, the books made up and the value of cash, stock in hand and coconuts established. Half the liquid assets are then distributed among members. In 1973 members each received \$20 in dividends from Nei Toromi.

Credit is also available to members although interest charges are particularly high, being 10 per cent per month for the first month and going up to 20 per cent in succeeding months if the debt is not discharged. As a result few members borrow from the mronron and those who do are usually regular remittance receivers who need a bit more cash to tide them over until the next remittance arrives. There is no evidence on Tamana to suggest that the extension of credit was used to induce sales or commit households to a higher level of consumption of store goods as seems to apply on Abemama and Butaritari (Watters 1977: 134; Sewell 1976: 104).

Since its inception in 1969 the Nei Toromi mronron has shown itself to be quite sensitive to external conditions and responsive to the changing needs of its members. Depressed copra prices in 1971-72 meant a very high equivalence of coconuts to cash and reduced interest in purchasing store goods through mronron outlets. The mronron responded by seeking outlets on Nauru to sell mats in exchange for "Irish Plumcake", tobacco, cigarette lighters and flints which would find a ready market on Tamana because they were not stocked by the Cooperative Society store. The venture lapsed in 1972 for no apparent reason. With the copra price rise in 1973 mronron trading again became buoyant because of the improved exchange rate between coconuts and cash and a general rise in the level of consumption. At this point the membership decided to change the purpose of the mronron. To date it had enabled members to gain access to relatively large sums of money at irregular intervals through a small but continuous cooperative effort. With the improved copra prices such sums were no longer beyond the reasonable reach of individual household endeavour and it was felt that the mronron could achieve the more difficult goal of generating nest egg savings for its members. The new aim of the mronron became to have every member with \$50 savings in the bank. Each member had to open a savings account if they did not have one, divisions of profits were made more frequently but to a smaller number of members in turn and the money had to be banked. Savings books were checked publicly to ensure that the money had not been withdrawn. It was estimated at the time that it would take two years to achieve the goal and at the outset plans were made to celebrate success. Each household put aside three babai plants and one pig for an enormous feast.

Mronron activities have created a focus of interest based on the kainga which it has not had since it ceased being the residence place of the extended family in the 1870s. The growth of this focus of interest has

implications for other community organisations and the way they operate, particularly the airiri groups. In many instances mronron personnel would be largely the same as the members of the local airiri (see Chap. 9). In November 1973 the Nei Toromi mronron formed its own airiri group. It functions in much the same way as a normal airiri except that it takes on some rather marginal cash-generating attributes. Each member whose turn it is to receive the products of the group's labour must pay 20 cents into club funds and it is anticipated that at some time in the future this fund will be distributed among members. However, the charge of 20 cents clearly bears no relation to the value of the goods produced and this is recognised by the fact that only members can participate. The values of working together, protection against one's innate laziness and having a well cared for house still prevail and the importance of sociability is stressed by the fact that one month after its inception the members held a celebration which resulted in all members falling into debt with the fund.

Mronron Economics

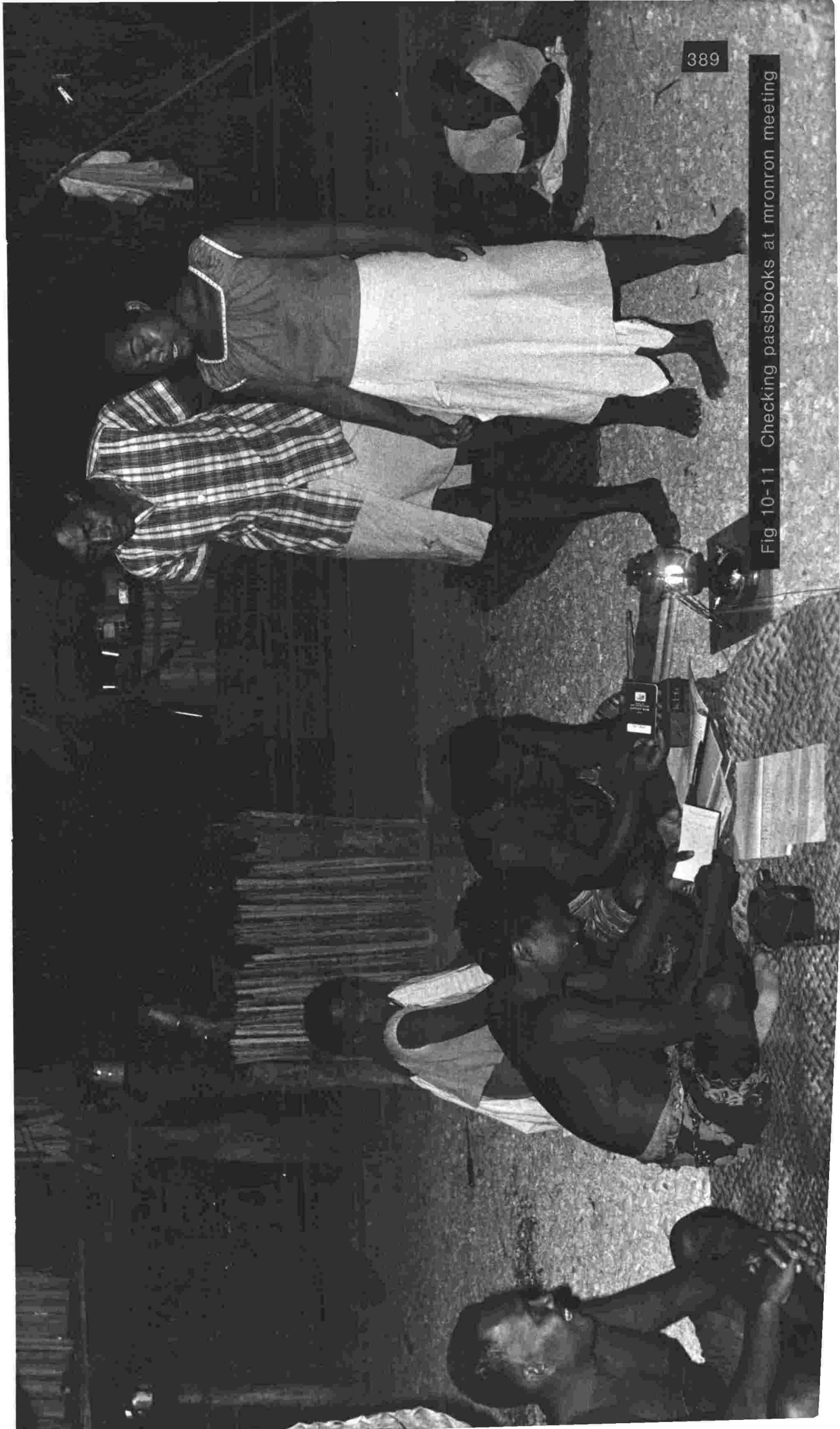
In 1973 the 14 mronron whose cash transactions could be traced through the Cooperative Society's records bought \$7,420 worth of store goods and sold \$6,063 of copra back to the Society. Thus the mronron accounted for nearly 15 percent of store sales and some 34 percent of copra purchases. While these figures look impressive the cash return to members is remarkably small. In 1973 Nei Toromi, one of the two most active mronron, resold \$1,413.46 worth of store goods and earned \$853.36 from copra sales. Dividends returned to members for the year amounted to \$380, or \$20 per household. Since each household spent between six and seven hours per week working for the mronron the rate of return on this effort, excluding capital gain, is in the order of \$0.06 per hour, much lower than the householder would get from making copra for himself (even at the very low prices prevailing in 1971-2) but higher than the rate of return from handicrafts.

Thus the mronron have all the hallmarks of "penny capitalism". From the consumer's point of view they cater for a clientele not well served by the Cooperative Society store; which opens at regular hours only, sells in larger commodity units and does not extend credit. In contrast the mronron are more successful in satisfying the needs of a community with irregular and very low incomes and no expectation of regularly consuming

store goods. The goods sold are available at all hours, in small quantities and can be bought without ready cash either by purchase on credit or by using coconuts instead of cash. From the owner/members' point of view they are capitalistic enterprises in that they seek to earn a profit, make use of underutilised resources and encourage a greater level of cash circulation in the community by extending credit and providing a more appropriate scale of retail service. The change in emphasis of activities over time shows that they are capable of catering to the particular needs of their operators at the time. At least some mronron managements show acumen in the way their assets are valued for the purpose of setting membership fees and in establishing dividend levels which ensure the continued liquidity and viability of the venture.

However, in other aspects the ventures have characteristics more akin to peasant enterprise. Although mronron have been around for a long time, it seems that very few, if any, have great longevity; interest wanes, they run into financial difficulties or they are simply disbanded and divided among members. The returns to labour are also surprisingly low and much lower than an individual could get using his own resources and working on his own behalf. (The preceding section on copra production indicates that resources are not a limiting factor). The involvement of several household members in mronron activities almost amounts to unpaid labour. Clearly, factors other than straight economic considerations are involved. The importance of mronron to their members lies in the fact that they provide money in larger sums which have a different utility to those which normally accrue to individual action. Group reinforcement and inter-action achieves goals not normally considered possible or attainable (e.g. the accumulation of \$50 in the bank). Mronron activity calls for regular low levels of activity which can be accommodated in most activity programmes without curtailing other subsistence and social activities. At a social level obvious enjoyment is gained from working with others and lessening the boredom of what are regarded as tedious activities. In addition, mronron membership enables an individual to pursue the "non-I-Kiribati" ends of attempting to raise his own income without fearing censure or bubuti demands on the products of his labour. These factors help explain the relatively low level of participation of many households in the cash economy, the preference for corporate rather than individual activity and why mronron divisions are such an important part of locally-generated cash income.

Fig 10-11 Checking passbooks at mronron meeting



Mronron and the Future

The viability of mronron ventures as presently structured is clearly related to copra prices; when prices are low activity is depressed, when prices rise activity rises. When prices rose in 1973 expanded mronron purchasing contributed substantially to the cleaning up of the nut surplus that had accumulated, even to the point where future production was being eaten into. In one week's trading Nei Tengare mronron accumulated 932 nuts of which 40 percent had been picked from the trees. This suggests that the scope for expanded activities could be limited by available resources. Mronron activity at present contributes to the more complete utilisation of existing resources rather than the creation of new ones. This factor is recognised by the management of several mronron who are exploring ways of expanding activities to bring new sources of income to the island. These include the selling of mats, saltfish and kamaimai on Nauru and Tarawa, but to date problems with establishing reliable agents, transport costs and pilfering as well as ensuring continuous production have not been overcome.

External Income Sources

Remittances

Personal non-wage remittances to Tamana for the year ending August 1971 amounted to \$14,000 or a mean of \$1166 per month. The gross data indicates some variation from month to month but nothing to suggest a marked increase around Christmas or when school fees or taxes fall due.

At the household level remittances and other untraced sources of income account for as much as 45 percent of the average household's cash income. Even the incomplete data presented in Table 10-2 show that telemos (Telegraphic Money Order) traced through surviving journals accounted for 15 percent of mean household income. It is probable that the shortfall of known income over known expenditure is made up of remittances or redistributed remittances. Not all households have equal access to remittance incomes; two households received no telemos over the period for which records were available and even the two most fortunate households fared only as well as receiving a telemo every second month. A further five households received on average, one telemo every six months (see Fig.10-2). From this it can be

seen that few households surveyed had anything approaching a regular and dependable income from telemos which could be built into any sort of economic strategy. The redistribution of telemos from other households might modify this conclusion. For the most part remittances are received irregularly and depend very much on the whim of the sender, although in particular instances householders admitted to making bubuti requests to relatives in employment for special cash needs such as tax, and school fee payments or approaching weddings. There is a strong expectation on the parents' part that children in employment should remit money regularly and that other kin should respond to special requests for help. The Island Council Minute Books rather surprisingly contain appeals from neglected parents requesting that the Council force erring children in employment off the island to remit money to them.

The most important point to be made about remittance incomes is that they do not lead automatically to a scaling down of activity in local cash-earning activities. Even though Table 10-2 suggests that the "other-dominated" households had significantly higher incomes from remittances and unrecorded sources, the same household type did not earn significantly less from local income sources. In the shorter-term the receipt of a remittance in one month is not reflected in reduced effort in local cash-earning effort in the month following (Fig. 10-2). There is little evidence to suggest any clear reciprocal relationship between incomes from the two sources. Both are irregular and intermittent although the knowledge of the possibility of receiving remittances and their importance relative to other income sources probably reduces the need for a consistent income-generating strategy and substantially diminishes the need to rely on local cash-earning opportunities to satisfy the householder's limited wants.

Sources of Remittances

This section attempts to gain some insight into who sends money from where, to whom, as well as some estimate of the proportion of an employee's income that gets diverted into the remittance economy. A few comments relating to changes over time can be made but for the most part the available data do not permit valid conclusions to be drawn as to whether present patterns differ substantially from the past, nor identification with any confidence of trends which might be projected into the future.

Over the year ending August 1971, 21 different individuals sent telemos to the sample households. Since ten of the sample households had a total of thirteen children or child's spouses in employment on Nauru, Ocean Island, Tarawa or ships, it is clear that less closely related individuals were also remitting money. However, only seven individuals remitted money by telemo on four or more occasions during that year and their transactions provide the basis for Table 10-5. As expected Nauru and Ocean Island feature importantly as the places of employment of regular remitters. The fact that employees on Nauru sent fewer but larger remittances could reflect higher wage levels there, or alternatively it could reflect nothing more than differences between centres in the commission charged on telemos. A very large proportion of the telemos went to the employees' parents or spouses' parents, with progressively smaller proportions going to wives remaining on the island, siblings, more distant kin and others. The most unexpected finding of Table 10-5 is that none of the households' kin in employment on Tarawa or overseas ships remitted money regularly by telemo. It is possible that employees on Tarawa sent cash by other means (by post or with returning relatives), but no instances of this were recorded during the survey weeks.

Table 10-5. Source, Number, Total Amount and Destination of Remittances Sent by Frequent Remitters to Sample Households

Remitter	A	B	C	D	E	F	G	Total	Mean
Place of employment	Ocean Island	Ocean Island	Ocean Island	Nauru	Nauru	Nauru	Nauru		
No. of remittances	20	17	9	10	8	6	5	75	10.71
Amount remitted	\$200.00	\$180.00	\$150.00	\$210.00	\$170.00	\$140.00	\$125.00	\$1175.00	\$167.86
Mean amount per remittance	\$10.00	\$10.59	\$16.67	\$21.00	\$21.25	\$23.33	\$25.00		
Destination									
	Parents or Spouse's parents		Wives	Siblings or Spouse's siblings	Parents' or spouses' parents' siblings		Other	Total	
No. of remittances	40		12	10	7		6	75	
Amount received	\$551.00		\$260.00	\$185.00	\$89.00		\$90.00	\$1175.00	
Mean amount per remittance received	\$13.78		\$21.69	\$18.50	\$12.71		\$15.00	\$15.67	
Percentage of remittances received (by number)	53.34		16.00	13.33	9.33		8.00	100.00	

The differences between Ocean Island and Nauru on one hand and Tarawa on the other in level and regularity of remittances sent may be related to differences in the character of the employment available and the different nature of migration to these centres. For the most part employment on Nauru or Ocean Island is on a contract basis where the employee expects to return to his home island after a fixed term of employment. The corporations provide accommodation and travel costs for the employee, his wife and two children only, as well as rations or a ration allowance. Thus most of the employee's wage can go into capital accumulation or be remitted as gifts to kin. In contrast, there are two types of employee on Tarawa, neither of which are contract-based. There are older Tamana men on Tarawa who had secondary school education (usually at the LMS Hiram Bingham School at Beru) and have made a career in government service. Most have been resident on Tarawa for many years and have their close kin resident with them. Both factors reduce the potential need and likely demand for remittances. The other group of workers are usually more recent arrivals on Tarawa, are usually unskilled or semi-skilled and have access only to less secure, less well paid jobs. In both cases housing subsidies, if they are available at all, are less generous than those provided on Ocean Island or Nauru, personal expectations are higher, the employer provides less in terms of recreational facilities, living costs are higher and the scope for spending money is more varied. In addition there are no restrictions on individual migration to Tarawa and so an employee often has to support additional, often unemployed adult kin or children attending school. All of these factors combine to reduce an employee's surplus of income over living costs and thus leave much less for saving or redistribution as gifts to kin. Thus, although Tarawa is growing in importance as an employment centre it does not, and possibly never will, generate the same amount of remittance income as the contract employment centres such as Nauru and Ocean Island. Nor will it necessarily fulfill the same role because Tarawa is seen as an alternative, urban way of life rather than as an adjunct to rural life. The migrant to Ocean Island or Nauru recognises that he is going for a fixed term and there is no question of his remaining there. The remittances sent while there demonstrate his responsibilities to his kin remaining at home; his accession to levies placed on him by the unimane for the An Tamana fund, and by the village councils demonstrate his

continuing responsibility to the community he has left. Because these organisations have some influence in recruiting, considerable pressure can be exerted on the individual. No similar pressure can be exerted on migrants to Tarawa, although the Tamana/Tarawa organisation on Tarawa may attempt to raise money there for particular purposes and does assume some responsibility for the behaviour of Tamana people on Tarawa.

The impending loss of employment on Ocean Is and its consequent effect of reducing the flow of remittances to outer islands prompted the government to implement the Marine Training Scheme whereby young men are trained as seamen for employment with overseas merchant shipping lines. A discussion document (F185/12/3) on the likely future economic return of the investment argued that each seaman trained would have to remit \$200 per year (the average annual salary for seamen is \$900) for the scheme to be economically worthwhile. By 1971 at least six seamen from Tamana were employed on overseas ships (two at officer class) and possibly more had graduated and joined ships. Most of the money remitted by seamen overseas is handled through the Bank of New South Wales and if all money sent through the Bank in 1971 had been from seamen this would only have amounted to \$140 per seaman per year. Only two regular remitters in 1971 could be identified as seamen; one remitted \$20 per month, the other \$15. By 1973 both had ceased remitting although as far as their kin knew, they were still employed. It seems clear that seamen trained under the scheme are not remitting the anticipated amounts to their relatives and are unlikely to be a continuing or reliable source of remittance income in the future. None of the Tamana seamen have returned to the island during leave and it seems that most seamen choose to stay in the "bright lights" of Tarawa when repatriated for leave by their employers or when their employment is terminated.

Remittances and Time

The data presented here do not permit conclusions to be drawn as to remittance patterns over time. Such data would permit assessment of the validity of Stark's suggested general relationship between net urban to rural remittances and time (reproduced in Connell 1980: 23). Stark suggests that the flow might be in the reverse sense until the migrant is established; the flow then reverses, peaks rapidly then declines steadily

except for responses to acute needs, and then may begin to rise again before an intended terminal movement back to a rural area. All that can be said here is that the model is probably inappropriate to contract-based international or corporate-organised migration such as that to Ocean Is or Nauru, where (a) the individual migrant does not necessarily have the choice as to whether he stays in employment or returns to the rural area, (b) the duration of time away is expected to be short, (c) where the migrants live in an island of birth-based community with institutionalised controls, and (d) where strong links with the home island community are maintained and where this community has some say in the allocation of future work opportunities. The model may be more applicable to remittance patterns generated by migration to Tarawa for employment and may explain why no Tamana people in employment there remitted money frequently. However, this seems to apply regardless of length of stay and may reflect different economic conditions there. It is probable that real disposable wages would have to rise substantially and employment opportunities widen greatly before Tarawa could become an important source of urban to rural remittances. Whether the amounts remitted by any individual would diminish with time is open to question. Again, it should be stressed that Tarawa is seen as an alternative to rural life and, while remittances from kin are appreciated, the expectation is that through schooling one's offspring will get employment enabling the whole family to change from a rural to an urban way of life.

Expenditure

The sample households put the income derived from their diverse sources to three main uses: the purchase of food and other necessities from the Cooperative Society store and the mronron; the payment of taxes, licences and school fees; and donations, mainly to the church.

Store and mronron expenditure accounts for by far the largest proportion of expenditure. The Cooperative Society store stocks a wide range of goods from the staples rice, flour, sugar, tea, kerosene, tobacco, soap and matches, to tinned foods, soft drinks, beer and spirits to perfumes, tablecloths, clothing, cooking utensils, spades, lamps and primus parts, paint and some fishing equipment. Large, capital items such as

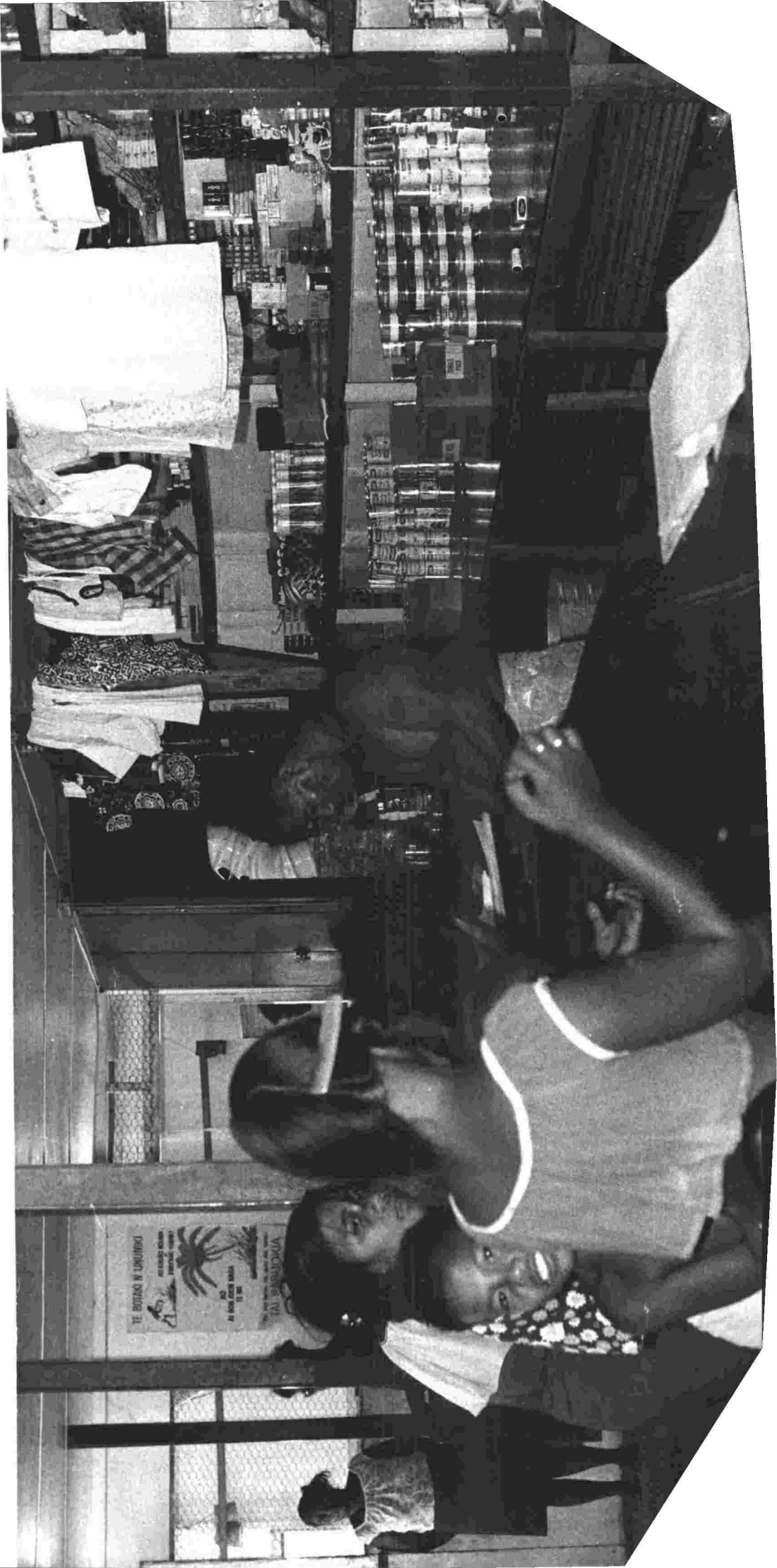




Fig 10-13 Tamana store

wood for canoes, and braided fishing lines are not stocked, nor are they seen by Tamana people as goods which could be saved for or purchased with money earned on Tamana; they come traditionally from Nauru and Ocean Is. However, the Cooperative Society did arrange the purchase of a motorcycle and bicycles for teachers stationed on Tamana. It also shows films several times a week in the village maneaba. Cash is paid for all items although coconuts are accepted for admittance to the films. No credit is allowed. Flour, rice and sugar are sold in bulk. Packeted goods, with the exception of tea are not broken into smaller units. In contrast, mronron sell a much smaller range of goods, usually sugar, rice, tea, tobacco, flour, soap, kerosene and batteries as well as prepared foods like doughnuts, cups of tea and bread. The goods are sold from members' houses on an around-the-clock basis and can be sold in smaller units. Tea is sold by the matchbox-full, tobacco by the half stock and biscuits singly. Goods can be bought on credit with the outstanding sums collected in cash or coconuts at the end of each week. Sales are not restricted to members of the mronron, and, with few exceptions, most mronron charge the same prices; a one cent mark-up on store prices regardless of the size of the unit cost.

Estimates of Expenditure

The data on expenditure pose similar problems to the income data. Table 10-6 shows that weekly store expenditure estimated from the seven survey weeks tends to be lower than estimates based on annual figures from the Cooperative Society's Interest and Bonus Paid Book. This probably means that the informants' recollection of daily purchases was incomplete and that the sample weeks were not representative of the year as a whole. The latter is obviously the case with Kaiea's household which purchased a bag of sugar in week seven in readiness for a wedding. Estimates of mronron expenditure can probably be regarded as underestimates in the same way although the picture is further complicated by the fact that mronron became more active after the copra price rise in 1973. Thus estimates based on means over the 1971-73 period may not be a good indication of future patterns.¹

¹For this reason mronron expenditure was not considered in calculating index incomes based on known expenditure in Tables 10-1 and 10-3.

Table 10-6. Estimated Weekly Expenditure by Sample Households

Household	Estimates based on survey data				Estimates based on annual store data			
	Weekly store expenditure	Weekly mronron expenditure	Total weekly expenditure	Mronron expenditure as percentage of store expenditure	Weekly store expenditure	Weekly mronron expenditure based on percentage of store expenditure	Total weekly expenditure	Annual expenditure
Temakai	0.14	0.15	0.29	107.14	1.77	1.90	3.67	190.84
Bakanoka	0.53	0.03	0.56	5.66	1.82	0.10	1.92	99.84
Meri	0.48	0.12	0.60	25.00	1.38	0.35	1.73	89.96
Tembeti	0.52	0.36	0.88	69.23	1.25	0.87	2.12	110.24
Kaiaba ^a	1.97	0.50	2.47	25.38	1.80	0.46	2.26	117.52
Kaiaba + Maera ^a	1.02	0.23	1.25	22.55	3.07	0.69	3.76	195.52
Timea ^a	0.99	0.70	1.69	70.71	2.25	1.59	3.84	199.68
Maera ^a	1.21	1.02	2.23	84.30	1.27	1.07	2.34	121.68
Barawe	0.57	0.60	1.17	105.26	2.42	2.55	4.97	258.44
Komeri	0.97	0.64	1.61	65.98	1.72	1.13	2.85	148.20
Katirongo	1.09	0.43	1.52	39.45	4.03	1.59	5.62	292.24
Tokintekai	0.82	0.83	1.65	101.22	2.96	3.00	5.96	309.92
Tebebita	1.76	0.38	2.14	21.59	4.32	0.93	5.25	273.00
Enoka	1.67	0.57	2.24	34.13	1.73	0.59	2.32	120.64
Kamantoa	2.19	0.51	2.70	23.29	10.72	2.50	13.22	687.44
Aam	2.95	0.24	3.19	8.14	3.46	0.62	4.08	212.16
Kaiea	0.99	0.31	1.30	31.31	3.52	1.10	4.62	240.24
Total	14.68	5.17	19.92	637.40	49.49	17.23	58.33	3,033.16
Mean	1.13	0.40	1.53	49.03	2.91	1.33	4.99	233.32
Coefficient of variation	71.00	57.97	56.39	74.77	76.77	68.97	67.03	67.03

^a Based on 4 or fewer weeks' data and excluded from the mean

Given these data limitations, the best estimate of mean weekly household expenditure at the store and mronron by the sample households would be \$3.36 per week or \$174.72 per year. The largest spender

(excluded from the calculation of the mean to enable comparison with the mean income in Table 10-2 to be made) spent \$12.75 a week while the most frugal spent only \$1.85. On the basis of the mean data only one household, Kamantoa's, would have had a sizeable surplus of income over expenditure and so it can be concluded that a very large proportion of household income goes into store and mronron expenditure and the amount of saving is very small. Comparison of income and expenditure estimates based on the seven survey weeks (see Appendix 6) would suggest that quite a few households would have an excess of income over expenditure for the weeks surveyed. This is not so, as the annual data shows, and reflects a sampling problem relating to the representativeness of the weeks sampled. Week 4 is atypical because during that week the households received their annual bonuses from the Cooperative Society.

Rather surprisingly, the "other-dominated" households as a group do not have significantly higher mean weekly expenditure, even though they have significantly higher incomes. This probably means that while expenditure at the store and mronron accounted for almost all of most households' incomes, the highest earning households in wage work did not spend all their income; some was saved or distributed to other households.

Expenditure Patterns

The results of the seven survey weeks (see Appendix 6) show that household expenditure at the mronron and the store, like income-earning is very variable, both between households and from week-to-week. It was not uncommon for a household to record no expenditure during several of the weeks surveyed and then spend several dollars in another week; in extreme cases \$10, \$15 or even \$30 was spent. These cases usually reflect purchases of food for feasts and other celebrations. The data give no evidence of an effort on each household's part to maintain a particular level of store good consumption.

The reasons for variability in store and mronron expenditure are not immediately evident. There is no correlation between income earned during a survey week, and the expenditure at a store or mronron, which suggests that income is not necessarily spent as soon as it is earned; we are not dealing with "a selling at the back and buying from the front" situation. This did occur where some households had to meet intermittent

institutional charges like land and head tax. Most households' Cooperative Society bonuses, received in Week 4 of the survey, went straight into tax payments; people purposely waited for the bonus to be declared and distributed to get the money to pay the taxes. In contrast, for items of lesser expenditure, usually foodstuffs, most households appear to have reserves of cash which enable them to spend sums of even several dollars without having to sell copra or make handicrafts first. Remittances and gifts of money from outside and the provision of credit by mronron contribute to this situation. Within limits, the level of expenditure is probably determined by felt needs; the need to supplement subsistence diet when fish is unavailable or the need to provide food for a feast without having to go to the trouble of preparing babai or other traditional foods. The household diet data suggest that store foods were rarely eaten if fish was available. Fish and imported starches are rarely eaten together.

The preceding discussion shows that the study period covered a time of fluctuating copra prices. The question now arises as to what impact, if any, these fluctuations had on expenditure. The weekly survey data suggest that while individual households varied, the trend for the households as a group was for expenditure to be substantially lower in Weeks 2, 3, 4 and 5 when the price was 4.4 cents per kg, and to be higher in Weeks 1, 6 and 7 when prices were 5.5 and 6.6 cents per kg respectively. The data also indicate that local-dominated and other-dominated households responded in the same way; which is somewhat unexpected. One would expect that other-dominated households with their higher incomes from remittances to be less affected by copra price changes. Again, this is probably a data problem. Analysis of the annual data gives a different and more reasonable picture of the situation. During 1972 copra prices remained at 4.4 cents per kg, during 1973 prices were at 4.4 cents for two months and at 6.6 cents for the remainder of the year. Comparison of annual store expenditure by the sample households in total was slightly lower in 1972 (mean household expenditure \$139.81) than 1973 when it was \$179.96, but the difference is not large enough to be statistically significant. This means that the copra price change probably did not have a great effect on the expenditure of the households as a group because of the greater importance of remittances and other sources of income in determining expenditure levels. However, when the household types are considered

separately, expenditure by local-dominated households was significantly lower in 1972 (\$73.69) than 1973 (\$126.55) whereas the difference between years for other-dominated households was not large enough to be significant and tended to mask the difference in the expenditure data for the households in total. The differing response of the two household types reflects the basis of the distinction between them which is the cause of changes in income. Factors affecting local production like copra prices are much more important in determining income and expenditure changes in local-dominated households. Other-dominated households are cushioned from these changes.

Store Purchases and Mronron Purchases

Over the survey period the average household purchased nearly 28 percent of its goods by value from mronron; some purchased as little as five percent, others as much as 50 percent. Clearly these are institutions of some importance and some analysis of the part they play in island expenditure patterns is necessary. The average household spent 40 cents a week at mronron compared with \$1.47 at the Cooperative Society store. The amount spent per week and the proportion of total expenditure made at the mronron does not differ significantly between local-dominated and other-dominated households and so it cannot be argued that the acceptance of nuts in lieu of cash or the provision of credit make mronron a more attractive means of getting store goods for households with lower cash incomes. Mronron are equally convenient to both household types. There appears to be no consistent relationship between store and mronron expenditure, although store and mronron expenditure by local-dominated households were positively correlated. This means that when store expenditures were high, mronron expenditure by local-dominated households was also high, suggesting that the availability of money may be a limiting factor in mronron as well as store expenditure. No similar pattern was evident in the expenditure patterns of other-dominated households.

This suggests that the mronron and the store are in a supplementary rather than complementary relationship. When money became scarce, local-dominated households did not turn to buying with nuts from the mronron because the rate of exchange of coconuts for cash was determined by the copra price. Few would-be consumers, no matter how deprived, took gladly

to the prospect of exchanging 32 coconuts for a stick of tobacco. Similarly, the mronron members were not attracted to the prospect of making copra at 4.4 cents per kg, no matter how many nuts they had. The net result was that mronron activity tapered off during the period when copra prices were low.

The rise in copra prices brought renewed life to the mronron and gave rise to an aspect of household expenditure pattern not evident previously. The higher copra prices and a large accumulation of nuts encouraged the mronron to expand credit facilities. This had a dramatic effect on household expenditure patterns. As Table 10-7 shows, more households bought a higher proportion of their goods from the mronron than previously and much more of this expenditure was on credit. The most important factor is that this rise in mronron expenditure was not at the expense of store spending; there appears to have been a general expansion in expenditure in 1973 reflecting the general rise in income.

Table 10-7. Use of Mronron and Non-Cash Purchases by Sample Households Weeks 2-5 (before copra price rise) and Weeks 6-7 (after price rise)

Household	Percentage of Total Expenditure made at <u>Mronrons</u>		Percentage of <u>Mronron</u> Expenditure bought on credit or paid in nuts	
	Weeks 2,3,4,5	Weeks 6,7	Weeks 2,3,4,5	Weeks 6,7
Temakai	62.03	57.84	59.18	100.00
Bakanoka	0.00	76.92	0.00	100.00
Meri	0.00	26.43	0.00	100.00
Tembeti	12.02	74.04	0.00	39.61
Kaiaba*	ND	20.04	ND	100.00
Kaiaba+Maera*	18.47	ND	14.13	ND
Timea*	ND	59.49	ND	100.00
Maera*	ND	47.74	ND	70.34
Barawe	27.94	63.76	85.51	97.26
Komeri	31.43	23.43	0.00	69.57
Katirongo	16.82	49.17	0.00	75.85
Tokintekai	57.28	84.54	40.34	45.89
Tebebita	16.03	57.41	0.00	100.00
Enoka	14.50	45.50	0.00	100.00
Kamantoa	14.17	40.52	0.00	100.00
Aam	4.77	11.53	0.00	77.52
Kaiea	25.74	4.23	0.00	100.00
Total	282.73	615.32	185.03	1,105.70
Mean	21.75	47.33	14.23	85.05
S.D.	19.43	25.25	28.59	21.78

* Based on four or fewer weeks data and excluded from means.

It is of course impossible to assert that this expansion would, or would not have, occurred had mronron not existed, but I think mronron contributed substantially to stimulating the general level of consumption. Since household expenditure is very variable and households do not appear to aspire to a particular level of consumption of store goods, purchases are by nature irregular, largely unplanned and intermittent. Tamana people do not plan to eat flour or rice on a particular day and go to the store accordingly; rather, if no fish is to be had, substitute food might be considered necessary, and a last minute decision to buy flour or rice results. In this context the mronron have an advantage over the store in fulfilling such needs because they are more accessible, open all hours, service is faster and queuing no problem, and above all, ready cash is not necessary. Goods can be bought on credit and paid for with coconuts at the end of the week. Thus a last minute decision to buy food is a possibility at a mronron, it would be less easily acted upon if the store were the only outlet. The utility of the mronron thus probably contributed substantially to the expansion in expenditure and more complete utilisation of nut resources. Data on nut utilisation suggests that the use in 1973 was likely to outstrip production and that nut use in 1973 was higher than in 1971 even though copra prices were higher. Mronron activity may have contributed in part to this since they do not appear to have been so active in earlier years. While mronron activity is limited by nut and income availability it does have some potential for feedback and further expansion in the economy because the mronron profits are distributed periodically to its members and thus further supplements members' income and expenditure.

The provision of credit by the mronron does not seem to come up against the problems commonly experienced by stores providing credit because only one week's credit is normally allowed and a mronron member does the rounds each week collecting outstanding debts. The fact that credit is provided by a group within the community, rather than the more remote and impersonal store, is also important. The social pressure to pay debts is probably stronger because of this.

While government attempts to licence and tax mronron suggest it sees the mronron as a threat to the government-sponsored Cooperative Society stores, the manager of the Tamana Cooperative Society was keen to encourage mronron activity. He saw them as a means of expanding expenditure and

copra production on the island overall, since all mronron bought their stocks from the Cooperative Society and sold their copra back to it. Thus the Cooperative Society and its members must benefit from any expansion in activity engendered by the mronron.

Expenditure Breakdown by Commodities

Expenditure breakdown by commodities is useful for the insight it gives into the uses to which income is put. Table 10-8 shows that food purchases from store and mronron account for by far the greatest proportion of household expenditure. For the average household, food items account for 85 percent of expenditure by value. Non-food expenditure went mainly on tobacco and going to the films. Very few households spent large sums on household goods or equipment, and data for those which did is probably misleading because they reflect large and infrequent purchases. Flour, rice, sugar and prepared foods (doughnuts, bread, cups of tea from the mronron and biscuits from the store) are clearly the most important and regularly purchased food items. Expenditure on other types of food is much less common, as is evident in the higher coefficients of variation. Non-food goods account for smaller amounts of money and vary more between households.

Expenditure patterns of local-dominated and other-dominated households do not differ significantly and there is no constant relationship between level of income and the proportion of expenditure on food. Food items still made up over 90 percent of some of the higher earning families' incomes. There is no indication of a level being reached where sustenance needs are satisfied and income is diverted into the purchase of capital goods or even savings; as incomes rise the increases are still spent on food items.

The chance survival of cargo books from 1951, 1957 and 1970, together with those for 1971 and 1972 enable some insight to be gained into changes in commodity purchases over time, although the representativeness of the weeks analysed is always open to question and the conclusions must be treated with caution. It was not possible to compare the same months for each year; at best, all surviving books covered either the first or second weeks in October and these form the basis for comparison.

Table 10-8. Mean Weekly Expenditure on Specified Commodities at Cooperative Society and Mronron by Sample Household

Commodity	Temakai	Bakanoka	Meri	Tembeti	Kalabaa	Kalaba + Maera ^a	Timea ^a	Maera ^a	Barawe	Komeri ^c	Katirongo	Tokintekai	Tebbita	Enoka	Kamantoa	Aam	Kalea	Total	Mean	Coefficient of variation	Percentage of total expenditure
Rice	0.05	0.06	-	-	0.22	0.23	-	-	0.29	0.48	0.50	0.19	0.19	0.26	0.62	1.55	0.31	4.50	0.35	118.98	22.74
Flour	-	0.06	0.16	0.29	0.90	0.29	0.83	0.62	0.45	0.43	0.39	0.43	1.47	0.73	0.64	0.59	0.43	6.07	0.47	79.17	30.67
Sugar	-	0.24	0.30	0.03	0.19	0.13	0.46	0.85	0.04	0.35	0.15	0.37	0.26	0.06	0.32	0.56	4.64 ^b	2.68 ^b	0.22	76.44	13.54
Beverages	-	-	-	0.02	-	0.14	-	0.05	0.10	-	-	0.08	0.07	0.09	-	-	-	0.36	0.03	146.79	1.82
Condiments	-	-	-	-	-	0.05	-	-	0.12	-	-	-	-	0.02	-	0.10	0.03	0.27	0.02	197.01	1.36
Tinned food	-	0.18	-	-	0.51	-	-	-	-	-	-	0.11	-	-	0.36	0.08	0.15	0.88	0.07	161.15	4.45
Milk	-	-	-	-	-	-	-	-	-	-	-	0.07	-	-	0.09	0.07	0.04	0.27	0.02	163.82	1.36
Prepared foods	0.10	0.01	0.06	0.28	0.08	-	0.11	0.06	0.06	0.03	0.17	0.17	0.07	0.09	0.50	0.06	0.07	1.94	0.15	91.85	9.80
Sweets	-	-	-	-	0.13	-	-	-	0.01	0.02	0.01	0.03	-	-	-	0.01	0.02	0.10	0.01	131.65	0.52
Total food	0.15	0.55	0.52	0.62	2.03	0.84	1.40	1.58	1.07	1.58	1.22	1.45	2.06	1.25	2.53	3.02	5.69	21.71	1.67	87.56	86.26
Stationery	-	-	-	-	0.02	-	-	0.03	0.01	-	0.01	-	-	-	0.01	0.02	0.01	0.06	0.00	143.04	0.30
Hardware	-	-	-	-	0.01	0.02	-	0.01	-	-	0.07	0.19	-	0.04	-	0.02	-	0.32	0.02	219.78	1.62
Tobacco	0.13	-	-	0.13	0.29	0.40	0.17	0.15	0.05	-	0.12	-	-	-	-	0.09	0.02	0.54	0.04	133.26	2.73
Fuel and matches	-	-	0.02	0.04	0.12	0.02	-	0.14	0.05	-	0.02	0.04	-	-	-	0.03	0.05	0.25	0.02	107.11	1.26
Batteries	-	-	-	0.10	-	-	-	0.12	-	-	-	-	-	0.25	-	-	-	0.35	0.03	269.28	1.77
Soap, toiletries	-	-	-	-	-	-	0.06	-	-	-	-	-	0.04	0.04	0.04	0.02	0.04	0.18	0.01	136.88	0.91
Haberdashery	-	-	-	-	-	-	-	-	-	-	-	-	-	0.56	-	-	-	0.56	0.04	360.55	2.83
Amusements	0.02	0.01	0.05	-	0.03	-	0.06	0.22	-	0.04	0.08	-	0.03	0.11	0.12	-	-	0.46	0.04	121.34	2.32
Total non-food	0.15	0.01	0.07	0.27	0.47	0.44	0.29	0.67	0.11	0.04	0.30	0.23	0.07	1.00	0.17	0.18	0.12	2.72	0.21	120.94	13.74
Total	0.30	0.56	0.59	0.89	2.50	1.28	1.69	2.25	1.18	1.62	1.52	1.68	2.13	2.25	2.70	3.20	5.81	24.43	1.88	77.82	100.00
% food of total	50.00	98.21	88.13	69.66	81.20	65.62	82.84	70.22	90.67	97.53	80.26	86.30	96.17	55.55	93.70	94.37	97.93	88.87			

^aBased on 4 or fewer weeks' data and excluded from means.

^bFigure distorted by purchase of bag of sugar for wedding and excluded from calculations for sugar in totals and percentages column.

^cExcludes week 4.

Given the obvious limitations, it suggests (see Table 10-9) that weekly expenditure at the store by the population as a whole has risen considerably over the last 20 years; from \$38 per week to somewhere around \$770 in 1972. Per capita weekly expenditure¹ rose from just over 4 cents per week in 1951 to 36 cents in 1971. Food items, excluding beverages², accounted for 34 percent of purchases by value in 1951, and by 1971 this had risen to 71 percent, with a fairly consistent rise over the intervening period. Per capita weekly expenditure on food rose from 1.64 cents (which would have bought 0.10 kg of flour) in 1951, to 26.57 cents (1.39 kg of flour) in 1971. Weekly per capita expenditure on non-food items was 2.65 cents (0.39 stick of tobacco) in 1951, and in 1971 it was 8.75 cents (0.73 sticks of tobacco). Apart from these rather obvious conclusions no other clear patterns emerge from the data. Since 1957, the proportion of expenditure on non-food items remains relatively constant at around 20 percent, which raises questions as to whether the data for the week in 1951 is atypical. The proportion of expenditure on most commodities is highly variable and the only items showing consistent change over time are declines in expenditure on fuel, haberdashery, and possibly tobacco (all non-food items) and increases in expenditure on tinned foods, condiments and rice. However, the proportion of non-food to food expenditure did not change radically from 1957 to 1972, and thus there is little evidence to suggest any major increase in the purchase of food-stuffs at the expense of capital or luxury items which might be expected to result from increasing population pressure on resources and declining per capita productivity in the subsistence sector.

¹Per capita estimates based on 1947 census data and a 1971 census conducted by the writer.

²Beverages excluded because expenditure of \$59.11 (57.5% of total expenditure) in one week in 1957 is obviously atypical.

Table 10.9 Weekly Expenditure at Tamana Cooperative Society Store
Sampled from Surviving Cargo Books

	1951	1957	1970	1971 ^a	1972 ^a
Total weekly expenditure	37.91	103.61	251.98	261.55	384.03
Total weekly expenditure on food	14.56	83.13	190.17	202.31	308.88
Total weekly expenditure on food excluding beverages	12.76	24.02	172.57	181.18	277.20
Total weekly expenditure non-food items	23.35	20.48	61.81	59.24	75.15
<u>Percentage expenditure on selected commodities</u>					
Rice	5.38	2.99	17.92	10.30	16.41
Flour	18.70	68.02	2.04	23.83	19.91
Sugar	6.04	7.34	30.96	20.80	13.47
Beverages	4.70	57.05	6.98	8.08	8.25
Condiments	0.92	-	2.31	6.44	5.54
Tinned foods	0.47	0.45	3.14	2.63	8.60
Milk	2.19	1.53	1.70	2.00	2.86
Biscuits	-	2.19	8.37	1.81	4.29
Sweets	-	0.66	2.05	1.46	1.10
Total food	38.40	80.23	75.47	77.35	80.43
Total food, beverages excluded	33.70	23.18	8.49	69.27	72.18
Stationery	0.61	0.48	1.97	0.49	0.42
Hardware	3.95	1.47	2.34	2.34	5.55
Tobacco	24.80	1.25	7.88	6.19	2.52
Fuel, matches	14.11	5.72	5.66	3.67	4.40
Batteries	-	-	1.49	1.10	1.75
Soap, toiletries	7.31	0.98	3.19	6.19	3.39
Haberdashery	10.82	9.87	2.00	2.67	1.54
Total non-food	61.60	19.77	24.53	22.65	19.57
Total	100.00	100.00	100.00	100.00	100.00

^a Book 2 only survives. Only 2 books were in use at this time and since no special sales are associated with each book it is reasonable to double Book 2 totals to arrive at an estimate of total weekly sales.

Church Donations, Taxation and Other Payments

Tamana householders make intermittent donations to the church in weekly collections but by far the largest sums are raised by the village committees in village collections at Easter and the New Year. Individuals obviously vary in their allegiance to the church and in the amounts they

donate, but over the island as a whole, the average donation to the church would total \$8.36 or just over five percent of household income.

To the government, Tamana householders pay direct and indirect taxes. The taxes paid by the mean of the sample households are: land tax \$2.01, head tax \$3.53, school fees \$4.38, bicycle and dog licenses \$0.85. In total these direct taxes amount to six percent of mean household total income or nearly 29 percent of locally-generated income. Indirect taxes are more difficult to quantify. Copra export duty, taking the Copra Board's estimate of 25 percent duty (F151/2/2 Acting Secretary of Copra Board to Assistant Resident Commissioner, 24 November 1970) would have cost the average sample household \$5.26 in 1973, a year of high production, and \$2.58 per year on mean yearly production over 1971-1973. Import duty is more difficult to assess because it is not uniform and as far as could be established some goods sold through the stores were subsidised. Taking 33 1/3 percent¹ as an arbitrary figure, the mean household would pay \$70 in import duty on goods bought from the store and mronron (which buy from the store). Total direct and indirect taxation would amount to something like 57 percent of total household income.

One point relating to taxation warrants special comment. It seems generally assumed that the imposition of a land tax has a beneficial effect in stimulating production. This does not happen on Tamana because land taxes are usually paid from Cooperative Society dividends or remittances. Copra production does not increase as the due date for land taxes approaches.

Consumption and Diet

Insofar as people are what they eat, the household's consumption patterns should be a microcosm of the world that supports its members. Diet data are not discussed here with the intention of assessing the nutritional adequacy of the individual's diet, but rather for the insight they give into the relative importance of the subsistence and cash sectors in the livelihood of Tamana people. Such comparisons are feasible

¹Figure used in F151/2/5 Discussion Paper 28/73 Copra Prices G.E.I.C. Executive Council.

because some 86 percent of mean household income left after the payment of taxes and church donations is spent on foodstuffs, principally imported ones.

For the most part the data concerns itself with food eaten over the seven survey weeks on the house site at occasions regarded as a meal¹ by the inhabitants. No attempt was made to keep track of foods eaten away from the household, particularly those eaten by children or by adults working in the bush. It probably depicts the major elements in the diet of adults and of children over the age of three since by this age the diet of children is almost always identical to that of adults. After weaning younger children are usually fed toddy, milk, mashed pawpaw, pandanus juice and marai, the jelly-like, very early stages of developing coconut flesh. In times of scarcity children are usually fed first while supplies last. If bad weather prevents fishing for several days hunger for fish becomes very apparent, particularly among children.

Meal Patterns

There is little evidence to indicate that households aspire to take a fixed number of meals at regular times each day, or that particular foods are considered appropriate at particular times of the day. On several occasions when fish were unavailable households would drink nothing but toddy for up to three days. There seemed to be no pressure to prepare or buy alternative foods or increase coconut consumption to compensate for the lack of fish. Table 10-10 shows that most households had between two and three meals a day. Slightly over 40 percent of these meals were fluid only. Meals in the middle of the day are less common than morning or evening meals, but if a meal is had at this time it is likely to be one containing solid foods. Morning and evening meals are more likely to be liquid. However, the pattern is one of extreme variability. If fish is available it is eaten at any time of the day. Often, if fishing has been successful, a meal is prepared as soon as the fishermen return. The catch from evening or night fishing may be eaten on return, cooked and eaten cold next morning or kept until morning for cooking. Fish is usually eaten with uncooked coconut and toddy. If fish is unavailable toddy or katokaben (a mixture of grated coconut in toddy), is usually drunk in the morning and evening although a prepared dish of breadfruit, pawpaw, bero, flour or rice might be eaten at anytime of the day.

¹A meal is taken as an occurrence when most members come together and eat either or both solid or liquid food. Meal times are allocated to the following sectors: morning 2 a.m. to 10 a.m., midday 10 a.m. to 4 p.m., evening 4 p.m. to 2 a.m.

Table 10-10.

Meal Patterns, Sample Households

Household	Meals taken at housesite	Meals taken away from house site	Meals per day	Percentage of meals where fluid only taken	Meals per day					
					Morning		Midday		Evening	
					No.	Percentage fluid only	No.	Percentage fluid only	No.	Percentage fluid only
Temakai	130	6	2.78	56.92	0.82	97.50	0.85	4.76	0.98	68.75
Bakanoka	94	31	2.55	56.38	0.63	77.42	0.61	36.67	0.67	54.54
Meri	139	2	2.88	29.50	0.98	27.08	0.88	39.53	0.98	22.92
Tembeti	98	6	2.97	46.94	0.94	57.58	0.91	6.25	0.94	45.45
Kaiaba ^a	42	-	3.00	64.29	1.00	64.29	1.00	50.00	1.00	78.57
Kaiaba+Maera ^a	80	1	2.89	76.25	0.96	74.07	0.89	80.00	1.00	75.00
Timea	54	6	2.86	35.19	0.71	40.00	0.86	16.67	1.00	47.62
Maera ^a	45	4	2.33	51.11	0.62	92.31	0.67	35.71	0.86	33.33
Barawe	111	14	2.97	45.95	0.98	24.39	0.71	60.00	0.95	57.50
Komeri	128	9	2.78	29.69	0.80	51.28	0.90	25.00	0.92	15.56
Katirongo	129	9	2.82	51.16	0.91	80.00	0.78	0.00	0.94	65.22
Tokintekai	126	16	2.90	36.51	0.98	33.33	0.67	24.24	0.92	48.89
Tehebita	124	14	2.82	54.03	0.96	70.21	0.71	20.00	0.86	64.29
Enoka	137	5	2.90	20.38	1.00	40.82	0.84	14.63	0.96	12.77
Kamantoa	136	6	2.90	38.24	0.92	53.33	0.92	4.44	0.94	56.52
Aam	138	5	2.92	20.29	0.96	34.04	0.86	11.90	1.00	14.29
Kaiea	143	1	2.94	37.06	0.98	75.00	0.98	10.42	0.96	25.53
Total			37.13	523.05	11.86	721.98	10.62	257.84	12.02	552.23
Mean			2.86	40.23	0.91	55.54	0.82	19.83	0.92	42.48
Coefficient of variation			3.93	31.86	11.50	41.61	13.63	86.73	9.08	49.81

^aBased on 4 or fewer weeks' data and excluded from means

No immediately obvious economic factors account for meal frequency patterns. One might expect households with lower cash incomes to have liquid meals more frequently because they are less able to afford store foods when fish is unavailable, but this does not happen. There is no difference in the frequency of liquid meals between household types. The number of active fishermen in a household, individual energies and preferences are probably more important in determining the frequency with which fish is eaten and hence the character of meal patterns.

Food Types

Table 10-11 identifies the foods which appear frequently in household diet. Toddy, followed by coconut, fish, bero, flour, tea (often infused in toddy), breadfruit, sugar pandanus and rice complete the list of frequently eaten foods. The low coefficients of variation indicate the more regularly eaten foods.

The data indicate the extreme importance of toddy in Tamana diet. It appears in nearly 90 percent of the mean household's meals and in nearly 40 percent of meals it was the only food taken. The pattern is almost universal with very little variation between households. The fact that toddy appeared in only 62 percent of the meals taken by Bakanoka's household demonstrates what happens when there are no active males in a household and kin neglect it.

For most households fresh (and occasionally salted) fish is the only source of protein. There is a strong correlation between the hours spent fishing and the frequency with which fish is eaten, and although bubuti and the distribution of surplus catch to kin and neighbours did operate, it was not sufficient to redress the inequalities in potential labour force or initiative. The household with the largest number of active fishermen had fish slightly more often than once a day while at the other extreme Bakanoka, the neglected woman mentioned above, ate fish only once in ten days on average. Other protein sources are eaten very infrequently. A few households had meals of tinned meat or fish during the survey. Some of this was purchased at the store and the rest was sent as gifts from relatives on Ocean Island or Nauru. Although all households kept pigs and chickens, no households ate eggs and only one household ate chicken during the weeks surveyed. Pigs are usually eaten only at weddings or New Year celebrations and the surplus is often salted and stored for future special occasions. The mature coconut ben is normally prepared with fish and is eaten at most meals where solid foods are taken. It is usually eaten raw in katarina form (cut in slivers and prised from the shell) by adults and older children and grated (koikoi) by small children and the elderly. In the less mature moimoto and amakai stages the shredded flesh of the coconut and its liquid may be boiled together to make a porridge. During the early part of the survey flour, rice, breadfruit, pandanus or bero dishes were rarely eaten with fish since these dishes were considered alternatives to it. However, towards the end of the survey after copra prices had risen and cash was more readily available dishes containing rice and flour were eaten more frequently and often with fish. Since most rice and flour dishes also have breadfruit, coconut, bero or pandanus as ingredients the consumption of these did not diminish. Even so, rice appeared in only just over three percent and flour in nine percent of meals taken by the mean sample household.

Table 10-11. Percentage Frequency of Foods of Specified Types in Meals Taken by Sample Households

Household	Fish	Coconut	Toddy	Kamaimai	Bero	Bread- fruit	Pandanus	Pawpaw	Babai	Chicken	Rice	Flour	Sugar	Tea	Milk	Tinned foods	Biscuits	Coffee
Temakai	20.77	41.54	100.00	-	1.07	10.77	1.54	0.77	3.08	-	-	3.08	-	-	-	-	-	-
Bakanoka	7.45	37.23	61.70	-	1.06	1.06	4.26	-	-	-	4.26	2.13	18.09	2.13	1.06	1.06	2.13	-
Meri	25.18	60.43	95.68	1.44	17.99	3.60	4.32	-	0.72	-	2.16	10.79	2.88	0.72	-	-	2.16	-
Tembeti	13.27	54.08	96.94	-	7.14	23.47	6.12	7.14	-	-	-	9.18	-	-	-	-	-	-
Kaiaba ^a	21.43	33.33	100.00	-	-	2.38	-	-	-	-	4.76	9.52	-	-	-	2.38	-	-
Kaiaba+Maera ^a	18.75	22.50	97.50	-	7.50	-	1.25	-	-	-	1.25	2.50	1.25	-	-	-	-	-
Timeaa	29.63	55.56	85.19	-	5.56	1.85	-	-	-	-	9.26	22.22	18.51	12.96	-	-	-	-
Maera ^a	22.22	28.89	75.56	-	2.22	4.44	-	-	2.22	-	4.44	15.56	24.44	31.11	2.22	6.67	-	-
Barawe	13.51	46.85	99.10	-	10.81	-	1.80	-	-	-	2.70	4.50	1.80	21.62	-	-	-	-
Komeri	17.97	47.66	90.63	1.56	18.75	3.91	0.78	-	1.56	-	7.81	19.53	3.91	7.03	-	0.78	-	-
Katirongo	21.71	33.33	93.02	0.78	8.53	3.10	3.10	0.78	-	-	5.43	8.53	7.75	7.75	-	1.55	1.55	-
Tokintekai	22.22	52.38	85.71	0.79	4.76	2.38	-	-	1.59	-	5.56	14.29	3.97	8.73	0.79	1.59	-	0.79
Tebebita	8.87	26.61	78.23	5.65	4.84	12.10	6.45	0.81	0.81	-	1.61	7.26	-	2.42	-	-	-	-
Enoka	20.44	67.15	90.51	5.11	12.41	6.57	10.22	-	3.65	0.73	1.46	10.95	1.46	10.95	-	-	-	-
Kamantao	16.18	42.65	91.18	5.15	6.62	4.41	5.88	-	-	-	5.88	15.44	6.62	7.35	0.74	1.47	0.74	-
Aam	27.54	85.51	89.13	0.72	18.12	4.35	7.25	4.35	2.17	-	4.35	3.62	11.59	21.74	1.45	0.72	-	-
Kailea	40.46	53.15	95.10	0.69	15.38	0.69	-	-	-	-	1.40	11.19	4.90	6.99	0.69	1.40	-	-
Total	255.57	648.57	1166.93	21.89	127.48	76.41	51.72	13.85	13.58	0.73	42.62	120.49	62.97	97.43	4.73	8.57	6.58	0.79
Mean	19.66	49.89	89.76	1.68	9.81	5.88	3.98	1.07	1.04	0.06	3.28	9.27	4.84	7.49	0.36	0.66	0.51	0.06
Coefficient of variation	43.97	30.75	11.40	126.48	64.27	108.80	78.65	204.57	121.93	360.55	74.68	56.22	108.12	96.62	140.87	104.10	169.39	360.55

^aBased on 4 or fewer weeks' data and excluded from the mean

Babai is conspicuous by its absence. Despite the obvious symbolic and social importance of this food and the effort extended by some in its cultivation, no households ate babai during the survey period, and even the most frequent eaters ate it only once every 12 days on average. Babai is for most households on Tamana a ceremonial food rather than a staple and this presumably reflects the difficulties encountered in cultivating babai in the drier environment of the southern Gilberts, especially on the more elevated reef islands.

Diet and Economic Circumstance

The frequency data provide no clear-cut, readily interpretable relationship between diet and economic circumstance. Rather surprisingly, no significant differences are evident between household types in the frequency with which they consume flour and rice. Similarly, even the households with higher cash incomes are not differentiated in the frequency with which they consume such less flavoured local foods as bero, pawpaw and pandanus. However, the local-dominated households did consume coconut more frequently and this is also evident in their nut use data (Table 9-7). Differences were also apparent between household types in the frequency with which babai and tinned foods were consumed. The local-dominated households, as might be expected, consumed babai more and tinned foods less frequently, although neither food was regularly consumed by either household type.

Given the differences between households in the level of cash incomes enjoyed and the fact that such a large proportion of household cash income is spent on foodstuffs, it is somewhat surprising that a more clear pattern of difference did not emerge. This could be the result of sampling problems in that the weeks surveyed may not have been representative of the period as a whole. The problem is compounded by the part store foods play in meal patterns. Very few households aspire to eat store foods at most meals or regularly each day. Instead the pattern seems to be that one purchase is made, which might be up to 5 kg of either rice or flour, which is then cooked, eaten at several meals in succession and then no more store foods may be eaten for several weeks. In addition, rice, and to a lesser extent flour, are important fare at inaomata feasts (feasts where the bringing of traditional foods such as babai is not stipulated) and also household feasts for kin returning from employment

overseas, at katabeti (a Sunday meal for kin and friends) and at gatherings held during the serious illness of a household member. In one example of the latter type of feast some 32 kg of flour were cooked up with toddy and grated coconut and eaten by 50-odd people over two days. Thus many households' expenditure on store foods could be largely infrequent, and its irregular consumption not easily detected or represented in the survey data.

Although some households with regular wage incomes may have consumed rice or flour once every two days on average, flour and rice are not seen as an essential part of Tamana diet and little status is attached to the frequent consumption of them. Local foods are regarded as superior because "they stay longer in the stomach and make you feel full longer". The attractiveness of store foods relates to the simplicity of preparation and the ease with which they can be acquired. The latter factor applied particularly after the copra price rise when increased mronron activity expanded the number of purchasing points and enabled goods to be purchased on credit. This in turn seems to be borne out by the impression that households ate cooked meals more frequently during the last two weeks of the survey (after the price rise). Flour and rice appeared in many of these meals although breadfruit, coconut and bero were not neglected.

In this respect it is also important to recognise that flour and rice are not substitutes for local foods. Flour is the most frequently eaten store food because it is less expensive than rice and can be augmented or "stretched" with other local foods. It is seldom eaten by itself and is usually cooked in combination with bero, grated coconut, pawpaw, pandanus or breadfruit and toddy. For this reason there is no relationship between frequency of flour or rice consumption and the frequency with which the important local staples of coconut and fish are eaten. Store foods do not replace local foods and seem to be regarded as supplements to, rather than substitutes for, local foods. As income rose with higher copra prices there may have been some replacement of local foods in certain types of feast by flour and rice dishes. Also, a general rise in meal frequency occurred. Dishes containing flour and rice with local foods also appeared more frequently, but this probably says more about the limited utility of money on Tamana than it does about aspirations to consume increased quantities of imported foods. Food remains the most readily accessible major item of consumption that increased income can be spent on. The incentive to accumulate this income to purchase consumer

durables is limited by the fact that they are not readily available at the store. Conversely, the limited satisfaction gained from consuming more store foods means that when income is short and returns to effort low, there is little incentive to earn money to supplement local food sources. It seems that the prospect of liquid meals of toddy is an acceptable custom and not a stimulus to go out to earn money to buy store foods, to increase coconut consumption or even to go out and collect alternative local foods. When it is remembered that rice and flour occur in only slightly more than 12 percent of the mean household meals, this must underline the strength and importance of the subsistence economy on Tamana. Hence, the economic response described earlier in this chapter is perfectly understandable and does not auger well for development programmes aimed at augmenting and intensifying the use of the local resource base without considering the need for or utility of the extra income generated and the lifestyle aspirations of the people themselves.

Rural Poverty?

The fact that such a large proportion of household cash expenditure goes on foodstuffs and that this level can be maintained only because of the inflow of substantial remittances needs special comment. Superficially, the Tamana situation appears to parallel that found by Connell et al. (1976: 98) in their review of African, Indian and Indonesian evidence where remittances formed an important input into household maintenance. This was taken as a reflection of rural poverty and lack of employment opportunities. Elsewhere, Connell (1980: 24) expresses doubts as to the applicability of these conclusions to the Pacific where, he argues, rural poverty is less obvious, pressure on land is often slight and investment opportunities greater. Considering firstly the consumption side only, there are several reasons why the apparent concentration of expenditure on foodstuffs on Tamana should not be taken as being indicative of rural poverty. The data must be seen in context and recognition given to the scale of activities. While 86 percent of mean household expenditure may be on foodstuffs, the actual sums involved are quite small. Mean weekly household expenditure on foodstuffs amounted to only \$1.67 (Table 10-8) and the staples, flour and rice, bought with this money appeared only in something like 15 percent of meals taken (Table 10-11). So, in no sense

could the households be said to be dependent on remittances as a supplement to cash income, or on cash incomes to eke out inadequate subsistence resources. However, having argued this way it is necessary to explain why so much of the household's cash incomes are spent on the purchase of foodstuffs. The answer most probably lies in the availability of alternative goods on Tamana and from other sources and the effect this has on the utility of money and social pressures against conspicuous consumption.

The range of goods available for purchase on the island is largely restricted to items of everyday need; more expensive capital items are not stocked and this situation must reflect the purchasing decisions of the Federation's central management, what they think is appropriate stock for an outer-island store and their desire to maintain the liquidity of member societies by ensuring that only goods with a rapid turnover are stocked. In turn, this limits the utility of money on the island and reduces incentive to earn more. It also has implications for the interpretation of the expenditure data. The apparent heavy emphasis on expenditure on foodstuffs could reflect the fact there is little else available for purchase. Radios, wood for canoes, heavy fishing tackle and similar goods that might be bought with larger sums accumulated by saving or generated through intensified economic activity are not available on Tamana. In any case these goods have come to be almost traditionally associated with temporary migration to the phosphate workings for employment. Another corollary of the limited availability of consumer durables on Tamana is the absence of conspicuous consumption and particularly the blend of this and security investment manifest in the construction of housing in permanent materials which is so widespread in the Pacific (Shankman 1976: 63, Connell 1980: 26). The unavailability of goods, the limited opportunities for productive investment provided by the reef island environment, the fear of bubuti and the fear of censure for the contravention of the ethos of equality are all factors which limit the utility of money and reduce the incentive to save or invest.

Again, to date the only conspicuous consumption by investment in permanent building materials other than by the church, government or Co-operative Society has been in a village community project to build an iron-roofed maneaba. Here it is the community rather than the individual who benefits and takes pride in the achievement and this will ensure that in a short time other village maneaba and the island maneaba will all have iron roofs and concrete floors.

Savings and Investment

It is readily apparent from the income and expenditure data that there is little scope for saving on Tamana. Table 10-1 shows that most households' store expenditure exceeded income from all traceable sources. However, many households did have savings accounts with either the Bank of New South Wales or the Cooperative Society. In two instances both husband and wife had separate accounts. The savings schemes initiated by the mronron explain the recent establishment of several accounts. Only three households did not operate savings accounts, although one of these admitted to having \$45 stowed away in a safe hiding place.

The sums held in the 12 accounts at the end of 1973 for which data were available ranged from \$0.02 to \$81.36. Over the 1971-73 period account holders made 29 deposits and 45 withdrawals. The mean deposit was \$9.04 (range \$52.00 to \$1.00) and the mean withdrawal \$3.77 (range \$13.00 to \$0.01). Over the same period deposits exceeded withdrawals by \$92.38 representing a small mean saving of \$2.57 per account per year.

Households making larger savings tended to be those with members in wage work or those receiving regular remittances. Table 10-1 shows that these households were also the ones more likely to supplement income with withdrawals from savings, suggesting that even money banked as karinimane ends up eventually as kabirongorongo.

Only one person from the sample households seemed to be following a purposeful saving strategy. This was an elderly unmarried woman who was obviously saving against old age and the possibility that she might not have close kin to care for her. Since 1969 she had been depositing small sums without ever making a withdrawal. In contrast, all other active depositors made irregular deposits of larger sums of money which were then whittled away by frequent smaller withdrawals. Thus, with the one notable exception, there is no evidence of individuals using savings accounts as a means of accumulating karinimane for the purchase of large capital items or for investment purposes other than the payment of school fees. (Education is, however, considered by most Tamans to be an important investment because of the employment opportunities it opens up for their children). Instead, the money is held temporarily and then fed into expenditure on food or land taxes and other institutionalised charges.

This situation parallels Connell's (1980: 27) finding for the Pacific generally that there are no records of remittances contributing to savings or other forms of financial investment. This appears to contrast with other areas, such as East Africa for example, where remittances make a substantial contribution to rural development by providing working capital which is a scarce resource (Waters 1973). The reasons for the lack of incentive to save and invest remittances (or surplus locally-generated income) on Tamana relate to several factors. In many areas of the Pacific, the absence of individualised land tenure is often cited as a disincentive to individually-generated rural investment. On Tamana land tenure has always been individualised and yet despite this and the fact that land sales on the island to indigenes are technically not precluded by the Land Code, there has been no tradition of land purchase on the island. Instead, those individuals with remittances or savings made while in employment overseas wishing to buy land have purchased it on Kuria or Aranuka and settled some of their kin there. While this might be taken as indicating land shortage and pressure on resources, Table 10-4 indicates that most households do have some scope to expand their coconut resource base on present land areas. The reasons for the lack of interest in investment must lie in the limited range of investment opportunities available on Tamana, the limited utility of the money any investment might generate and that savings and investment are not habitual because one's material welfare is ruled by tibanga, or fate. Coconuts remain the only export crop suitable to the atoll environment and returns to this crop in recent years have been poor. There is little incentive to acquire more land to expand the resource base, or to augment existing resources by intensified planting on existing lands. In the short-term there is little that the investment of capital or labour could do to raise coconut productivity. There is little evidence to show that a shortage of individual capital limits present copra production, although investment in infrastructure, such as improved transportation might encourage utilisation of presently underutilised lands on some islands (see Geddes *et al.* 1979: 54). Because of its small size this may not apply on Tamana. Investment in other possible areas such as powerboat-based fishing ventures have not as yet been considered and are probably beyond the scope and scale of the resources available. Investment in smaller items, such as fishing nets, is not appropriate because of the limited inshore areas available in the reef island environment.

In retrospect then, 150 years of contact with the market economy has not transformed the Tamana economy. As Brookfield (1973: 127) argues for the Chimbu of New Guinea, development has taken place through the partial acceptance of "modern" innovations into a continuing system whose "essential variables" have not been transformed. On Tamana the production of pigs and chickens for the whalers, and later the expansion of coconut production for the market as well as subsistence was accommodated without major transformation of the system. No new cash crops were introduced and hence there was no displacement of traditional food crops. The traditional landholding system persisted unmodified. Only slight changes occurred in the use of land, in consumption patterns and perceptions of the local environment. The value system still stresses the value of joint effort and communal gain over individual gain. However, the process did result in the at least partial integration of the Tamana economy into the national economy of Kiribati and into the deprived periphery of the capitalist world. Whether this partial or incomplete integration represents a stage in Fisk or Epstein's continuums of change or a permanent state à la Howlett's (1973: 249, 273) "infinite pause" or "terminal development" in the development of underdevelopment is not of central concern here because, as the next chapter will demonstrate, what happens on Tamana will depend, not on forces at play within the agrarian system on the island, but increasingly on the policies of the overseas aid donors and of the national government in Tarawa. This newly emerging system has left the rural areas relatively impoverished and, in the eyes of its dwellers, incapable of producing adequate satisfaction of their aspirations. The reasons for incomplete incorporation must lie in part in the island's and Kiribati's peripheral and oceanic setting, its miniscule land resources and the peculiar ecology of its major crop, the coconut. But the question of scale and the implications of the straddled economy cannot be ignored. The income-earning possibilities generated by the phosphate-winning activities or the implementation of external aid programmes far outweigh anything possible in the agrarian sector. It is no wonder then that wage labour migration is seen as a necessary adjunct or viable alternative to rural life. Even here the urbanisation and proletarianisation of the rural population has been incomplete because of the contract-based nature of employment at Ocean Island and Nauru.¹ It remains to be seen whether the growth of employment

¹Parallels with the contract-base system of sugar cultivation described by Geertz (1965) in Modjokuto could be drawn here.

on Tarawa will permit such a system to persist. At the present at least, the opportunism displayed by the households studied and their lack of commitment to any particular source of income-earning activity is an entirely rational economic strategy given the complexity of the economic influences to which they are responding. The future shape of development on Tamana will not rest on any predictable, model-based elaboration of the agrarian economy but rather on the shape of the emerging national economy, the policies of external aid donors and the success or otherwise of the government in stemming the growth of the bureaucracy, and diverting a larger proportion of aid to the rural areas. These issues are analysed further in the following chapter.

SECTION THREE

THE FUTURE

Chapter Eleven

CHANGE AND DEVELOPMENT

This chapter leaves behind the detailed empirical study of the household economy in the 1970s and addresses the wider question of change and development. If one accepts as broad a definition of social change as that proposed by Rogers (1969: 3) when he defines social change as the "process by which alteration occurs in the structure and function of a social system", one would have to conclude from the discussion presented in Chapters 2 and 4 of this thesis that intermittent social change has been a feature of Tamana's history. However, Chapters 5 and 6 make it equally clear that the pace of and scope for social change has increased substantially since 1802 when the process of Tamana's incorporation into the orbit of western capitalism began. Since that first contact the islands' relationship with capitalism and its colonial administration has changed, as has the nature of the capitalist and colonial systems themselves. In this almost universal process the juxtaposition between a capitalist, developed and predominantly urban industrial society on one hand and the pre-capitalist or transforming rural and hence "under-developed" society on the other has focussed attention on development as a particular type of social change. Rogers (1969: 18) appears quite satisfied with a very narrow definition of development as "a type of social change in which new ideas are introduced into a social system in order to produce higher per capita incomes through more modern production methods and improved social organisation." Fisk (1974: 51) criticises such narrow conceptions of the development process as these and proffers a more general definition of rural development as being a "process of deliberate change from one state of affairs in the rural areas to another deemed more desirable." He argues that economic growth is only one component of the process and a means to a much wider group of ends. Hughes (1973: 8) draws attention to the difficulties in talking about development of making sure that all parties to the discussion are using the word in the same way. He offers a broader and more thought-provoking definition of development as "a process of change in the way of life and material circumstances of a group of people, whereby they become more able to do and have the things they will be happy doing and having."

"Happiness" is not necessarily directly equated with per capita income and income is not measured simply in cash but can include goods or services and even leisure. Hughes is also not concerned only with the aggregate results of change at the national level. His definition recognises that the goals and expectations of different sectors of the community may differ; that a government's expectations of the development potential or possibilities for action in the rural areas may not be the same as those held by the rural populations and that the desire for higher per capita income alone may not be sufficient to motivate rural dwellers to adopt new crops or production strategies. Today rural dwellers are far more widely aware of possibilities available to them outside those in their immediate rural environment and the patterns of rural-urban migration are adequate testimony to this. The necessity to recognise that aspirations and perceptions of development possibilities differ with the viewpoint of the actor and that rural change takes place in a context of total change will be a recurring theme in the remainder of this chapter.

The Context of Contemporary Change

In discussing the setting of contemporary change on Tamana and the relative importance of different agents of change we are dealing predominantly with what Rogers (1969: 17) terms contact change; change introduced from sources external to the social system under consideration. The further distinction Rogers (1969: 18) makes between selective contact change and directed contact change is important in understanding how differing expectations of the future and differing responses to development options arise. However, in practice the distinction is perhaps not as clear-cut and straightforward as Rogers seems to suggest. Selective contact change occurs when outsiders unintentionally or spontaneously communicate a new idea to members of a social system, who in turn select those ideas they wish to adopt. In contrast, directed contact change is caused by outsiders who, on their own or as representatives of programmes of planned change, seek to introduce new ideas in order to achieve definite goals. The trade that grew out of contact with the whalers and early coconut oil buyers would clearly constitute an example of the former type of contact change where the islanders saw and capitalised on the new opportunities

presented to them. The missionaries and colonial government embody the main agents of directed change. The edict relocating the people into the one village on the western side of the island achieved the mission's desire for greater control over the community. However, this change then had further ramifications because it broke the strong tie between kinship and residence and called for new ways of organising production and interaction within the community. This pattern where directed change sets in train further selective changes is more significant in understanding the response to government-promoted change. The government has had specific policies for the rural areas which seek to raise rural incomes (and the rural area's contribution to national income) by stimulating production or augmenting their resource base. The data on the household income from commercial handicraft production presented in the preceding chapter suggest that the Handicraft Campaign was not highly successful and the discussion of the Coconut Improvement and Replanting Schemes presented later in this chapter demonstrate that the rural dwellers can still choose not to respond to directed change, or instead, respond in a way that satisfies their own rather than the government's ends. It is also important to recognise that the rural dwellers as individuals can respond to the fruits of programmes of directed change whose intentions are quite divorced from the purely rural context. One could not hope to understand the failure of rural development programmes and the increasing rates of rural-urban migration without recognising that this is the unintentional and spontaneous response by rural dwellers to the aspirations and options created by government-initiated programmes of directed change in other areas of the economy. Once it became policy that the colonised were no longer expected to be financially responsible for their own development and increasing international pressure for decolonisation was brought to bear on colonial government, spending on education and welfare programmes expanded. This fuelled the revolution of rising expectations because the islanders saw no other purpose for education other than as a key to wage employment. The growth of a bureaucracy also led to an expansion of employment in the government centre, the emergence of an urban elite and the need for specific programmes to deal with the problems created by urban growth, further feeding the bureaucracy and widening the gap between rural and urban lifestyles. The critical thing is that these changes do not go unnoticed in the rural areas. In fact, the policies for improved communications (transport, national radio programmes and newspapers) ensure that rural dwellers are increasingly aware of developments in the

urban centre, the wider world¹ and their relative deprivation. These then become Rogers' unintentional and spontaneous agents of change to which rural dwellers respond and their responses have little to do with the government's intentions for directed change in the rural sector.

Agents of Change

Over the last two centuries change on Tamana has emanated from influences arising from three main areas of contact: from the influences exerted through contact with capitalism and the market economy; through the activities of the missions; and through colonial control. Both the latter accompanied the penetration of capitalism into the region.

Trade introduced new goods and generated new wants. It also created new demands for island produce. The islanders responded to the possibilities created by increasing coconut plantings, raising pigs and chickens and participating in the provisioning, coconut oil and copra trade as a means of obtaining the novel goods introduced. For a variety of reasons the changes initiated, and the transformation of agriculture resulting from it, did not proceed as far on any islands of Kiribati as it did in other areas of the pre-capitalist world. Foremost here would be the severely restrictive nature of the atoll environment which meant that the coconut remained the only cash crop suited to the area. In addition, its cultivation did not call for a great transfer of effort or land from subsistence to commercial production and the subsistence economy remained vital and intact. A number of social factors may also have contributed to the limited economic change. The egalitarian nature of society, the stress on equality and conformity and the operation of redistributive mechanisms which put the fruits of individual effort at risk are all factors which could be important in discouraging change. Individualised land tenure and high population densities on Tamana may also have militated against the emergence of entrepreneurial types who in other areas of the Pacific were able to utilise the resources of the wider kin group to sustain their entry into the market economy. The small land areas, high population densities and small volume of commercial

¹ In this area World War II was singularly important in breaking down the isolation and hastening the process of change. On the occupied islands the rural population was exposed to the full might of American technology, labourers were paid at rates far higher than those prevailing previously and the Americans seemed to have an unending supply of wealth, food, tobacco and gifts. Men were recruited from other islands into the Labour Corps and thus came into contact with the Americans and travelled to new and different places in the Pacific.

product meant that the region's ties with the market remained tenuous. Freight rates were high, returns to the grower low and the high cost of imports acted as a further disincentive to involvement in the cash economy by limiting the utility of the money earned.

In the same way these factors, plus the government restrictions on the sale of land to non-indigenes, discouraged foreign investment and ensured that no plantation sector emerged. The tendency towards dualism in the economy was thus lessened, but at the same time, no nodes of growth based on higher levels of economic activity emerged to stimulate further investment in the processing and service sectors. The emergence of the dual economy was to wait until increased government expenditure on welfare and services stimulated the growth of the bureaucracy and the urban centre on Tarawa. The only major foreign investment in the region focussed on phosphate extraction. Initially a close working relationship between the mining interests and the colonial administration and the later coincidence of these interests when the British, along with Australian and New Zealand Governments became sole shareholders in the British Phosphate Corporation, ensured a close degree of control of the industry. Indigenous involvement in the activities was precluded, royalty payments remained as low as possible and underwrote administrative expenditure rather than productive investment, and any profits made were shipped out of the country. No urban node or associated processing or service functions emerged. The Corporation controlled all aspects of the industry. The impact of investment in mining was largely restricted to a demand for labour and a system of circular migration soon became an established part of island lifestyles. Labour migration did not lead to urbanisation or proletarianisation of the rural areas because labour recruitment was on a contract basis, ensuring return to the rural areas and that nobody else was permitted to reside in the area of operation. The reverse flow of remittances and capital goods to the rural areas reinforced the tendency towards limited participation by rural people in the cash economy mentioned above.

The role of the missions in change is somewhat harder to characterise. There can be no doubt that the missionaries sought to fundamentally change the character of island society. Chapter 5 demonstrates how successful they were in this; they changed the spatial organisation of society and its structure by facilitating the breakdown of extended family as the basic unit of economic cooperation. The strict control exerted by the missionaries may have prepared the islanders for the paternalism

of the colonial government that was to follow and aided in the destruction of self-confidence and initiative. However, in more strictly economic fields it is hard to establish what significance this influence had. Successful participation in church affairs did necessitate a certain amount of involvement in the cash-earning sector. If the missions did ever try to replace Tamana peoples' staunch belief in equality and conformity with a more materialistic and individualistic outlook, Chapter 6 makes it clear they have failed miserably. In many aspects of Tamana life the church has become a focus for community actions and aspirations.

While the government initially adopted a policy of indirect rule (which implies minimal interference with the institutions and activities of the indigenous peoples), the fact that the administration was expected to be financially self-sufficient necessitated the imposition of taxation. Initially this was in the form of a copra tax levied in kind but taxation in cash was later introduced as a measure to stimulate participation in the cash economy. Other policies¹ aimed at encouraging economic change included the fostering of the cooperative movement and the establishment of a centralised copra handling and wholesaling bodies to pre-empt the return of private traders after World War II. Government involvement in internal shipping was a necessary corollary of these programmes. These programmes ensured regular access to trade goods, an assured market for the islanders' produce and an increased number of buying points which effectively cut the islanders' costs of production. They also removed the disadvantages relating to size and location experienced by the smaller and more remote islands.

This may have encouraged greater participation in the cash economy by all islands in Kiribati as a group but it could be argued that the policies adversely affected possibilities for change initiated by the islanders themselves. The tight control on policy and decision-making by predominantly expatriate government officials may have prevented islanders gaining experience and self-confidence. Over-centralisation in policy and decision-making may have prevented member societies being more adventurous and responsive to the needs of the communities they represented. The uniform pricing policies may also have prevented the better endowed or more favourably located islands realising their potential

¹Individual policies for development will be discussed in more detail in the second part of this chapter.

and becoming growth centres within the region as Butaritari and Abemama appeared to have been doing in the early years of the copra trade. In addition, the imposition of a government-promoted, large-scale uniform cooperative society system effectively removed the retail trade, the potentially most lucrative area for investment, from the indigenous private sector. Would-be entrepreneurs found themselves competing with the might of the Federation of Cooperative Societies and, with the mronron were relegated to the fringes of economic activity. In this way it could be argued that while government intervention created conditions favourable for copra production and trade on most islands, this may have been at the cost of stultifying initiative for further growth and development in the rural economy. In the longer-term other aspects of government activity, particularly its role in raising aspirations through education and creating an urban elite, have had a more devastating effect on islander response to possibilities for rural development.

Direct involvement by government in the field of rural development has focussed prevaillingly on futile searches for new crops, on planting and crop care as an end to increasing resources for subsistence and commercial use, and on improving the utilisation of existing resources. The official view of the problems confronting rural development is that they are prevaillingly "people" problems, problems of response. At the Colonial Conference in 1956 the then Resident Commissioner asserted that:

...The land must be got ready against the time when the phosphate was exhausted as there would be additional hardship when the phosphate labourers returned to their home islands....the people should start work now on the lines suggested and not sit back and wait for the Government to produce large nuts and experts. It was not a case of working their lands one day per week but six days. The crux of the problem of increased production was to change the character and custom of the people (Proceedings of the Colonial Conference 1956).

Despite these stirring words and increasingly urgent efforts to stimulate coconut planting programmes, the rural people did sit back and wait until the government used aid money to provide cash incentives for replanting and better crop husbandry through the Coconut Improvement and Replanting Schemes. The delayed response suggests that the previous schemes did not get at the real causes of low production and even with the latter schemes "success" resulted very much from the fact that the subsidies provided opportunities in the short-term to earn cash in sizeable sums relatively easily. The long-term aims of boosting copra production

and going some way to making good the loss of income from phosphate was not of primary concern to those participating.

This example (discussed more fully later in the chapter) again underlines the fundamental differences between the government and the rural dwellers in their perceptions of the future and development prospects. While the Development Plans of 1970-72 and 1973-76 express some concern at rural-urban drift, rural/urban and regional income inequalities and the need for economic self-reliance as the key to political self-reliance, development is still seen (and probably can only be seen) by the government in terms of increasing the rural area's contribution to national income and finding and tapping new resources. In contrast, the rural dwellers have two basic conceptions of development. Years of paternalistic colonial control have encouraged them to see government as the sole source of innovation. There is no expectation that traditional society or island resources can generate the standards of living aspired to. The question of innovation from within does not arise. Change and development is equated with "the government" and this is synonymous with Tarawa. The schools, dispensaries, roads, shipping, airfields and subsidies are all tangible products of development, but the fact that this is linked to aid expenditure rather than economic growth does not enter the picture. Instead the new order of things raises expectations and aspirations and becomes translated to the almost universally-held conception of the future. In the past the goal was to achieve independence and freedom through having adequate land and the wherewithal to exploit it and the sea's resources. Now freedom is being associated increasingly with cash and wage work absolving the individual and his family from the necessity of subsistence work or copra production. This conception is fed by the expectations raised by the introduction of universal education and the emergence of Tarawa as an urban centre and generator of employment. These conceptions are fundamental in affecting economic change in the rural areas and feed the growing drift of population to Tarawa. They are conceptions which are not easily encompassed in many of the accepted models of rural development.

Models of Rural Change

Much has been written about the failure of the indigenous rural sectors in the Pacific to generate substantial increases in cash crop production and thus contribute to the economic growth and development of

their countries as a whole. The underlying assumption seemingly implicit in most discussions of rural development is that there will be a process of transition in the rural areas from a pure subsistence economy through various intermediate stages of market participation to a situation of complete specialisation in production for the market (Fisk 1975: 53) where cash incomes are presumably at their highest and there is sufficient surplus to pay for the services which are the hallmark of "development".

Rural development problems are seen mostly in terms of the islanders' failure to respond to the development possibilities available in rural areas. The lack of response has been attributed to "subsistence affluence" where needs for food, housing, entertainment, display and emergency can be met from the peoples' own resources with a relatively small daily labour input (Fisk 1975: 59) or to the conformity of producers to "an optimal degree of self-exploitation of the family labour force" determined on family size and production factors (Chayanov 1966: 92). The process of encouraging agrarian change is seen by Fisk (1964: 172) as entailing the lifting of "subsistence groups over the humps where the incentive factor is inadequate, or to remove the humps". He suggests three non-market factors that could ameliorate the situation: (i) an artificial increase in the level of cash production carried out by persuasion (government-sponsored planting programmes) or compulsion (taxation); (ii) an artificial increase in the cash return per unit of labour which could be accomplished by the temporary subsidisation of marketing, transport and processing facilities; and (iii) an artificial increase in the utility of money which could be achieved by temporary subsidisation of the provision of goods and services. These changes would encourage continued innovation which would go beyond the apparent barriers that low prices, inadequate markets and limited demand for cash or store goods pose for continuous incorporation into the cash economy and would lead ultimately to what Mellor (1966: 244-5) terms a "technologically dynamic agriculture". Here the risks associated with innovation are diminished, the capacity to absorb failures increased and institutions providing incentive to change emerge and ensure that change becomes institutionalised and overcomes farmer inertia.

These models are of only limited use in accounting for either the past patterns of agricultural development on Tamana or predicting its likely future direction. Despite more than 100 years of contact with the market economy and the implementation of many of Fisk's "non-market

influences" in government policies aimed at encouraging participation in the market economy,¹ participation by Tamana households in the cash economy remains desultory. No households on Tamana could be regarded as having progressed beyond Fisk's second stage of "subsistence with supplementary cash production" and this would probably apply to most households on the rest of rural Kiribati.² In part this must reflect the restrictive nature of the atoll environment, the absence of alternative cash crops to the coconut, and the low and declining returns gained by producers in recent years. The unique characteristics of the coconut; being an important element in the natural vegetation, and a major subsistence and cash crop and a tree crop whose productivity cannot be manipulated in the short-term, must also be important. Economic strategy becomes a series of decisions as to whether to pick the nut up when it falls, and whether to eat it or turn it into cash in order to make a purchase from the limited range of store goods (mostly foodstuffs) available. This underscores the weakness of the cash nexus. The Tamana response is complicated by the fact that a large proportion of the islanders' cash needs are met from remittances which bear no relation to householders' dependence on island resources or work effort. This last factor again underlines an important weakness in many theories of agricultural change in that they tend to treat the rural economy as an isolated entity divorced from the wider and more dynamic national and international economies. Even if the closure of the phosphate workings on Ocean Island in 1979 were to mean the complete loss of remittance incomes to Tamana and a new cash crop suited to the atoll environment could be found (an almost inconceivable event), there is no surety that its rural economy would necessarily progress through the stages outlined by Fisk,³ simply

¹The imposition of land and head taxes, planting and improved crop husbandry campaigns, and the subsidising of freight and marketing costs and consumer goods and services, to name a few.

²On Abemama and Tarawa and possibly some other islands there are some entrepreneurs more heavily committed to the cash economy. These individuals are, without exception, either part-European or part-Chinese and thus less constrained by prevailing I-Kiribati morality and possibly less affected by any "culture of isolation."

³Fisk and Shand (1970: 257) describe their formulations as applying to "a primitive economy with special reference to the Territory of Papua-New Guinea." Whether it should be applied to an atoll environment with such restricted potential for cash crop production and restricted land areas is open to question. However, all reports in the VUW Rural Socio-Economic Survey seem to indicate that the availability of land and coconuts is not a limiting factor in the level of copra production. Production from existing resources could be expanded and further planting of underutilised lands would increase potential further.

because the Tamana people are already responding to new options, particularly in the growing urban centres, which are quite unrelated to the rural sector and which arise as the result of government activities in other areas.

Brookfield (1977: 133-8) has criticised most existing models of agrarian change as being insufficient to explain the actual behaviour of farmers. His criticisms are twofold: in the first instance the models fail to take account of the alternative opportunities open to the farmer, and secondly, they fail to recognise that agrarian change takes place in a context of total change which affects the motives and demands of the farmer and widens his range of alternative means. He suggests that the theories operate on the unwarranted assumption that the rural populace are only and inevitably farmers and can be nothing else. To support his comments he cites data collected for the UNESCO/UNFPA Population and Environment Project in the eastern islands of Fiji to demonstrate that Fijian farmers have at least two other options: finding wage employment while remaining in the rural area or migrating to Suva in search of work and wider opportunities. In seeking a more satisfactory explanation of agrarian change, or rather the lack of it, and the behaviour of individual farmers, Brookfield suggests a paradigm where it is assumed that the farmer, rather than seeking to maximise income, will in fact seek to maximise welfare, which implies the attainment of an adequate, regular and secure income with an assured surplus without having to utilise every possible working hour.¹ In rural areas this is a difficult goal to achieve, particularly in the more remote and less environmentally well-endowed areas of Fiji. Brookfield argues that the violent swings in copra price over the last 20 years, low capitalisation, ancient technology and archaic marketing systems of the copra industry ensure that there is little that is less certain than the reward to be gained from a newly planted coconut grove. In this way the "traditional" answers of the rural sector can do little to give the farmer the security of income he seeks. In this situation migration to the urban areas in search of employment becomes an entirely rational response. The choice confronting the farmer then is, according to Brookfield, the choice between the security of subsistence farming planned according to well tried

¹An alternative explanation might draw on Finney's (1973: 66) distinction between "fast" money and "slow" money in Tahiti where the indigenes showed a preference for wage work over agricultural enterprises because the former gave an immediate and sustained return.

rule of thumb and the comparable certainty of a modern world of wages, money and the things that money will buy. The rural-urban migration evident in most Pacific countries is mute testimony of the choice made.

The parallels between Brookfield's paradigm and the situation on Tamana are obvious and need little further comment. The population data presented in Chapter 6 demonstrate substantial increases in rural-urban migration since 1968 to the point where this is equivalent to almost all of the natural increase in Kiribati. In Chapter 6 it was also demonstrated that schooling, migration and wage employment have conveniently been internalised within the value system which stresses independence and self-sufficiency. Just what constitutes independence and self-sufficiency in Tamana eyes will be continually elaborated with time and new experiences, thus emphasising the importance of change rather than continuity as a basic principle of Tamana culture. Permanent and semi-permanent migration to Tarawa and continuous wage employment have become simply other means to the same end in a way that no real conflict between the "old" and "new" ways develops. Conflict might, however, arise if an individual attempted to use more established cash-earning methods to substantially increase his well-being while remaining on the island, perhaps by using land belonging to other kin or absentees to boost copra production or using other strategies to purchase or obtain nuts. However, this is unlikely to occur because, as the economic analysis presented in Chapter 10 suggests, the cash-earning opportunities currently available in the rural areas are not seriously entertained as a viable means to the desired end. Here we have the failure, or expected failure of, the "traditional" production answers of the rural sector to give the islander what he seeks: independence and self-sufficiency or security in the longer-term. This view of the prospects for the rural sector is held despite several government-sponsored schemes directed specifically at improving the size and quality of the rural resource base.

Again, the reason for the failure of such projects to achieve their goals of substantial increases in output from the rural sector should not automatically be attributed to the failure of the incentive factor on the part of the potential producer or to conceptual or practical problems in the design or implementation of programmes. Such programmes form only part of a whole raft of development measures which taken together constitute the context of total change identified by Brookfield and which radically

affect the rural-urban balance (or imbalance) as manifest in employment opportunities and the accessibility of services.

Urban Bias

Despite the prominence given to development in the rural sector in such documents as the Development Plan 1973-76 the stark fact remains that government expenditure on infrastructure and development is heavily slanted in favour of the urban areas. Lipton (1977: 18) describes this as "urban bias" and wryly comments that the countryside gets "priority" while the city gets the resources. His experience in India led him to conclude that urban bias was a major contributing factor in the failure of development programmes to ameliorate the condition of the rural poor. Urban bias develops out of urban growth which is often an indirect result of increased government activity in the economy. In many colonial situations government activity is highly centralised and so any expansion in government activities is likely to increase employment in the administrative centre. It is then confronted with problems of providing adequate services for existing urban dwellers as well as coping with the stresses created by increased rural-urban migration. Such problems are both more immediately obvious to the administrators and in many ways more amenable to treatment by specific programmes (such as housing, electricity or water supply schemes) than the more general, structural and less easily definable problems of the rural areas. The former are thus easier to include as specific items in an aid shopping list and are also often the programmes with a large imported component that aid donors are keen to fund. Implementation has the dual effect of increasing employment opportunities in the urban areas and further widening the service gap between outlying islands and the capital. Over-centralisation and the absence of any effective local government system hampers the ability of central government to deliver development funds to the rural areas. It also inhibits the rural people from voicing their concerns and having their aspirations embodied in more effective development programmes. Because of this the central government is often more accessible and more responsive to the growing demands of the emerging urban elite for more and more sophisticated services and thus the situation is exacerbated.

It is also often impossible to produce and market indigenous foodstuffs in urban markets at prices competitive with imported foodstuffs. The urban population becomes dependent on the latter, further increasing the bill for imports and widening the gap between urban and rural lifestyles.

Urban bias is clearly evident in Kiribati. Whether it results from the machinations of an influential group within society thrown up by the process of economic change is open to question. It may be more accurate to describe the Kiribati elite as an "inadvertent elite".¹ In any case the revised estimates of development aid required for the period 1979-82 and prepared for the Constitutional Conference in November 1978 show the effects of urban bias. Of the total sum of \$18,219,000 requested for new projects only \$460,000 (2.5 percent) was earmarked for rural development, even though the rural areas contained 64 percent of the country's population (Green, Bukhari and Lawrence 1979: 103). It is doubtful that expenditure of this magnitude could do much to ameliorate conditions in rural areas, but in Kiribati at least, the massive expenditure in the urban areas must heighten the apparent advantages of living in the capital and contribute to both high rates of rural-urban migration and a sense on the outlying islands of having to make do with development programmes that can only offer second rate rewards.

Thus any attempt to assess rural development prospects on Tamana must consider them in the context of all government policies for economic and social change because these affect the options open to the individual and his ability to participate in change. The situation that has arisen is the direct outcome of policies pursued by the government as well as the consequences of the whole process of social change given the nature of the overall political economy of Kiribati. The remainder of this chapter will discuss the evolution of policies for economic and social change in the colony as a whole. It will also attempt to trace the implications of these policies for rural and urban life and the choice between them. Against this background the Tamana response to particular programmes will be described. An attempt will be made both to demonstrate how the Tamana people see their situation and identify what determines their response to the choices open to them.

¹Term borrowed from A. J. Hooper, pers. comm.

Policies for Economic and Social Change

Colonial policy toward social and economic change falls neatly into two periods between which World War II provides a dividing line.

Pre-World War II Policies

In the earliest years of colonial administration there was no expectation that substantial change or development could arise directly from government activity in its dependencies. The British Empire was not, as Macdonald (1982: 112) observes, a charitable organisation. Its dependencies "were obliged to pay their own way, and more; they were expected to make some positive contribution to the well-being of Britain and its imperial partners". The small range of services provided by the administration was financed from customs duties, the King's Tax levied on the indigenes or their land (usually paid in copra) and the royalties on phosphate paid by the Pacific Islands Company or its successor, the British Phosphate Corporation. In 1913 the government recognised its responsibility in the field of education and provided the princely sum of £75 to each of the three missions as its contribution toward costs of the education systems they provided (Macdonald 1982: 134). Given this level of expenditure it is not surprising that the Island Funds and accumulated reserves of the Protectorate and Colony showed substantial surpluses. The main emphasis of colonial policy was on control, which William Telfer Campbell, Resident Commissioner from 1893-1908, believed would form the basis for future "improvement" and "advancement" (Macdonald 1982: 93). As it happened, preoccupation with the demands and problems of the burgeoning phosphate industry on Ocean Island led to the shifting of the administrative centre to Ocean Island, the relative neglect of the Gilbert Islands and increasing emphasis on control as an end in itself and a lack of interest in possibilities for advancement. Most policy was directed toward "good order and cleanliness" and the preservation and isolation of the Gilbert and Ellice Islanders from the rest of the world. Grimble, the Resident Commissioner from 1926-32, saw his administrative activities in his own words as a "museum policy". In essence it did little more than ensure the preservation of his own romanticised view of I-Kiribati society (Macdonald 1982: 137).

The lack of spending on education and other services was manifest in the dearth of students graduating from mission schools with English adequate enough to fill the small number of vacancies for clerks and other workers. King George V School, set up in 1922, was an attempt to rectify this.

The establishment of the school is of special interest because it sparked off a debate which reveals expatriate attitudes toward change and development. The liberal expatriate headmasters of K.G.V. and the Ellice Islands School (which was funded by the Ellice Islanders themselves) argued that the emphasis should be on academic instruction with particular emphasis on English. Graduates surplus to the government's needs were either to take charge of government schools to begin the process of preparation for inevitable improvement in communications and contact with the outside world, or, on returning to their village to act as "torch bearers" of higher culture and beneficial change. Such views were not shared by the conservative administration. McClure, Resident Commissioner in 1923, in comments which even then echoed a very narrow and pessimistic view of the future, argued that the Colony was unique in its isolation and lack of potentialities. Since there were no prospects for development, education in English was "utterly unnecessary if not fraught with actual danger" in that unfulfilled aspirations would breed social discontent (Macdonald 1982: 134-5). For someone who was committed to the preservation of a society against change, Grimble had a surprisingly low opinion of his wards and the potential of the "torch-bearers" to bring change. He claimed

...The contemplated procession of "torch bearers" relied on to convert the atavism of 30,000 natives (distributed through 300 villages on sixteen scattered islands) would thus resolve itself, at best, into a quinquennial trickle of 40 immature youths....I submit this could and would produce no appreciable effect whatever upon the collective dirtiness, inertia, improvidence, and domestic unenlightenment of the people (quoted by Macdonald 1982: 135).

The latter view prevailed; the intake of students was reduced and attempts to improve the quality of mission schooling abandoned. Neither McClure nor Grimble saw the possibility that improved education might be a necessary part of manpower training to increase the marketability of I-Kiribati labour and pave the way for its incorporation into a larger economic unit through labour migration.

Such attitudes did not change overnight. Younger administrators, such as Maude, attempted to develop a more accommodating and less paternalistic administration. Substantial changes did not occur until after the passing in Britain in 1940 of the Colonial Development and Welfare Act which meant the abandonment of the principle that colonies should pay their own way. Aid money now became available for development projects. As it was, the advent of war and the narrow view of development subsequently taken by some officials ensured that little substantial change occurred until the mid-1950s.

Post-War Policies

The prospect of substantial aid money for development projects left the administrators in something of a quandary; while the possibilities it opened up were attractive, the administrators were concerned at the potential for raising expectations and creating new wants without augmenting the resource base. They were acutely aware that they operated in a situation where environmental limitations were already severe and current consumption levels could be sustained only with augmentation from a diminishing resource. The emphasis of early programmes, such as the Ten Year Plan of Reconstruction Development and Welfare of 1946, was mainly on reconstruction coupled with a modest programme of land purchase for resettlement. Expenditure on transport, communications and social services was kept to a modest level to avoid incurring high recurrent costs. A government Trade Scheme was set up as a means of supplying the expanded Cooperative Societies with stock more cheaply by reducing wholesaling profits and preventing the large trading firms from returning after the war. The projects were thus modest and constrained in scope because of the overriding demands of reconstruction, lack of skilled manpower and experience in implementing programmes and delays, as well as cheeseparing on the part of the aid donors. The achievements were even more modest and the programmes had little impact on development in either the rural areas or the urban centre.

Two major interrelated concerns evident in the pre-war period were carried over into post-war planning: (i) the fear of committing the Colony to high levels of recurrent expenditure and (2) the recognition that the

all-important revenue from phosphate royalties would come to an end.

Post-war reconstruction was given new impetus by the appointment of Bernacchi as Resident Commissioner in 1952. In the following decade new buildings for the boys high school, hospital, administrative centre and ship harbour were provided and a girls high school, teachers' college and a small agricultural research station established. All were located at Tarawa and thus began the trend toward the centralisation and concentration of government activity which today exerts such a strong influence on Kiribati growth and development. Emphasis was placed on capital developments which could be funded from Colonial Development and Welfare Grants and which contributed to increasing the efficiency and economy of the administration. There was some improvement in services. Expenditure on health and education was held back and concentrated on the administrative centre rather than dispersed over all rural areas, thus avoiding the high recurrent expenditure inherent in universally available health or education services. It was accepted that localisation of the civil service would occur and that this would create demands for improved products from the school system. However, fears of raising expectations through the widespread availability of primary education again brought forth arguments not unlike those of Grimble and McClure. These prevailed and were effective in curtailing government entry into the primary schooling system. Primary schooling remained largely the preserve of the missions and the government introduced a more restricted and selective education programme aimed at providing the small number of graduates needed to fill the limited civil service vacancies. The justification for the emphasis on services with low recurrent costs was that once the basic services had been provided surplus income could be diverted into the Revenue Equalisation Fund, interest from which would help offset any future budget deficit when revenue from phosphate royalties ceased. The Fund was set up in 1956 with \$155,580 obtained from the sale of assets from the Japanese occupation. By 1962 it stood at \$1.5 million.

While the centralisation and concentration of governmental activities and services in the 1950s and early 1960s did generate employment and some migration to Tarawa, its impact, compared with what happened in later years, was surprisingly limited. South Tarawa was maintained as a closed district and only landholders, their families

and government employees were permitted to reside there. Despite improved communications and shipping, movement of people between the urban centre and outer islands was effectively restricted. Thus uncontrolled migration and urbanisation were precluded and the outer islanders could neither see nor share in the developments resulting from the expenditure of substantial sums of aid money. The poor quality of mission schooling and the refusal of the government to mount a primary education programme meant that most outer islanders were unlikely to obtain the means by which to qualify for employment and entry to urban life.

The major change in attitudes toward economic and social planning came in 1962 with the appointment of Andersen as Resident Commissioner. Against the background of acceptance by the United Kingdom Government that its former colonies would become independent rather than merely self-governing and that for political reasons this would be sooner rather than later, it was obvious that a basic level of services would be required for independence regardless of whether the country would achieve economic self-sufficiency. If available resources were to be used to their maximum potential Andersen argued that development should also be maximised and a satisfactory infrastructure put in place while it could still be financed with grants in aid and revenue from the phosphate operations. Rather than paring programmes to fit income, Andersen advocated planning for what was needed and then scratching for funds. Funds were to come from Colonial Development and Welfare Grants (CD & W Grants) and the phosphate industry royalties. No additions were made to the capital of the Revenue Equalisation Fund between 1963 and 1967 (Macdonald 1982: 176). As a measure of the rising level of expenditure on development and the provision of services in the period covered by the Ten Year Plan for Reconstruction Development and Welfare 1946, Maude hoped to spend \$2.6 million, some of which would have had to have come from aid sources; the 1955-60 development programme anticipated work on undertakings totalling \$843,600 which the government hoped to finance from CD & W grants (Macdonald 1982: 172). The level of aid grants increased steadily thereafter. In 1964 the sum was \$192,000 rising to \$467,000 in 1966 and \$671,000 in 1967. In 1968 the grant exceeded \$900,000, a large part of which was for the purchase of a large ship for inter-island passenger traffic. Similarly, the phosphate industry's contribution to government funds by way of royalties increased steadily. In 1950 it paid \$100,000

in royalties. By 1966 the sum had risen to \$1.8 million and at the time fieldwork was initiated for this study (1973) the yearly contribution had risen to \$3 million.¹ Education became an increasingly important recipient and the longstanding debate between those for and against extending the availability of schooling was put to one side at least by those directly involved in the Gilbert and Ellice Islands administration. Criticism was, however, voiced by none less than the High Commissioner for the Western Pacific himself who questioned both the cost and necessity for compulsory universal education. Through most of the 1960s education absorbed about one-third of all aid received (Macdonald 1982: 176).

Policies for Education and Social Welfare

The justification for expanding the education programme did not lie in the expectation that education would stimulate beneficial change and development in a manner similar to that anticipated by the "torch bearer" proponents of earlier years. Rather, it was precipitated by the LMS threat that they would withdraw from village education. This, coupled with the continuing failure of the mission education system to satisfy growing manpower needs by producing enough students qualified to go on to post-primary education and gain the skills necessary for employment in the rapidly expanding English speaking government service, was sufficient to galvanise the government into action. Existing government primary schools and those formerly run by the LMS were placed under the control of the Island Councils. Both these and the Roman Catholic schools received grants toward capital and running costs as well as the salaries for teachers qualified to conduct an approved, six-year primary course in which English was to be the medium of instruction. The reasons for this were obviously to facilitate localisation of the civil service, but other wider considerations were also involved. The government finally recognised that the resettlement prospects offered by the Line and Phoenix Islands were seriously limited by the environmental vagaries of the drier islands and the difficulties and expense of administering distant settlement on the others. Although some I-Kiribati had been successfully resettled on Wagina and Gizo in the Solomon Islands, it was unlikely that this alternative would remain acceptable to Solomon Islanders as they too approached independence.

¹With the rise in phosphate prices after the energy crisis in 1973-74 the income from the phosphate royalties skyrocketed to \$22.8 million.

Andersen saw education in English as being an essential part of his programme to make the islanders a more mobile and more marketable labour force thus opening the way to migration to employment overseas. The Marine Training Scheme established in 1967 constitutes another element in this programme as an attempt to reduce the pressure on the limited resources of the island environment and enable the I-Kiribati to participate in and derive benefits from employment in a larger economic unit.

While the implementation of such policies through a series of separate and usually aid-funded programmes may have gone a long way towards raising social services to a level politically acceptable for a colony approaching independence, the problem of recurrent costs remained. In the late 1960s the United Kingdom Ministry of Overseas Development became increasingly concerned that the services offered could not be maintained by locally-raised finance and that political independence would not be matched by economic independence. A socio-economic survey was commissioned in 1967 and in 1968 the team leader Sir George Mooring recommended that future development funds should not be spent on any substantial expansion of infrastructure or services unless they would also contribute to increased production. The team argued that expenditure should be directed towards encouraging increased production from agriculture and fisheries and to possibilities of industrial development. They also issued warnings as to the undesirability of concentrating infrastructural development of roads, buildings and the like on Tarawa which was far in advance of that evident on any of the other islands (Mooring et al. 1968: 23).

The Development Plans

Mooring's comments were taken to heart and became major policy planks in the subsequent series of Development Plans. It is not quite so evident that the warnings had any great effect on what happened on the ground. The writers of the first plan (Development Plan 1970-72) saw it as the first attempt to formulate a comprehensive and integrated blueprint for the social and economic development of the Colony. The major thrust of new development was to be in agriculture and, as far as the rural dweller was concerned, the major programme was the widespread implementation of the Coconut Subsidy Scheme. This sought to encourage landowners or

groups of landowners to clean and thin or plant up existing productive groves and to undertake the wholesale replanting of unproductive land. Cash payments for work done and subsidies to make good interim loss of income were an integral part of the scheme. Other programmes had less direct importance to those on outlying islands. Attempts were made to assess offshore fishing prospects, possibilities for developing bait fish-farming for the tuna fishing industry and plans were made to develop the plantations, the game-fishing tourist industry, and brine shrimp prospects of Christmas Island. Recognition, at least, was given to the problems of the imbalance in infrastructural services between Tarawa and the outer islands and its links with rural-urban migration (Development Plan 1970: 72). The V.U.W. Rural Socio-Economic Survey which got the writer into the field was an attempt by the government to improve rural planning by the provision of a better data base on outer island resources. Later plans warned against increasing income inequality and the continued enrichment of the urban elite at the expense of the rural areas (Development Plan 1973-76: 2). Thus for the first time since the very early years of colonial administration it was recognised that the rural production sector had the potential to and must of necessity make a substantial contribution to national income in the post-phosphate era. It was decided that aid money could be employed in the rural areas to achieve these ends.

The reality proved otherwise. By 1977 in the Third Development Plan Review the government had to report that progress towards strategic economic goals was negligible, and despite solid progress on new coconut plantings no major new resource other than the sea had been identified and the production sector had failed to establish new sources of national income necessary to maintain living standards (Third Development Plan 1977: 5). Nor had it found any practicable solution to the increasing rural urban drift to Tarawa (Third Development Plan 1977: 6).

Policies for Agriculture

Agriculture was thus a latecomer to government development activities and despite the emphasis and funding given to it in Development Plans, little was achieved. Because of the restricted nature of the atoll environment the search for new crops and previously untapped resources was

unsuccessful. Given the country's small share of the world copra market little could be done to influence the vagaries of world copra prices and even with a larger share, the example of the Philippines offers little encouragement. From the producer's point of view the overriding importance of remittances as a source of cash income greatly diminishes the need to intensify their agricultural work load. The marginal productivity of agricultural labour remains comparatively low and drudgery rates high. At best, some island landholders saw the incentive schemes¹ as a means of obtaining, for individual or community purposes, substantial cash sums not normally available (Geddes 1975: 115; Sewell 1976: 79; Watters, 1977: 164; Lawrence, 1977: 183) or receiving payment for the quite common activity of maintaining or improving one's coconut groves for the benefit of future generations. In the rural dwellers' minds the link between the need to expand copra production to go some way to making good the loss of phosphate revenue so as to maintain current living standards was either not made or was not seen as an urgent problem requiring action on the individual's part. The rural population seems to have been more impressed by the continued growth of government activity on Tarawa and evidence that the all-powerful government now seemed to have wealth sufficient to spend increasing amounts on schools, clinics and other government buildings on the outer islands, even if it could not make village agriculture a more attractive and viable economic livelihood by attacking the real cause of dissatisfaction in rural areas: the low level of return to effort and the uncertainty of that return in the future.

The priority given agricultural development programmes after 1967 did little to redress the urban bias that had concentrated administrative activity and social services in Tarawa prior to that date. With the passing of the restraint and control of the Bernacchi era the government became an increasingly important generator of employment. Tarawa was no longer a closed district and individuals were now free and able, because of improved communications, to migrate there in search of work, education and adventure. Between 1963 and 1973 the population residing in South Tarawa (the islets from Betio to Bikenibeu plus the adjacent rural/peri-urban villages) rose from 6,100 to 14,861, and it became home for some 25 percent of the Colony's population. The number of expatriates resident in Tarawa also increased substantially. Between 1946 and 1964

¹Discussed more fully on p. 448.

the number of expatriates remained fairly constant at around 50. With the increase in range and complexity of government activities this number rose to 100 in 1970 and by 1976 approached 200. More and higher standard housing and services were provided for the expatriates, which had the effect of generating employment in a wide range of construction, service and public utility areas as well as raising the aspirations of the rural population at large. The range of government activities increased, creating more employment in clerical and administrative areas, while the commitment to localisation brought in more expatriates to train indigenous personnel in readiness for localisation. Thus, Tarawa became "a vast sponge soaking up Colony resources" (Macdonald 1982: 181). Its largely aid-funded growth tended to cloud the real issues confronting future development and gave rise to quite different perceptions of the future on the part of the government and the rural population.

Clearly, the government's and individual's perception of the role of the rural sector in the future national economy differ substantially. The former's perception is based on the harsh reality of the loss of phosphate income, the dilemma of dependence created by the acceptance of aid-funded projects and the forlorn hope that the rural sector might be able to respond in such a way as to contribute to economic independence. The latter's choices are in fact far wider. Their perceptions draw strength from the real unreality of the growth of Tarawa and the alternative prospects it holds out for wage employment. They are fuelled on one hand by the expectation that the universal education system provided by the government will be the passport to a new life and on the other by the continued failure of rural life, despite the well-meaning development projects, to provide the population with adequate and secure returns to effort. These perceptions are clearly evident in the village responses to particular development programmes discussed below. The situations described show a remarkably hard-headed response by the rural population to the options and choices put before them, while the reactions show that the values and traditions discussed in Chapter 6 are still very relevant to the way people act today.

Development Projects and the Rural Areas

In this section we turn from the general issues and impact of development policy to consider the success or otherwise, of particular government-sponsored development programmes aimed specifically at the rural population and to the attempts by the islanders themselves to substantially change their material well-being. In doing so I wish to demonstrate the importance of differences between the government's and rural population's perceptions of the world and the future and how these contribute to project performance. Despite the changing definition of "development" in the post-Mooring Report years, and increased government expenditure in rural areas, there are remarkably few programmes directed specifically toward the rural areas, particularly programmes of a nature which would directly affect the character of the outer island resource base, the balance between resources and population or the skills and technological capabilities of the population at large. The programmes that come to mind are the agricultural development programmes, the family planning "campaigns" and the government's entry into the field of universal primary education. The disparities between the government's expectations of these programmes, their implementation and the manner in which they were adopted or rejected by the rural population tells us a great deal about how the islanders see their options or choices for the future and the means by which these can be realised. Their own

None of these activities seem to have had any lasting effect on the character of agriculture on Tamana.

The main boost to agricultural development came in 1965 with the appointment of two officers under Colonial Development and Welfare Schemes, to implement the Improvement of the Coconut Industry Scheme and a Plant Introduction and Livestock Scheme. These activities were brought under the umbrella of the newly formed Agriculture Department in 1966. Early attempts at coconut improvement brought the Coconut Campaign of 1966-68 on Tamana, Arorae, Kuria and Maiana aimed at encouraging individuals to plant up unproductive lands by demonstrating more sophisticated planting techniques, while 1969-70 saw attempts to set up agricultural cooperatives on Nonouti and Abemama to boost production through the pooling of land and labour for replanting (Watters 1977: 157-163). On Tamana the Coconut Campaign involved the establishment of nurseries and the closely supervised replanting of 89 hectares of land. Some underplanting was done, but the major emphasis of the programme was on bare or sparsely treed areas. The landowners were not seen as extension farmers and simply provided labour to the official project while the Department provided the seedlings and an Agricultural Officer to supervise. Where the land was previously bare of palms the landowner was entitled to a rebate of land tax for two years on the condition that seedlings were kept weeded and mulched. On the underplanted lands it was anticipated that the older palms would be thinned by poisoning, but when the crunch came few land owners would agree to this.

The impact of the campaign was limited. Although it was seen by its promoters as an exercise in agricultural extension, it failed to encourage other landowners to emulate the practises demonstrated. Those landowners involved in the programme were included simply because: (a) their land was located in the areas chosen by the Department for replanting; (b) they were willing to provide the necessary labour; and, most importantly, (c) they were attracted by the prospect of a remission of land tax. No real attempt was made to directly encourage other landowners to initiate replanting programmes of their own; nursery-raised seedlings were not provided and no remission of land tax was extended to all landowners initiating replanting. The whole campaign seems to have been a "one-off" event and this is amply evident in one landowner's comment that "when the Agricultural Officer stopped working we stopped

working". The campaign may have encouraged the few landowners who were already committed to replanting because of large families or limited land resources to do so using better preparation and planting techniques. It did nothing to encourage more adequately endowed landholders to replant sparse lands and thus boost long-term production prospects. It certainly did nothing to ensure that existing resources were used more fully to lift production in the short-term. Thus the campaign did not get at the real causes of low production and lack of incentive which are simply low prices, the limited utility of the cash earned, alternative sources of cash income requiring no effort on the recipient's part and the expectation of an urban wage employment-based future or the continuation of a remittance economy based on this.

Some of the lessons learned during the Coconut Campaign were incorporated into the Coconut Improvement and Replanting Schemes which became the major thrust of a Colony-wide drive to increase copra production potential through replanting and the encouragement of better management practices on adequately planted lands. The increase in production and export was expected to go some way to ameliorating the loss of income from phosphate. The schemes were first introduced in 1969, modified in 1972 and suspended in 1974 although their reinstatement in a more flexible form was anticipated. The first important difference between these schemes and the preceding campaign was the appointment of a permanent Agricultural Officer to each island to promote and supervise the programmes. Substantial subsidies were also offered to encourage landowners to enter their lands in the schemes. Maintenance payments were aimed at ensuring continued interest and cushioning participants against income loss until replanted lands were once more productive. The schemes emphasised two main aspects: replanting and the improvement of existing groves. Where existing bearing palm densities exceeded 75 palms per hectare (in 1972 it was reduced to 50) lands could be registered in an improvement scheme. Where palm densities were lower the land would qualify for assistance in a replanting scheme. Initially it was intended that schemes would operate on a minimum block size of 8 hectares (owned either individually or by a group of owners entering their contiguous lands as a cooperative scheme), but subsequent experience led to the reduction of the minimum area requirement to two hectares.¹ Subsidy rates were increased at the same time. Improvement

¹ Rather surprisingly, a similar programme in 1969 in the British Solomon Islands Protectorate where rural population densities are much lower required only a minimum area of 3 acres (1.2 hectares) for subsidy assistance for planting (Bathgate 1973: 109).

schemes involved the clearing of unwanted scrub (bero, uri and pandanus were permitted to remain), the windrowing of debris, the removal of senile palms and unwanted seedlings and the thinning or augmentation of the remaining palms to bring the density to the target of 215 bearing palms per hectare. Replanting schemes involved the removal of scrub and existing palms, the digging and back-filling of holes to the water table at the required spacing and the planting of seedlings grown from selected stock and provided by the Agriculture Department. (The owners of the seed trees were paid 1.2 cents per nut). In 1972 the subsidies offered were substantial: for replanting schemes, clearing and the digging of planting holes qualified for a payment of \$223 per hectare and a maintenance payment of four cents per palm per year for the next nine years. Improvement schemes qualified for a subsidy of nine cents per bearing palm left standing, 50 cents for each palm planted in bare areas exceeding .08 hectares, and similar yearly maintenance payments on bearing palms left standing or newly planted palms to a maximum of 215 palms per hectare. Thus an eight hectare replanting scheme could net \$1784 for labour in clearing and digging plus a yearly maintenance subsidy of \$68.80. An improvement scheme on a similar area with 125 bearing palms per hectare would yield \$90 for clearing and \$40 per year in maintenance payments. An additional \$360 might accrue to the replanting of substantial bare areas.

With such substantial cash incentives as these, being offered as they were at a time when copra prices had reached an all-time low, it is not surprising that the government's motives in promoting the schemes and the rural dwellers' reasons for responding to them were substantially different. Initially the response to the schemes was slow (due in part to administrative difficulties and delays in getting the agreement of the large number of landowners involved), but once it became obvious how lucrative the schemes were in the short-term interest became intense. It was clear on all the islands studied that the cash-earning opportunity provided by the scheme itself was the prime reason for the interest shown (Geddes 1975: 115, Sewell 1976: 79, Watters 1977: 164). On Butaritari many people hastened to enter their land in the schemes "in case the money should soon be finished" (Sewell 1976: 80).

On Tamana the response was similar but community interests prevailed over individual desire for gain. As on other islands the response to the schemes was slow at first. A permanent Agricultural Officer did not arrive

on the island until March 1972 and he began promoting the schemes at once. Interest was considerable and he addressed over 700 listeners at meetings in the three villages. While the attractiveness of the cash subsidies was a strong factor kindling interest, pressures were exerted in an attempt to manipulate the schemes into a form more in keeping with community values and to achieve community rather than individual goals. Concern was expressed that not all members of the community would be able to have their lands included in schemes and thus share in the immediate cash benefits. In consultation with the Agricultural Officer the rorobuaka of all three villages reached what was called the "Tamana Working Agreement" by which all landowners in each village would work communally on schemes within the village district regardless of who owned the land and the subsidy payments would go to the group rather than the landowner. After some delay arising from a shortage of tools and registration forms, and from the recasting of the schemes themselves, one Replanting and two improvement schemes were finally approved in January 1973 involving a total of 27 hectares encompassing 139 separately owned landholdings.

The insistence on equality turned out to be the downfall of the "Tamana Working Agreement". Barebuka Village rorobuaka saw the large subsidy payments to replanting as a means of fund-raising for the rebuilding of their maneaba. Other villages opted for the less lucrative and less labour-demanding improvement schemes. As the different labour demands became apparent Barebuka villagers became incensed that they were working on a replanting scheme in their village area which included land belonging to people in the other two villages while people in the latter were only working on improvement schemes. In addition, the rorobuaka in these villages had decided to distribute the subsidy payments among the workers. The replanting scheme was abandoned before hole-digging was begun and, to restore equality, the scheme was reregistered as an improvement scheme. No further attempts were made to register any more large communally-worked schemes although several small independent ventures involving the cooperation of three to six landowners on areas of two to three hectares were registered towards the end of 1973. By February 1974 registration of improvement schemes was suspended.

In retrospect the Coconut Improvement and Replanting Schemes failed to achieve their objectives. The schemes were intended to affect up to a fourfold increase in production after nine years of operation. The

hopes of achieving this aim are small. By 1978 (eight years after the announcement of the Schemes) production for the Group as a whole was only 1.5 times higher than the 1963-74 mean annual production even though 1978 was a year of good rainfall and good prices. People responded to the schemes because they provided a means of earning large sums of money relatively easily. Most were not concerned with the longer-term prospects for improving their ability to produce copra because they already had more resources than they needed (see Table 10-4). No amount of replanting and grove improvement will ensure that the nuts produced are turned into copra, and the schemes did nothing to alter the costs of production of copra and the returns accruing to the grower. The Agricultural Officer on Tamana put the problem in a nutshell when he wrote in his monthly report for June 1972:

Some islanders have come and put this question: "Why is the Government waisting (sic) her time and her money in coconut replanting and yet, the copra prices are getting lower and worse". I tried to answer this question as best I could but I promised these people that I am going to request my senior officers to answer this question fully on air.
(F2/5/15 Report June 1972).

Given the extremely limiting nature of the atoll environment it is not surprising that the Plant Introduction and Livestock Scheme produced no important new plant crops and had no real impact on agricultural life. The emphasis then remains on the coconut as the only viable cash crop for the region. The islanders' question remains unanswered and rural-urban migration continues.

Education, Employment and Development

Schooling has long been part of a Tamana child's experience. In recent years the community's perceptions of the purpose of schooling and its expectations of the benefits that derive from it have changed considerably. The first church school was set up in 1875 and by 1881 schooling was allegedly compulsory (Phillips 1881). Schooling had a strong religious emphasis and children between the ages of seven and sixteen were taught Bible studies, arithmetic, grammar, reading and writing in the vernacular as well as geography and singing. English was taught at times. Most adults on Tamana today claim that the education they

received at the mission school had little relevance to the lives they have led since and that people went to school simply because it was the custom, because the pastor insisted that they did, because parents saw schooling as a means of keeping children out of mischief and because the Kaubure punished children found playing truant. Very few children from the Tamana school went on to high school and the reasons for this are readily apparent in the Assistant Commissioner's graphic description of the school in 1960:

The London Missionary Society Village school with one teacher and four monitors tries to teach 267 children. There are three well-built school rooms, a maneaba type building and the European missionary transit house in use by the school. Unfortunately the equipment is pathetic - no exercise books and only 35 slates - the teacher says he teaches some of the children writing on the sand on the beach, he also has four blackboards to help him but he has now run out of chalk.... There were two little piles, each about one foot high of assorted books, readers etc. He has ten low bench tables each sufficient for four pupils (Assistant Commissioner's Travelling Diary, 4-7 May 1960 F34/4/15).

Parents' attitudes toward the Island School set up by the government on Tamana in 1958 show that their expectations of this school were quite different from those they had of the mission school. The school catered for 40 students only and was staffed by a trained teacher and an unpaid monitor. The curriculum emphasised English, mental arithmetic, geography and history. It reflected government policy towards the need to train a small number of islanders for high school education and employment in the government service. This purpose was readily understood by parents and the teacher's performance was judged on the number of children being selected to go to Tarawa for high school education. In 1962 parents complained to the Assistant Administrative Officer that no children had been accepted for high school from Tamana for the preceding three years and accused the teacher of not doing his work properly (Assistant Administrative Officer's Travelling Diary, 30 April-19 May 1962 F34/4/15).

Education was clearly no longer seen as being largely irrelevant to island life. It had come to fulfill a quite different purpose in the community. Education was now seen as coming from the government and it was this same government that also controlled employment. Most informants saw this change as placing their children under a different tibanga or "fate". The schooling they now had access to would make them rabakau ("clever", "smart" or "learned") and these qualities were defined largely

in terms of being able to speak English, understand imatang ways and get employment in Tarawa. One informant only thought that the "cleverness" acquired from the new schooling had any relevance to life on Tamana. Thus education and employment had become synonymous and the school was seen as an investment in the future employment prospects of their children. This is abundantly evident in the level of community involvement in the fund-raising for and building of the Island Council School.

Agitation for improved schooling for all Tamana children led to the decision to build a new school to replace the mission school and incorporate the Island School. A school committee was formed to organise the labour required and to raise the \$4,000 needed as the Island's share of the cost. Conflict soon arose as the result of differences between what the government saw as being financially feasible and what the community saw as being socially acceptable. The government intended that the new school would comprise four classrooms only, which meant that all children could not attend school. This contravened the staunch ethos of equality in Tamana society and the Island Council insisted that a six-roomed school be built even though financial assistance and teachers would not be made available for the extra classrooms (District Commissioner's Tour Notes 12-18 Nov 1968). The Council refused to be put into a situation where it would have to decide which children would receive schooling and which would not. The upshot was that the Island Council built a six classroom school in permanent materials and two extra classrooms in local materials costing an additional \$3,000 and had to provide monitors paid from Island Council funds to staff the extra classrooms (District Commissioner's Tour Report 8-15 April 1970; District Officer's Report 30-31 July 1970 F34/4/15).¹ Initial fund-raising attempts involved a 50 cent levy on all Tamana households and a \$26 levy on all men working on Ocean Island and Nauru. The issue was finally resolved by charging school fees and raising the level of taxes. Behind the pressure for improved school facilities is the expectation that it will improve Tamana children's chances of getting employment. The expenditure is thus an investment in the future that is expected to produce dividends in a larger

¹ This was in line with government policy whereby a universal primary programme of nine years was implemented and a larger proportion of costs, including salaries, was off-loaded onto the Island Council and missions (Macdonald 1982: 182).

flow of remittance incomes to Tamana and to give Tamana people the means of access to an urban way of life.

In the first few years of its operation the Tamana Island Council School produced results which the community considered ample return on its investment. Eight children were accepted for high school in the one year and the community thought its boat had come in. The level of success was not maintained. In lean years when no or only a few children are accepted for high school resentment is expressed leading to a question of the purpose and value of such investment in the "new" education. Those parents with close kin already at work in Tarawa often send their children there for schooling in the belief that the schools on Tarawa are of a higher standard, that their children will be in an environment where English is spoken more frequently and that their children stand a better chance of getting selection for high school.

Thus there is an enormous gap between the government's and the community expectations of education. As far as the islanders are concerned the basic purpose of education is preparation for wage employment and the means by which the rural community can gain access to the unequally available fruits of urban bias. Whatever the government's reasons were for introducing universal education, it has become obvious that McClure's forebodings were not unfounded. Education has fuelled expectations and since there are few prospects for the massive expansion of wage employment in either rural or urban areas, government has attempted to redress the situation by making education more "relevant" to outer-island life by introducing social and environmental studies and local skills in to the school curriculum¹. However, since expectations feed on the reality of urban bias and improved communications mean that the rural population is increasingly aware of its deprived state, no amount of teaching about rural life and "traditional" skills related to fishing, canoebuilding and dancing will provide skills relevant to the sort of life the rural population increasingly wants to lead. Nor will it make them any more likely to accept the inequalities between urban and rural life which fuel migration and provided the rationale for improved education in the first place.

¹ F105/5/38: "School Leaver Problem: Beru" Memorandum for Acting Secretary to Member for Internal Affairs from Acting Director of Education, 19 Jan 1973. Unfiled: N. Green, "Education and Culture in the Gilbert and Ellice Islands", 1973.

Other Programmes

Not all government-sponsored development programmes on Tamana have been bedevilled by problems of differing expectations. The Family Planning Programme introduced in 1969 met with immediate and wholehearted response. In 1968 there was one registered contraceptive on Tamana dispensary records; 24 new contraceptors were added to the list in the first year of the programme's operation and by the end of 1972 99 women (30 percent of women in the 15-44 age group) were using contraceptive devices. The effect of this is clearly evident in the reduced fertility ratios presented in Table 5-4. The Family Planning Programme drew such a wholehearted response because it addressed an issue which was very real and has always been central to islanders' concerns: limited land resources and no prospects of expanding them to cater for increasing population. The island's small size makes its inhabitants painfully aware of limited resources and the Family Planning Programme has become another means in the long list of attempts to maintain the balance between population and resources. In pre-contact times this probably included infanticide, abortion, delayed marriage and temporary and permanent migration. In more recent times migration to employment centres, government resettlement programmes and birth control have been attempted as solutions to the island's problems. It could be argued that birth control has met with such favourable response because family limitation increases the options available to the rural population. As is evident in Chapter 8 the availability of labour is not yet a limiting factor in the efficiency or vitality of the subsistence economy. Given the low prices, low capitalisation and high labour coefficients of the copra industry there is little willingness to increase the labour input and intensify copra production (Chapter 10). Because education is regarded increasingly as the key to urban employment, family limitation is seen as a means of ensuring that one has sufficient cash resources to meet the costs involved. If these avenues are unsuccessful there is less fragmentation of land on inheritance and one's offspring have a better chance of being independent in the context of rural life.

The Environmental Sanitation and Water Supply Scheme of 1972-73 demonstrated the community's willingness to take control of the organisation and provide the labour for a programme with benefits it considered worthwhile. The first stage of this programme involved the fabrication of water traps and slab seals for the toilets, the excavation and lining of the soakage

pits and sealing them with a slab. All three villages' rorobuaka decided that the project should be done as a village project because some households did not have young active males to do the heavy digging. The committee members took on responsibility for the moulding of the traps while other males between 15 and 50 were levied to provide labour on set days for digging and lining holes, casting slabs and sealing pits. The work was carried out systematically under the direction of the rorobuaka committee and there was no suggestion of paying wages or charging households for the services provided. At the end of many months' work all households had toilets installed and an important community goal of raising living standards and emulating urban lifestyles had been achieved.¹

Individual and Community-Generated Development

The heavy emphasis of the discussion thus far on government policy-making and the success or otherwise of its programmes may have created the impression that the government is the only entity concerned with promoting development in the rural areas. Although this is not entirely true, almost a century of control by a very paternalistic government has done much to foster such expectations in both the government, and the rural or urban population. However, Tamana has witnessed a number of endeavours initiated from within the community which would qualify as rural development in terms of Fisk's definition (Fisk 1974: 51). The distinctive feature of these activities on Tamana is that without exception they have been co-operative rather than individualistic ventures and in many instances they seek to increase employment opportunities, usually in the urban centre, for community members and to generate profits which are utilised in other community projects. This obviously distinguishes the Tamana situation from many of the examples of development in small-scale societies described in the literature. The opportunities responded to, the particular resources utilised and the manner in which the programmes are organised and executed

¹ Previously people had no option but to defecate on the beach between tide marks. This avoided contamination of the water lens. The installation of water seal toilets thus necessitated the second phase of the scheme which was to provide piped water from a central storage tank which was to be pump-fed from galleries in the centre of the island. This more complex part of the installation was kept as government responsibility and had not been started when I left Tamana in 1974, nearly two years after the first stage had been completed.

reveal a great deal about the particularity of place, the strength of community values, community perceptions of the choices open to it and where expectations for the future lie.

Individuals, Entrepreneurs and Epstein's Schema of Economic Growth

Before going on to discuss some of these programmes in detail it is necessary to return again briefly to the literature and discussions of economic growth.

Epstein's study of the pattern of Tolai economic growth (Epstein 1968: 34ff) led her to suggest a schema of development for Tolai society. Briefly this began with a "transition period" after first contact with the outside world resulting in the introduction of new trade goods and the strengthening of the traditional economic and political organisation because acquisition of these goods was channelled through the elders. This period was followed by an "agricultural investment period" during which the population increasingly concentrates its efforts on producing cash crops for the newly established market. An "investment trial period" follows in which enterprising indigenes begin investing some of their resources in the service industry by operating retail stores, transport facilities and catering establishments. Many of these fail because of lack of business experience but the successes enter the "tertiary investment period" during which time the majority of the ventures are successful and continued expansion of activities in the service sector ensues. In her concluding chapter Epstein (1968: 173) argues that the schema of economic growth of small underdeveloped societies, as it emerged from the Tolai case studies, is likely to fit other similar societies in Melanesia and elsewhere. Finney found this schema applicable to his study of Gorokan economic growth in the New Guinea Highlands (Finney 1969). Bathgate (1975: 840-1) concluded that the first three stages were appropriate to the analysis of economic change to date among the Ndi Nggai of Western Guadalcanal in the Solomon Islands. However, Connell found the schema to be of limited usefulness in his study of economic change among the Siwai of South Bougainville (Connell 1978: 232) mainly because of difficulties in articulating the stages of economic change with any clarity and because none of the phases were discrete; individual households and villages were simultaneously at different stages in the development continuum.

The schema is of very limited usefulness in analysing economic change on Tamana or even Kiribati generally. This is in part due to the particularity of place, the peculiar nature of the atoll environment, the character of indigenous society and the importance of certain aspects of colonial policy pursued there, which in combination mean that many of the basic assumptions behind Epstein's schema are not met.

Implicit in her schema is the assumption that individual entrepreneurs¹ will emerge and that these entrepreneurs will be motivated by the desire for achievement measured by the level of accumulated assets (Epstein 1970: 22). This is clearly not the case on Tamana. The discussion of the Tamana value system in Chapter 6 demonstrates that no status accrues from the accumulation of assets. Instead the emphasis is on equality and on not acting in ways that would prejudice others' rights to obtain a livelihood on Tamana. The fear of being a target of bubuti also discourages individuals from accumulating wealth. It is not surprising then that examples of individual entrepreneurial activity on Tamana are lacking. The only example encountered during fieldwork related to a target income exercise aimed at getting extra income for the purchase of milk powder for an infant daughter (p.344). Instead, entrepreneurial activity is concentrated in the communal mrnron where individuals can hide behind the corporate identity of the group and thus escape sanction and threat of bubuti. But even here the aims of the mrnron do not parallel those of Epstein's entrepreneurs either as individuals or as elders managing the trucks, copra driers and shops jointly owned by their matrilineage (Epstein 1968:83). The goals of the mrnron are usually to have all members attain particular earning or saving levels while lessening the drudgery involved by stressing social interaction. This activity does not maximise the individual's income-earning potential because the rates of return to mrnron work are substantially below those attainable if an individual worked for himself (see p.387).

In all the examples discussed in the literature the entry of the entrepreneurs into the market economy may have begun with the generation of a surplus of local produce for sale. Continued incorporation into the

¹Both Epstein (1970: 20) and Finney (1969: 10) refer to the pooling of capital for investment. In the Gorokan case business leaders' reputations are based on more than their personal success and wealth accumulation and are based also on their leadership in the economic development of the areas in which they live. Status is gained from being leaders in the introduction of crops and starting commercial projects which help their people (Finney 1969: 26).

market economy then leads to the adoption of new cash crops which compete with traditional food crops for land and labour, often displacing them and encouraging further dependence on the market and an increased commitment to production for exchange. Again, this did not occur to the same extent in Kiribati. The major crop of commercial interest was already in cultivation and is also a staple in the subsistence diet. In fact, no other cash crop suited to the rigors of the atoll environment has been found or is likely to be found. The capital requirements for coconut production for exchange are small and adjustments to existing agricultural practices not called for. Little can be done to manipulate productivity in the short-term, and being a tree crop whose produce can be utilised up to 18 months after it has matured means that production strategies in the conventional sense are not relevant. These characteristics of the crop, coupled with the fact that the produce can be utilised for either subsistence consumption or income generation, has encouraged a consumption-oriented "peasant" approach to production where prevailing prices and target production to satisfy particular wants have an overriding influence on participation in the market. The desire to maximise net income, the hallmark of capitalistic behaviour, is not a factor of major importance.

This is compounded by other important influences completely ignored in Epstein's schema of change. Nowhere does she consider the implications of labour migration and the possibility that this, plus the remittance income flows it generates, could enable the generation of a partial cash economy without full scale commitment to production for the market. Together these factors help explain the particularities of the production system on Tamana and go part of the way to explaining why it has not followed the staged sequence of incorporation into the market economy described elsewhere. In addition, cash cropping on Tamana was restricted to one crop only, copra, for which market prices have fluctuated wildly. While prices for cocoa and other crops may have fluctuated too, the Tolai and other groups would have had a choice between cash crops, making cash cropping more dependable. Other reasons relating to the other choices available outside agriculture have already been discussed.

The scope of Epstein's schema attempts to go beyond Fisk's four stage model of degrees of market participation (Fisk 1975: 53) and consider the implications of rising incomes, falling income elasticities for most classes of goods and services available and a rising marginal propensity

to save, which in turn generates a further search for new avenues of investment in areas outside agriculture - in services, stores, transport, restaurants and even investment in such ventures as furniture factories (Epstein 1970: 21). Implicit in the operation of this process is the final emergence of a "modern sector" and an urban hierarchy which both reflects and provides scope for increasingly sophisticated investment.

Again, the parallels in Kiribati are not forthcoming. Immediately after World War II the government pursued a policy of establishing a monopoly over the import/export sector and created a network of cooperative societies to carry out the purchasing of copra and retailing on the islands. These developments went hand-in-hand with the provision of an improved and enlarged shipping service, again government-run. The activities of individual societies were closely scrutinised by the Cooperatives Department and to a very large extent their activities reflect Department policy and the buying strategies of the Colony Wholesale Society. On the positive side, these policies ensured that islands with efficiently run societies enjoyed permanent access to buying outlets for their copra and a continuous supply of basic retail goods. The uniform pricing policies adopted for both copra and retail goods removed the locational and scale disadvantages of the more distant and smaller islands. On the other hand this success may have been bought at the cost of stultification of individual or group initiative and the retarding of the development of self-confidence. In other case studies retailing seems to have been the first area of involvement in the service economy by would-be entrepreneurs. Thus the emergence of government-sponsored cooperative societies may have pre-empted the more central and lucrative areas of potential investment.¹ It is now impossible for indigenous business ventures to compete with the cooperatives for the core retail trade. Enterprises such as mronron

¹The Tangitang Union is both the exception and proof of this observation. It was set up on Abaiang in 1938, after the first government-encouraged cooperatives were set up on Vaitupu and Beru. Although obviously influenced by the cooperative movement it was the first example of a successful business venture wholly financed by I-Kiribati capital and controlled by non-Europeans (Howorth 1960: 5). At its zenith it operated on Marakei, Tarawa, Maiana, Abemama, Kuria and Aranuka and owned and operated a considerable number of vessels including two schooners. Problems with accounting, credit and the unprofitability of trading operations of its schooners as well as competition from the newly established government-backed cooperatives after the war led to the final dissolution of the Union in 1957. No indigenous business venture of comparable size has emerged since Tangitang.

can compete only in the peripheral areas of retailing where they rely for their success on selling in smaller unit quantities outside normal shop hours, by accepting coconuts directly as a medium for exchange and extending credit to those without ready cash. They can do this only because the constituent members do not value time and effort in a strictly capitalistic manner. Individuals are willing to work at mronron work even though the rate of return is lower than that they would receive if they worked for themselves because of the pleasure derived from working as a group and the effect this has in reducing the drudgery of the tasks involved, and because the division system can be manipulated to produce cash in large sums when it is needed for special purposes. Despite these obvious benefits, the islanders recognise that the scope for expansion of such activities on Tamana is severely limited by the small size and low income level of the island society. It is not surprising then that their attention for future investment is focussed on larger centres, Nauru and particularly on the growing affluent urban market on Tarawa.

While the government policies mentioned above have tended to lessen the disadvantages of the smaller and more remote islands, by the same process they have also tended to reduce the advantages of the larger, more favourably endowed and located ones. There is nothing in the reports on the four other islands studied as part of the Victoria University Rural Socio-Economic Survey or elsewhere in the literature to suggest that the larger islands with more favourable resource bases, or located in closer proximity to the urban centre have achieved markedly greater integration into the market economy or substantially higher levels of economic development. For the most part the rural dwellers remain target producers dependent on a range of relatively petty income sources or remittances and do not have the capacity to either generate demand for more sophisticated services or capitalise on the investment opportunities such demand might create. Hence there is no hierarchy of central places reflecting degrees of incorporation into the market economy. There is instead a dichotomy between the rural outer-islands, which include even the rural islands of North Tarawa, and the urban core on South Tarawa where the only traces of the country's "modern sector" can be found. However, this sector is completely overshadowed by the enormously expensive, over-developed aid-dependent government which has little productive capacity and artificially high wage rates. It is not surprising that, given a situation where agricultural investment is restricted to a relatively unresponsive and unrewarding copra system, the urban core rather than the rural areas should become the magnet for entrepreneurial activity.

Tamana Projects on Tarawa

While the urban bias of much government spending has prevented rural dwellers from directly enjoying the fruits of "development", the rural people have not failed to recognise the investment possibilities generated by such an urban concentration.

The Tamana community has made several attempts to capitalise on the potential of the urban market on Tarawa. Again, these attempts have all been communal rather than individual and the emphasis has been more on creating employment opportunities specifically for Tamana people than generating an immediate cash profit.

The Tamana Fishing Schemes

As early as 1966 the Kabowi n Abamakoro (forerunner of the present Island Council) suggested settling Tamana men on Tarawa to fish and sell the catch to the fish-hungry urbanites. It was also planned to sell handicrafts made on Tamana to tourists (Minute 9, 1/11/66 Kabowi n Abamakoro Minute Book). Nothing eventuated from this suggestion but in 1972 the scheme was revived when a councillor promoted a scheme whereby Tamana fishermen on Tarawa would supply the schools and hospital with fish. The first attempt to implement a fishing scheme was made in 1973 when a somewhat vague agreement was made to build a house on land at Bonriki (on the northernmost edge of the peri-urban areas) belonging to a Tarawa man whose wife had Tamana connections. It was intended that 12 men would come from Tamana to fish. They would build a house for themselves at Bonriki and then fish the reef areas with lines, diving glasses and spears. The fish were to be sold to the schools and hospital at a previously agreed price. For their part the men were to be paid a monthly salary by the Island Council. The profits were to go to the Island Council for use in community projects. The Tamana Tarawa Association (a committee of Tamana people in employment on Tarawa formed to ensure discipline among Tamana people on Tarawa and to maintain contact with and assistance to the home island community) was also involved. Some members billeted the fishermen for the first two months while all members were levied \$1 per week towards their living costs on Tarawa. For a number of

reasons this first attempt failed. There were disputes over the suitability of the site and the leasing of the land. The equipment the men brought with them did not include canoes and so they had to fish on the reef flat and kamai areas and could not exploit the deep-sea fish resources. Finally, salary payments by the Island Council ceased after a dispute between the Council and the people generally on Tamana led to the quite unconstitutional but still highly effective sacking of the Council. The men thus had no means of financial support and most returned to Tamana at their own expense. Others stayed in Tarawa with relatives or friends in the hope of getting another job.

However, interest in the scheme remained and although the new Island Council did not wish to take on full responsibility for the scheme it was willing to continue financial commitment to it. The Council handed the project over to the unimane and attempts were made to put the scheme on a much firmer footing. Three unimane (one from each village) were dispatched to Tarawa to negotiate a proper lease for land at Bairiki. The unimane then set about raising the \$2-\$3000 capital necessary to purchase outboard motor-powered dinghies and deep-sea tackle. It was decided that this money would be raised by levying all households for saltfish and mats which would be sold on Nauru. All households were to contribute because it was an Island scheme which would eventually benefit everyone concerned. Again it was hoped to employ 12 men (four from each village). Although no concrete details were available as to how future profits might be distributed it was assumed that these would eventuate. In the shorter-term the employment prospects the scheme generated were of more immediate interest and the most important aspect of the project because these would be available to Tamana people only regardless of the level of education achieved. They would also be widely shared because individuals could not stay in the jobs for more than a set period. The universal hope for the scheme was that it would succeed, grow in size and go some way to replacing the imminent loss in income and employment opportunities threatened by the exhaustion of the Ocean Island phosphate deposits.

Fishing Scheme Postscript

The scheme was still in operation when I returned to Tarawa in December 1978 and it clearly had not achieved its hoped for goals. It had, in the meantime, gone through some quite traumatic experiences and transformations. In 1975 the outboard on one of the dinghies failed while fishing off Tarawa and the boat with its four occupants drifted for 89 days before making a landfall in New Caledonia with no loss of life. Several attempts were made to find a more suitable location for the headquarters of the venture after the Bonriki site proved too remote from the potential market and a site in Banreaba suffered flooding in a storm. As luck would have it, when re-equipment was necessary the National Loans Board (which could approve loans of 90-100 percent of capital costs of approved projects) declined to make loans on any further fishing schemes. The necessary \$5000 was borrowed as an interest-free loan from the Tamana Cooperative Society and the scheme had in 1978 two dinghies, three outboard motors, two canoes, a throwing net, two pressure lamps and three scoop nets. The men supplied their own hooks and fishing lines. The organisation consisted of two working committees. The first on Tarawa under the Tamana Tarawa Association had responsibility for maintaining the equipment, book and fund raising (all Tamana Tarawa Association members contributed 20 cents per fortnight to the scheme) and securing cinema films for showing on Tamana. The working committee on Tamana is under the control of the unimane and assumes responsibility for raising money to pay for the fishermen's fares to Tarawa. It was intended that the cinema showings would contribute to fund-raising but because the scheme is seen as an island-owned venture, pressure has been exerted to show the films free and use other means of fund-raising. The unimane also select the fishermen and one of their number to accompany the men to Tarawa to oversee activities. The latter's wife and family care for the fishermen and he takes over the responsibility of selling the catch. Twenty percent of the takings are retained for the fund while the remainder is divided among the fishermen, the unimane and his wife. The men have to buy their own food from their share. Few data are available on the economic viability of the venture. In the month prior to my return the income less out-goings was only \$196.32 which leaves only \$157.06 (after capital repayments are made) for payment of the fishermen and unimane for their month's work and just over \$15 per worker per month. It is

unlikely then that any individual after paying food costs would save a reasonable nest egg to take back to Tamana after his three month stint on Tarawa. This possibility is made even more remote by the fact that individuals can borrow from the fund to go on to Nauru after their stay has finished to fish for a Nauru woman, Nei Neo, using Tamana peoples' canoes, as long as they undertake to repay their fares and an additional \$30 into the fund.

It seems then that the motives for profit and service from investment are not, as Finney found in Goroka (Finney 1969: 24), likely to be complementary. The willingness of the community to pursue this line of investment is both an indication of the strength of community bonds and resolve, and the desperateness of their search for alternative avenues of employment. The fact that Tamana community on Tarawa is willing and able to force all members to contribute 20 cents per fortnight from their wages towards providing employment for their less fortunate kinsmen on the home island indicates that strong bonds still operate even though many members (and the higher paid ones at that), have been absent from Tamana for most of their adult lives. The decision to commit \$5000 of Tamana Cooperative Society's funds to the scheme could only have been achieved with massive community support. The same applies to the continuing success of fund-raising by the unimane. The importance of the project to the people on Tamana is not the expectation of higher incomes and increased well-being for all, but rather the continued access to employment off the island, supplementation of local income sources and allowing their young men to travel and see different sights, which has been part of the Tamana life experience since early contact.

The Kekeiaki Store

The Kekeiaki Store on Betio is a store owned by Tamana-associated interests. There are many similarities between it and the Tamana Fishing Scheme in the manner in which it is organised and in the community's expectations of it. The store is one of a number of island-based communal investments which have occurred in the 1970s and which include as well as

stores, taxi and trucking ventures and cafes.¹ The first suggestions for a Tamana-run store were made in 1972 at a Tamana Tarawa Association meeting by a public servant of long experience. No action was taken and the same person floated the idea again in 1976. This time it was agreed to form an island company and this was duly registered with the Betio Town Council. If agreement had not been forthcoming the public servant plus two other senior government personnel from Tamana indicated that they would form a company by themselves. The registered company had shareholdings held by a number of different bodies and individuals with Tamana connections. The Tamana Cooperative Society contributed \$1000, a further \$2000 came from the unimane and the Natin Tamana (children of Tamana) on Nauru and Ocean Island. Individuals working on Nauru, Ocean Island and Tarawa subscribed a further \$2700 and a woman who was married to a Tuvaluan doctor and whose grandfather came from Tamana put up the last \$3100 which made the whole project viable. The capital enabled the purchase both of a store built by the National Loans Board on Betio and stock from agents in Sydney. Despite shipping costs, the stock from Sydney proved cheaper than that which could be purchased from the Federation of Cooperative Societies and enabled the Kekeiaki Store to undercut the Tarawa Society's Stores. The store sold to the general public but provided employment only for people of Tamana birth. It employed a manager and two storemen. The storemen's jobs were on a contract basis to enable a large number of people access to turns of employment. The store also provides an outlet for Tamana produced products on Tarawa. Saltfish, coconut oil, kamaimai and mats brought to Tarawa by the House of Assembly member are sold through the store. The producers on Tamana receive higher prices for their goods than they would by selling them to the Tamana Cooperative Society. Like the fishing venture, there is no strong expectation that profit will accrue to the individual. Interest is not paid on the capital subscribed and any profit goes into an account which will be used eventually for communal development projects on Tamana.

¹ See Green, Bukhari and Lawrence (1979: 138-9). Some of these ventures were quite large and well-established. Maribo Investments, owned by Nikunau islanders had a paid-up capital of \$34,000. Ianauea of North Tabiteuea and Maiana had \$37,500 subscribed by islanders on their home island and resident on Tarawa. Te Mamang Company from Abemama operated a saltfish marketing venture in combination with the Abemama Cooperative Society.

The two projects described here portray many of the characteristics of early indigenous enterprises described by Epstein and Finney. They are small, tentative and demonstrate the importance of problems reflecting limited capital, knowhow and business experience. The potential for failure is very high. A majority of the projects on Tarawa mounted by Tamana people and other islanders are focussed on the service sector and encompass investment in retailing, catering, transport and similar activities. However, in other respects the projects differ substantially from those described by Epstein and Finney. The investment they depend on is not derived from profits generated from cash crop production and does not reflect the increasing incorporation of rural production into the market economy. Instead, the investment comes from savings and foregone consumption by people already in wage employment, many of whom are employed in an independent bureaucracy which is largely unproductive and pays its employees artificially high wage levels compared with those prevailing in the rest of the economy. The reserves or undistributed surplus of the monopolistic Cooperative Societies also figures pre-eminently as a source of investment funds. Thus investment does not arise because of rising income levels in the rural areas following on from investment in cash crop production and falling income elasticities for most classes of goods and services available there. Neither does this investment result in the emergence of service centres in rural areas. In Kiribati indigenous investment in the service sector is geographically restricted to the one area in the country where there is sufficient concentration of population and wealth to ensure some chance of success.

The motives for action are also different. Few individuals investing in the stores or fishing ventures expect to gain either increased wealth or status. Instead, the programmes have as their prime aim the creation of more job opportunities for their island compatriots and a concern to spread the benefits of investment as widely as possible through the community at large. In this the ventures clearly endorse the traditional values of equality and conformity and the strength of community rather than individual action. They also indicate that the islanders have very little expectation that their material well-being can be enhanced by investment in the rural areas and that their futures lie inexorably in the wage economy and the urban way of life.

Chapter Twelve

CONCLUSION

The atolls and reef islands of Kiribati represent one of the most circumscribed and limited land areas to have become the home of man. The islands are young in age, transient and owe their substance solely to reef-building activities of corals. The combined effects of small size, isolation, youthfulness and peculiar parent material have ensured that the indigenous land-based biota is impoverished and varies little from island to island. Indeed its flora is a strand flora common to much of the tropical Pacific and represents the air and seaborne flotsam of the continents on the margins of that Ocean. No major food staples are indigenous to, or undergo domestication within the region. The same physical limitations place severe restrictions on the range of foodcrops that can be successfully introduced into the island environment. The coconut and pandanus may be exceptions in that they were either present at the time of arrival of the first settlers or were introduced early in the history of settlement. However, their range and importance was increased substantially through purposive planting. Only the large-fruited cultivars of the Pandanus give evidence of selection and elaboration of the plant world by the settlers. A large number of the plants utilised for food and other purposes by the first settlers were tree crops and, although some planting and tending may have been necessary, no regular cultivation cycle arose. In fact babai is the only crop which could be regarded as being cultivated in the strict sense of being planted in specially prepared ground and tended throughout its growth before being harvested. Even here no seasonal cycle necessarily prevailed. On Tamana it could be as long as six or seven years between the planting and harvesting of babai grown for ceremonial purposes. The collection of fruits and nuts from tree crops and the exploiting of the varied marine resources of the reef and open sea gave the pre-contact economy more features in common with a hunter-gatherer economy than an agricultural one. On Tamana, and in the southern Gilbert Islands generally, the environmental limitations described above were exacerbated by the incidence of periodic severe drought. Without constant replanting it is probable that many of the introduced elements in the flora would have disappeared and the area of coconut forest would have contracted to occupy only the lower-lying areas of the island, known by the telling name of tetabo or "the place of staying alive".

Despite these limitations the chain of islands that is now Kiribati became "home" and essentially "the world" to the forebears of the present-day residents. The I-Kiribati people developed a unique, albeit precarious, way of life. They exploited the considerable resources of the sea, planted tree crops and modified the vegetation in other ways to ensure the dominance of useful species. They excavated extensive areas to the water table level to provide pits for the cultivation of babai in what would otherwise have been an unfavourable environment. Considerable emphasis was also placed on the preservation and storage of food as an investment against the ravages of drought. The social system that developed stressed the values of equality and the rights of all offspring to a living from the island. The land tenure system reinforced this with individualised tenure and strict rules governing the inheritance and transfer of land. This recognised both the rights of the individual to the means of livelihood and his or her obligations to the kin from whom those rights would be inherited. The fact that land was inherited by both males and females, from both parents, and that provisions were made for non-biological transfer by adoption and other mechanisms, gave some scope for the redistribution of resources within society as a safeguard against losing access to the means of gaining a livelihood and a place in the community. The importance of land ownership as a means of recognition in society and an element in social control is recognised in the fact that land figured prominently in compensation for such crimes as murder, theft and adultery.

While the social system may thus have ensured the continued functioning of society by providing the means of resolving interpersonal conflict, it could do little to accommodate the most overbearing factor in man/environment relationships in pre-contact Tamana - that of drought. It is true that institutionalised mechanisms enabled all to cut toddy on tetabo lands regardless of ownership during drought, and thus eke out an existence on toddy and fish until the rains returned and the surviving coconut palms set fruit once more. If the drought was more severe and the replanting of coconut and other food trees was necessary, it could be as long as eight to ten years before the productivity of some lands was restored. In drought times some individuals may have left the islands in the hope of activating rights to lands on other islands where the drought effects might be less severe, or simply cast

themselves on the mercy of the sea. However, many others perished. There appears to have been no established strategy linking islands or groups of islands into supra-island resource systems as a means of ameliorating the effects of periodic drought. Population numbers clearly fluctuated and, if the droughts of the early 1870s are any indication, large numbers died of starvation or malnutrition-associated disease. The island populations would have been periodically forced to reconstruct from greatly reduced levels.

In this way the Tamana of the pre-contact era could be considered as an autarkic man/environment system. Because of its small size and limited resource base the islanders' operational and cognised environment largely coincided and there appears to have been little scope for the elaboration of culture thereby permitting the reappraisal of the community resource base. External perturbations in the environment were the prevailing mechanisms of control and because of this there seems little point in attempting to apply such concepts as "environmental balance" or "carrying capacity". Abortion, infanticide, delayed marriage and prolonged suckling of infants were all apparently known methods of population control and practised by the I-Kiribati. However, it is highly unlikely that the implementation of such control techniques could ever have kept the Tamana population to such a low level that severe drought would have had no effect on mortality. In a world of fluctuating resources no population, however constrained in its growth rates, could have achieved "balance". Such concepts may have had greater applicability in the central and northern Gilbert Islands where droughts were less frequent and severe. The implications of this are that these islands should have had relatively stable populations resulting from the operation of social controls on fertility while those on the southern islands could have been higher (if no social controls were applied) or lower, depending on the length of time since the last disaster. Unfortunately it is impossible to test this hypothesis because the available early population estimates (for the 1860s) relate to a period when interisland warfare was rampant in the central and northern islands.

The Context of Incorporation

Interesting as such speculations might be, the question is largely academic because from the very beginning of the nineteenth century Tamana ceased being an autarkic man/environment system and became increasingly incorporated into the political economy of expanding western capitalism. This brought with it the whalers, traders, missionaries, labour recruiters, phosphate prospectors and agents of colonial control. The effects of incorporation are seen in several areas. The switch from production for consumption to production for exchange saw some degree of modification of the islands' agricultural systems. Investment in the phosphate resources of the region saw the creation of a demand for labour and the emergence of systems of labour migration, flows of remittances and capital goods to the rural areas and, through royalty payments, the underwriting of government expenditure which encouraged the growth of a largely urban bureaucracy. In the last 20 years incorporation finds its expression in flows of aid assistance into the economy which have reinforced trends towards spending on services, the enlarging of the bureaucracy and increasing urbanisation.

Incorporation substantially changed the rules of the game; it affected the size, complexity and areal extent of the functioning system and thus the total sum of resources at stake. It influenced how island resources were evaluated and utilised, by whom and for whom. Resources were now sought and exploited for the benefit of populations well beyond the confines of the island ecosystem. Through migration and the creation of a remittance economy the islanders participated in the process. New flows of goods and services from the outside world to the island were also created. These, and the stimulus of new experience gleaned through travel, changed and continues to change the perceptions and expectations of the Tamana people of their island world and the outside world of which they have increasingly become a part. Thus man/man, rather than man/land relationships have become increasingly important in shaping life on Tamana. Enduring external relationships began with the establishment of trade between the whalers and the islanders. Over ensuing time the nature of this relationship has changed as the emphasis on particular resources has developed or waned and as the metropolitan power, through the agency of colonial administration and subsequent

decolonisation and aid programmes has sought to reinterpret its responsibilities towards its wards. The impact of these influences has thus not been constant through time. Nor has it been uniform in its spatial impact. Different emphasis and influence have generated distinct nodes of economic and political activity and these have influenced the flows of goods and people both between the island world and the outside world and between the islands themselves.

The process of incorporation into the western capitalist economy and the transformation of Tamana from an isolated man/land system into a prevaillingly man/man system on the periphery of the capitalist world began with the arrival of the whalers seeking provisions, water, firewood, women and curios. However, since then neither the external influences nor internal responses have remained constant over time and the spatial context of economic activity has reflected these changing influences.

The impact of whaling appears to have been greatest in the southern Gilbert Islands closest to the whaling grounds "on the Line". The islanders showed themselves willing to capitalise on the opportunities opened up by contact and responded by trading coconuts, kamaimai and women's favours for hoop iron and tobacco as well as raising chickens and the newly introduced pigs for the trade. The trade was short-lived and its impact probably not great.

It was only a small step for both the whalers and the islanders to move from whale oil production to the collection of coconut oil and later to the copra trade as the whale resources of the region were decimated. In the regional context, the emphasis of these new activities moved northwards to the wetter and less densely populated islands where coconut palm productivity was higher and population pressure lower. Social factors, particularly the stratified societies of the central and northern islands, may also have facilitated the emergence of these islands as more important production centres. In these societies it was possible for one individual to manipulate the land and labour resources of the wider social group and thereby increase the volume of product available for trade purposes. The islands of Butaritari and Abemama in particular emerged as important centres for the trade and have by and large retained that prominence. The combined effect of small land area, high population densities, low and unreliable rainfall and isolation ensured that Tamana never attained a position of any prominence as a copra producer. This

applied even after the government adopted policies to ameliorate some of the impediments to production.

Despite government attempts to improve shipping, spread shipping costs, establish a uniform price system to all producers regardless of location, facilitate the distribution of trade goods and, more recently, to promote replanting and better tending of lands, the structure and technology employed today in the copra industry throughout the Gilbert Islands differs little from that of the days of the early traders. No islands have emerged as markedly more efficient or innovative producers and none of the more favourably endowed islands have emerged as nodes for economic growth or diversification. In fact, government policy may have militated against this by reducing the comparative advantage enjoyed by some islands. With the exception of the Line Islands¹ (which lacked indigenous populations at the time of establishment of colonial rule) no plantation sector emerged. There was no wholesale dispossession of land and no creation of an internal wage labour market to draw migrants from the rural areas. The industry remained a smallholder/producer system and production for exchange did not displace production for consumption because the coconut was both a commercial and subsistence crop and the exploitation of abundant marine resources ensured the continued strength of the subsistence economy.

Even though no plantation economy emerged within the Gilbert Islands external investment in commercial agriculture in such areas as Fiji, Samoa, Tahiti, Queensland and the Line Islands did generate demands for labour and enmeshed the islanders of what is now Kiribati in wider systems of labour circulation. In its early stages the labour trade amounted to little more than kidnapping and certainly disrupted island life. With time recruiting became more closely regulated and the movement of workers more clearly circular in character. Migration to work on plantations in the surrounding regions diminished to insignificant levels in the early twentieth century. It never achieved the importance of the systems of labour migration that developed around the three nodes, Ocean Island, Nauru and Tarawa, that emerged within the region.

The first two of these emerged in the early twentieth century as the direct result of British and German investment in exploiting

¹i.e. Christmas, Washington and Fanning Islands.

the phosphate rock reserves on Ocean Island and Nauru. The third, and more recently emerging node, on Tarawa developed as a purely administrative rather than productive centre and its growth reflects the increasing involvement of the colonial and national governments in the provision of a wider range of social and welfare services for the nation. These services have been funded largely from overseas aid and from the governments' share of Ocean Island phosphate royalties. The systems of labour migration that developed around the two types of nodes differed substantially. Their future and future impact on the shape of the Kiribati economy will also differ.

Labour migration to the phosphate workings has been going on for over 60 years and it has become an integral part of rural life, particularly in the southern Gilbert Islands which were given preference in recruitment because of their high population densities and less reliable rainfall. Until recently most young men on Tamana would have expected to go to Ocean Island or Nauru to work, experience new sights and accumulate cash and capital goods before returning to settle down to a rural existence. If a large sum of money was needed to finance school fees or similar expenditure further visits might follow. The migration pattern was circular and closely controlled. From the outset relationships between the phosphate mining concerns and the colonial administration were close and generally cooperative, especially when Australia assumed control of Nauru after the first World War and the governments of Britain, Australia and New Zealand became the proprietors of the phosphate-winning activities through the establishment of the British Phosphate Commission. Labour contracts controlled the movement of individuals between their home island and the phosphate centres. No other migration was permitted. The Commission controlled all activities associated with mining, recruitment, transportation and accommodation of labour and even the retail outlets from which the workers purchased the goods they wished to take home with them. The phosphate rock was exported directly to Australia and New Zealand for processing. As a result of this close degree of control no scope existed for investment by others in servicing and ancillary activities, no urban centre emerged and not even the Banabans (the indigenes of Ocean Island) could benefit from exploiting the market created by the sizeable and relatively wealthy migrant population. Thus the spread effects from investment in mining were minimal and with respect to Ocean

Island at least, the node's importance as an employer, source of capital goods and generator of flows of remittances to the rural areas ended abruptly with the cessation of mining activities. Phosphate reserves on Nauru are expected to be exhausted by the end of this century. Some side effects of the mining activities will be somewhat more long-lived in Tarawa where at least some of the employment created by the provision of services was funded from phosphate royalties and may continue to be supported from interest earned on royalty payments deposited in the Revenue Equalisation Fund.

Tarawa is a much more recent focus for migration than either of the phosphate mining centres and its rise to prominence reflects changes in policy which saw the government assume increasing importance as a provider of services and an employer. The character of migration, the numbers moving, their reason for moving and expectations of the outcome of the move all differ substantially from previous migration patterns. For the first sixty years of colonial administration it was always the government's expectation that the Colony should be self-financing and that its ability to provide services was restricted by limited resources and the inability to finance the recurrent costs of such programmes. Hence the government's involvement in education and the provision of other services was minimal and its role as an employer unimportant. One government-run school was considered sufficient to provide for the administration's needs and movement to the small government centre was closely controlled. However, following changes in British policy in 1946 towards the funding of welfare programmes in its colonies, the recognition of the inevitability of independence and the need in the Gilbert Islands to provide a satisfactory infrastructure while it could be financed by grants-in-aid and revenue from the phosphate operations, all encouraged a dramatic increase in the level of expenditure on development and the provision of services. This had several important effects on migration patterns. It increased the range of functions in which the government was involved and led to a wholesale expansion in the bureaucracy. Most of the employment generated was focussed on the administrative centre on Tarawa and the growth of an increasingly sophisticated urban population created demands for further urban services. At the same time universal education and improvements to communications meant that the rural dwellers were more readily aware of the services available

in the urban areas and expected to be able to share in the benefits. In this way migration to Tarawa is not seen by the migrants as temporary and a part of rural life. It is an alternative to it and the move, rather than being circular, is one-way and expected to be the exchanging of one way of life for another.

It is in this context that rural economy on Tamana must be analysed. It is no longer a simple man/environment system. Man/man relationships dominate increasingly and these are expressed in the areas of trade, investment and aid. Trade established wider markets for some of the local commodities and introduced new wants into the island system which could only be satisfied by importation. The islanders thus became enmeshed in the production of the one agricultural export commodity, copra, readily available to them. World market prices for this commodity have proved notoriously unstable and unrewarding. Overseas investment in the region's phosphate reserves saw the development of a resource for which no internal demand had previously existed and in the process generated a demand for labour, a system of circular migration and a reverse flow of capital goods and remittances which may have gone some way to ameliorating the harshness of the man/resource relationships prevailing in the rural areas. However, it cannot be argued that the investment made any substantial contribution to sustained economic growth within the region. Instead the royalties paid to the colonial administration, like the aid moneys provided by the metropolitan countries under the guise of development and welfare programme assistance, have been expended in largely unproductive areas of the economy, particularly in the provision of services, and often urban services at that. The weakness of local government, reflecting decades of tight centralised control by the colonial administration, and the inappropriateness of many rural development programmes have handicapped the dispersal of effective aid to the rural areas. Much of the aid assistance is absorbed in the administration of programmes, in the creation of a bureaucracy which is urban-based and which generates demands for more, and more sophisticated urban services. The gap between the rural and urban area is thus widened and migration made inevitable; not so much because of what is or is not possible to achieve by manipulating the resources of the rural areas, but because the gap between the rural and urban lifestyles is so large and fuelled in the short term at least

by flows of resources from the outside. The expectations of the rural dwellers that they can share the benefits comes from association between education and access to employment. School education is one of the few crumbs of development to find its way to the rural areas. The fact that the growth in urban employment reflects aid-spending rather than economic growth and that the Kiribati economy is becoming increasingly dependent upon foreign aid does not greatly concern the rural dweller. He wishes to share in the "development" he sees.

Tamana and Change

In discussing the process of change arising out of the incorporation of a previously isolated subsistence economy into a wider market economy, many researchers have focussed primarily on what happens in the rural areas and see production for exchange as the initiator and driving mechanism of change; that economic growth in the rural areas leads to growth and change in the economy at large. The impact of investment in other areas of the economy or the role of government spending as an initiator of developments outside the rural areas using resources coming from outside the economy are frequently downplayed or ignored. In many of these works there seems to be an implicit assumption that economic growth will come from the transformation of agriculture and that this will be the catalyst for growth in other facets of the economy. Such assumptions may have had some validity in the 1960s but in an era of increasing large-scale international investment in resource development and aid assistance from metropolitan countries it has become increasingly less true today.

The approach described above is evident in studies by Salisbury (1962), Epstein (1968) and Bathgate (1975). It receives its most elegant and abstracted treatment in the papers of Fisk (1962, 1964, 1974) and Fisk and Shand (1969). Fisk (1964: 157) sees the incentive factor for cash crop production arising from market force penetration of the region. However, the external components of the system are principally non-market in character and modify the framework in which market forces operate. In these he includes the demonstration effects of higher living standards introduced into rural areas through the establishment of government

institutions and the new perceptions brought back by members of the subsistence group returning from visits to more sophisticated areas (1964: 159). Substantial European investment in small and medium estates is seen as generating an increased flow of income into the area above that which could be produced from the allocation of resources from subsistence production alone. This increased production level induces the provision of goods and services for sale in the area at a higher level, thus raising the utility of money. It also encourages the establishment of processing, transport and marketing facilities, allowing economies of scale to be reaped. In short, it facilitates the overcoming of impediments to expanded production that would otherwise have confronted the indigenous sector had development depended upon their inputs only (Fisk 1964: 173). With the argument presented in this way it appears that the rural dwellers have no choice but to be rural dwellers and producers of agricultural products or in industries associated with agricultural production. The possibility that investment or government spending might create other opportunities for employment away from the rural areas is not really considered. Instead, Fisk saw the process in a purely rural context and as presenting an almost continuous range of degrees of market participation from which four key stages could be identified (1975: 53). These are: (a) pure subsistence in isolation; (b) subsistence with supplementary cash production; (c) cash orientation with supplementary subsistence and (d) complete specialisation for the market.

The empirical data presented in the preceding chapters would place the Tamana economy today squarely in Fisk's second stage of "subsistence with supplementary cash production". The production of copra for exchange on the international market has assured Tamana of a place in the deprived periphery of the capitalist world. The development has taken place as a result of the partial acceptance of "modern" innovations into a system whose essential variables have not been transformed. No new cash crops have displaced traditional foodcrops. The traditional landholding system persists unmodified. Slight changes only have occurred in the

way in which land is used and the local environment perceived. Subsistence production, perhaps more hunter-gatherer than agricultural in character, remains vitally important. The integration of the Tamana economy into the market economy has been partial rather than complete and this has prevailed despite abundant evidence of surplus labour and possibly land resources. Production for the market could be expanded without having to divert resources from subsistence use. The data presented in Table 9.7 show that there is considerable scope for increasing palm densities and output of coconuts. Whether the stage of development reached today represents a pause in Fisk's continuum of change where the Tamana economy has come up against one of the "humps" in the development process where incentive fails or institutional impediments to change need to be overcome, or whether it has reached what Howlett (1973: 273) terms a "terminal" state in the development of underdevelopment is open to question. Despite more than 100 years of contact with the market economy and the implementation of government policies specifically aimed at encouraging production for the market the participation by Tamana households in the cash economy remains desultory. However, what must not be lost sight of is that this desultoriness is a conscious economic strategy where individuals are responding to the options they see as being available to them. These options will reflect conditions in the local area, linkages with other sectors of the economy and possibilities for taking up alternative, even non-rural strategies.

Part of the reasons for only partial incorporation into the market economy must lie in the internal social, political, physical and economic factors which Fisk (1964: 158) sees as acting in concert to determine the "response" factor. Here it is impossible to ignore the reality of the atoll environment; difficult physical conditions, restricted land areas, small volumes of product, remoteness from markets and the absence of alternative crops to the coconut. The significance of the "coconut economy" cannot be underestimated; the crop is an important element in the natural vegetation; both a major subsistence and commercial crop; a tree crop whose productivity cannot be manipulated in the short term and will not respond to intensification of labour inputs. Economic strategy becomes a series of decisions as to when to pick the nut up after it falls, and whether to eat it or turn it into cash to make a purchase from the limited range of store goods available. These decisions are taken

against the background of a value system which stresses the value of conformity and egalitarianism and where the fear of becoming a target for the redistributive mechanism of bubuti discourages the accumulation of wealth. No amount of government manipulation of non-market influences by way of taxation, extension services or removal of impediments to production, transport or marketing have managed to substantially change the response factor. Nor can it affect the cold hard fact that the incentive factor, in the form of the market force, is weak and militates against increasing participation in the cash economy. There is no real alternative to copra production and returns to the producer are low, unpredictable and have been declining steadily over recent years. The prices of imported goods have been rising steadily.

The question now arises as to whether the apparent incomplete incorporation of the Tamana rural economy is either: (a) a temporary hiatus in a continuing process awaiting some new influence to overcome the failure of the response factor and release available labour and inject capital into the intensification of land use, thereby stimulating further economic growth; or (b) a state of terminal development where market participation is limited by the availability of resources or the inability of the productive system to produce the living standards aspired to. The empirical data indicate that coconut production could be expanded by intensified planting and the application of fertilisers. There is also considerable scope for utilising female labour in the production of handicrafts for the market. However, it is equally clear that this expansion might do little more than go some way to making good the losses in remittance incomes that will result from the closure of the Ocean Island and Nauru phosphate operations. Workers returning to Tamana from these centres will accentuate the problem by increasing pressure on resources. There is also considerable doubt as to whether the expanded rural economy alone could provide the necessary income for the capital goods purchases now made in Nauru and Ocean Island. In any case it is still abundantly clear that the resources of rural Tamana cannot be manipulated to provide the increased living standards aspired to by the islanders. These expectations feed on the demonstration effect of living standards achieved by urban dwellers in Tarawa, not on those achieved by innovators in the rural areas. The expansion of

wage employment and increased standards of living in the urban area result from inflows of resources from outside the system, particularly from international aid sources, and do not reflect economic growth within the system. It is these external relationships that are of overriding importance in what happens on Tamana and they are simply not considered in Fisk's formulation.

Tamana is not an isolated rural economy linked to the outside world only through the market for its major export products. The penetration of capitalism also produced investment in mining, the generation of systems of labour migration and the emergence of a "straddled economy" where the household effectively bridges the village economy and the "modern" mining sector. The village economy becomes a binary one composed of two distinct elements: the first relates to locally-generated income from copra, handicrafts and other products where producers are to some degree responsive to prices, government-sponsored production drives and the like; and the second revolves around labour migration, remittance flows and supply of capital goods. The two elements are very unequal in their ability to provide income and access to capital goods. The remittance economy could account for as much as 45 percent of the average household's cash income and a large proportion of the imported capital goods in use on Tamana today were bought on Ocean Island or Nauru. The overriding importance of the remittance economy has coloured the response in the rural areas to the extent that there is a prevailing expectation that the local economy is incapable of satisfying anything but everyday needs. A point of "terminal development" has been reached where in the rural dwellers' perceptions the rural economy is incapable of producing the goods and services considered necessary for a satisfactory "modern" life. The problem is compounded by the fact that the capacity of the "straddled economy" to provide even the present level of support to the rural areas has been curtailed by the closure of mining on Ocean Island in 1979 and future closure of Nauru.

This perception is reinforced by the fact that constant comparisons are being made between what is happening in the rural areas and what is happening in the urban centre. In the latter government expenditure has generated substantial increases in employment and improvements in range and quality of services that can be enjoyed there. The emergence of an urban elite, inadvertent though it may be, will

generate demands for more employment and better services so that the resources available for the rural areas come under further pressure. Those development programmes that do impinge on the rural areas (mainly improvements in education, transport and communications) tend to make the rural dwellers more aware of and more eager to participate in developments in the urban centre. The development programmes initiated by the Tamana people show a keenness to capitalise on the possibilities generated by the urban market; they are looking to exploiting the potential of the relatively affluent urban population rather than the resources of their local, rural environment. They also demonstrate that the traditional ethos of equality and conformity are still sufficiently strong to ensure that the projects are communal and for the benefit of the wider Tamana society. The same could be said for the considerable investment of community resources in the Island Council School on Tamana. The emphasis is on education as a means of access to employment and the opportunity to leave the rural environment altogether. The traditional values of independence and self-sufficiency are reinterpreted in terms of wage employment and an urban rather than a rural way of life. The migration data provide proof that an increasing number of Tamana people are choosing this option.

The fact that the option is the fruit of a "development mirage" based solely on employment generated by government expenditure rather than autonomous development arising from a strong, viable private sector does not enter the rural dwellers' perceptions of things. Development is "government" and implicit faith in the capacity of government to achieve the impossible has been bred of over a century of close paternalistic control, first by the missions and later by the colonial administration, reinforced by the recognition that the scale of resources at the outsiders' command has always outweighed the meagre resources available to the rural dwellers on their miniscule coral islands. As the people of Kiribati enter the next phase of their history the revenue from phosphate has ended; the costs of imports now exceed export receipts by a substantial amount. Aid, principally from Britain, Australia and New Zealand has become increasingly important in generating employment and providing and maintaining the standard and quality of life aspired to by the population at large. It is almost inconceivable that any commercial production

of tradeable goods based on the country's land or marine resources could generate sufficient revenue to displace its dependence on aid and maintain living standards. Continuing aid dependence confronts Kiribati, as it does similar Pacific countries like the Cook Islands, the Tokelaus and Nuie. The future development and well-being of these countries will thus depend increasingly on the aid policies of the metropolitan powers. The process of incorporation that began with the exchange of island products with the whalers and has gone through a series of transformations (including the emergence of the coconut economy, the labour migration and remittance economy, and the wage economy of the aid-financed bureaucracy) has taken the economy of Tamana from an autonomous man/environment system to one whose future character will be determined increasingly by its relationship with external and much larger economic powers.

The image of the coral atolls on their plate being subducted into the trench returns quite powerfully. These tiny islands in their world of ocean have only intermittently been landforms in the recent geological past. Many of them became recognisable land masses less than 6000 years ago. In a space of time shorter than this they have become 'home' to man and the forebears of the I-Kiribati moulded a man/environment system which has enabled them to persist in this strange and fluctuating environment since then. In the last two hundred years this world of islands has become increasingly drawn into the capitalist world to the extent that the islands no longer function as autarkic man/environment systems. External relationships and forces increasingly determine the character of life on the islands and the choices exercised by their people. These relationships will determine their future. There can be no going back to the island world that was. The cultural information which enabled the islanders to function as an isolated man/environment system has been lost and the world is the poorer for it.

Glossary of I-Kiribati words

Fuller meanings are given in the appropriate place in the text.

Where the definite article te has been used in the text this has been ignored in placing the word in the Glossary.

<u>aba</u>	Country, land, earth
<u>aba n akoi</u>	A land plot given to another for favours rendered
<u>aba ni maiu</u>	The land of the living. Productive land
<u>aba ni mate</u>	The land of the dead. Unproductive land
<u>aba ni kare</u>	Land reserved by older generation for own support
<u>aba ni kuakua</u>	The land of nursing
<u>aba n natinati</u>	A land plot given to an adopted child from outside the <u>mwenga</u>
<u>aba n nati n tama</u>	Land plot given to bastard child
<u>aba n tabetabe</u>	The land of the adopted child
<u>aba n te botanaomata ni kabane</u>	The land belonging to everyone
<u>aba n tibutibu</u>	Land plot given to adopted grandchild
<u>ai</u>	Prefix to kin terms meaning 'the same as'
<u>aiai</u>	Group formed to pool toddy surpluses
<u>airiri</u>	Group of persons working together for the benefit of each member in turn
<u>ai-tibutoru</u>	Siblings of great grandparents, great grandchildren of siblings
<u>akawa</u>	Skilled and respected fisherman
<u>amakai</u>	Coconut that is nearly ripe, kernel nearly hard and water acid
<u>anti</u>	Non-physical spirit or quality of either physical object or piece of knowledge
<u>Anti-n-Tioba</u>	'Spirit of Jehovah', name given to exotic religion on Tabiteuea North in nineteenth century
<u>aontari</u>	At the surface of the sea
<u>ara tabo</u>	Our place. Belonging to everyone
<u>atirababa</u>	Large stones, boulders
<u>atun te Kainga</u>	Head of the <u>kainga</u>
<u>aua</u>	Mullet (<u>Mugilidae</u> , B.R., T.N.R.; <u>Crenimugil crenilabis</u> , T.R.)

<u>aumaiaki</u>	Summer solstice (March to September) characterized by easterly winds
<u>aumeang</u>	Winter solstice (September to March) characterized by westerly winds
<u>Auti, Nei Auti</u>	Pleiades stars
<u>ba</u>	Leaf, palm, midrib of palm leaf. Hardpan of cemented coral sand above water lens
<u>babai</u>	<u>Cyrtosperma chamissonis</u> , large starchy, taro- like root that is highly valued feast food and formerly important in subsistence
<u>baitari</u>	Large edible jellyfish (<u>Seypho medusae</u>)
<u>baneawa</u>	<u>Chanos chanos</u> , milk fish. A fresh and salt water fish raised in fish ponds
<u>banuea</u>	Relatives of <u>Te Uea</u> , the highest or 'royal' class
<u>batano</u>	Sand rock. Softer than <u>te ba</u>
<u>batere</u>	Dancing. Introduced by Samoan pastors
<u>baurua</u>	Large canoe
<u>bebe</u>	Spongy formation inside germinated coconut
<u>beibeti</u>	Fishing with line floating on surface
<u>bekei</u>	A feast food, mixture of grated <u>babai</u> , coconut and <u>kamaimai</u>
<u>ben</u>	Mature coconut
<u>bero</u>	<u>Ficus tinctoria</u> , a fig tree bearing edible berries
<u>bike</u>	The beach
<u>biti</u>	Gruel of flour water and grated coconut
<u>bo</u>	Friendship
<u>bobanikaina</u>	To collect leaves of the pandanus
<u>boboti</u>	Cooperative store
<u>bon</u>	Rich, black soil
<u>bon abaia kain Tarawa</u>	Land of the people of Tarawa
<u>boraoi</u>	Equality, conformity
<u>botaki n rorobuaka</u>	Meeting of married men
<u>boti</u>	Seating place of clan in <u>maneaba</u> , clan which shares this sitting position
<u>buakonikai</u>	Bushland
<u>buatoro</u>	Feast food made of toddy and <u>babai</u> or <u>bero</u>
<u>bubuti</u>	To borrow, to request or beg; a request for an object, piece of information, or assistance which (theoretically) cannot be refused

<u>bunia</u>	Sweet coconut, immature husk of sweet coconut
<u>butia</u>	To ask, to beseech. Root of word <u>bubuti</u>
<u>ibu</u>	Toddy container made of coconut shell
<u>ika</u>	General term for fish
<u>ikanibong</u>	Red snapper (<u>Lethrinus</u> sp.)
<u>ikaraoi</u>	Collective term for cultivated varieties of <u>babai</u>
<u>imatang</u>	European
<u>inaki</u>	Rows of thatch. Place of clan in <u>maneaba</u>
<u>inaomata</u>	Free, independent, self-sufficient. Not bound by tradition
<u>ing</u>	Gauze-like fibre between palm frond and trunk
<u>iraorao</u>	Reciprocated friendship
<u>kababa</u>	Fishing for flying fish at sunset with scoop nets
<u>kabara</u>	Deep sea fishing where bait is freed at depth by jerk on line
<u>kabeabea</u>	To request labour
<u>kabirongorongo</u>	Money which is spent rather than saved
<u>Kabowi n Abamakoro</u>	Council of the Island. Forerunner of Island Council
<u>kabubu</u>	Preserved food made of dried pandanus fruit
<u>kaburebai</u>	The land of nursing
<u>kaina</u>	<u>Pandanus</u>
<u>kainga</u>	Section of territory in which people who share common ties of descent have access to use the land; total persons who share claim rights to a tract of land. Residence site inhabited by a major kin group
<u>kainta</u>	Horizontal members in roof-framing
<u>Kaintikuaba</u>	Mythical tree. Home of spirits
<u>kakira</u>	Incest
<u>kamai</u>	Narrow shelf in outer reef slope
<u>kamaimai</u>	Syrup or molasses produced by the prolonged boiling of toddy
<u>kamanging</u>	Fermented toddy
<u>karaiti</u>	To rewind the fishing line, deep water
<u>karewe</u>	Toddy. Juice of the coconut spathe
<u>karinimane</u>	Money to be held or saved
<u>karo</u>	Deep water

<u>katakitoki</u>	To try to reach the bottom, deep water
<u>katautau</u>	Agreed to division (of lands)
<u>katete</u>	Toddy which has been boiled once
<u>katiki</u>	Fishing by trolling
<u>katokaben</u>	Drink made of grated coconut and toddy. Grated coconut either mixed with tea or drunk with tea
<u>katokabero</u>	Drink made of <u>bero</u> fruit and toddy
<u>katokakabubu</u>	Drink made of dried pandanus fruit and toddy
<u>katutu</u>	Collective term for uncultivated varieties of <u>babai</u>
<u>kaubai</u>	Rich (in things)
<u>Kaubure</u>	Village policeman. Member of village council
<u>kaumane</u>	Rich (in money)
<u>kaura</u>	A plant (<u>Wedelia stringulosa</u>) used as compost for <u>babai</u>
<u>kawarawara</u>	Grooved and fluted zone at edge of reef flat
<u>kirina</u>	Gravel
<u>kiriwaka</u>	Dish prepared of finely sliced pandanus fruit and coconut cream
<u>ko</u>	Screened house for bleaching young girls
<u>koro karewe</u>	Cutting coconut spathe for toddy, general term for all activities associated with toddy collection
<u>kuakua</u>	Care for a sick person, often receiving a land in return
<u>kuana</u>	Guano
<u>mai</u>	Breadfruit
<u>maiaki</u>	South
<u>mai keang, mai tarika,</u> <u>mai uea</u>	Varieties of breadfruit
<u>mainuku</u>	From the east, traditional
<u>makoro</u>	Coconut tree which has temporarily ceased to produce nuts
<u>makuri aon te aba</u>	Work of the island. Work for the Island Council or Old Men
<u>makuri n te kawa</u>	Work of the village
<u>mama</u>	shame
<u>mane</u>	General term for man
<u>maneaba</u>	Community meeting house where social or ceremonial occasions are held and public affairs discussed. Meeting house for village or any recognized group of people

<u>mao</u>	Saltbush (<u>Scaevola frutescens</u>)
<u>maungatabu</u>	Meeting of all people of the island
<u>meang</u>	North
<u>moiben</u>	A drink of tea with toddy or sugar, with grated coconut
<u>moimoto</u>	Green nuts used for drinking
<u>mronron</u>	A small indigenous enterprise trading in cash or coconuts. A group or single individual selling store goods for coconuts or cash
<u>mwenga</u>	Household, smallest independent social unit
<u>mwini aine</u>	Traced through the female line
<u>mwini mane</u>	Traced through the male line
<u>nati</u>	Root of word 'child'
<u>nenebo</u>	Compensation
<u>ngea</u>	Bush of very hard wood (<u>Pemphis acidula</u>)
<u>niba</u>	Hole dug through hardpan large enough to accommodate one <u>babai</u> plant only
<u>nikiranroro</u>	Woman or girl unmarried when most of her age group are
<u>nimareburebu</u>	Tree (<u>Hernandia sonora</u>)
<u>nimatamin</u>	Edible reef shellfish
<u>non</u>	Fruit of a shrub usually used for medicinal purposes (<u>Morinda citrifolia</u>)
<u>oinibai</u>	Self-sufficient, free to control one's own activities
<u>okai</u>	Coconut storehouse
<u>oratakakoro</u>	Low water spring tide when reef flat is left completely dry
<u>rabakau</u>	Clever, knowledgeable
<u>rabata n te tautaeke</u>	The body of the government, the people
<u>rabono</u>	Conger eel (<u>Gymnothorax</u> spp.)
<u>rang</u>	Inferior people
<u>rangirang</u>	Mad
<u>ranniben</u>	Coconut cream
<u>rauara</u>	Cigarette paper made from outer surface of selected pandanus leaves
<u>ren</u>	Shrub to small tree, <u>Messerschmidia argenticia</u>

<u>riburibu</u>	Sand or mud beneath water on reef flat
<u>riki ni beti</u>	Pandanus grown from seed rather than cutting
<u>Rimwimata</u>	Star, Antares of Scorpio
<u>rin</u>	Withered coconut leaf, torch made of these leaves for night fishing
<u>roba</u>	Mat made from unshredded pandanus leaves
<u>roro</u>	Preserved pandanus fruit coated in coconut cream
<u>rorobuaka</u>	Warrior class, now married man
<u>roronga</u>	Single man, bachelor
<u>rua</u>	Pit excavated to water table in which <u>babai</u> plants are grown
<u>ruarua</u>	Boat
<u>tabetabe</u>	Adoption
<u>tama</u>	Father
<u>tanimainiku</u>	Facing the west
<u>taningaroti</u>	Lazy
<u>tano</u>	Sand
<u>tanrake</u>	Facing east, the ocean coast
<u>tai</u>	Sibling of same sex; salt fish
<u>tatae</u>	Fishing for flying fish at night with flare and scoop net
<u>tauri</u>	Wire frame and multiple hooks used in deep sea fishing
<u>tautaeka</u>	Government, authority
<u>tetabo</u>	The place of staying alive. Low-lying drought refuges
<u>tiaborau</u>	Astronomer
<u>tia makuri</u>	Commoner, artisan
<u>tibanga</u>	Fate, lot in life
<u>tibu</u>	Grandparent, grandchild
<u>tibu mamano</u>	Great-grandparent
<u>tina</u>	Mother
<u>tinaba</u>	Special relationship including sexual favours offered a person in exchange for lands or fishing for the household
<u>toka</u>	Aristocrat
<u>tore</u>	To eat and drink at the one time
<u>toro</u>	Slave, people conquered in battle

<u>tororau</u>	To flatten and clean pandanus leaves for thatch
<u>tou</u>	Whole pandanus fruit
<u>tuae</u>	Preserved pandanus food made from dried pulp without fibre
<u>tubu ni mwemweara</u>	Soup made of <u>ranniben</u> and pawpaw
<u>tubwere</u>	Dish made of boiled <u>moimoto</u> flesh and fluid
<u>tukabu</u>	Season of great winds, waves and currents
<u>uea</u>	High chief or king
<u>uman anti</u>	Spirits' house
<u>uman roronga</u>	Bachelors' house
<u>unimane</u>	Old man of respected status. Council of Old Men
<u>uri</u>	Tree used for timber and the leaves for <u>babai</u> compost (<u>Guettarda speciosa</u>)
<u>utu</u>	Extended family or clan; social unit linking people of common identity or who are regarded as belonging together
<u>utu ae kan</u>	Close kindred
<u>utu ae raroa</u>	Distant kindred
<u>wairau</u>	Work of making thatch
<u>waiwai</u>	Reef flat, dimpled surface of reef surface

Appendix 1. Aim and Scope of Victoria University of Wellington
Rural Socio-economic Survey of the Gilbert and
Ellice Islands

Research project on problems of economic development and
social response in the Gilbert and Ellice Islands Colony

OBJECTIVES

In the 1970s there will be a growth of about 25 per cent in the population of the GEIC, and the loss of about 49 per cent of the Cash National Income when the phosphate deposits on Ocean Island are exhausted about 1976. At a time in which there will be increased participation in and responsibility for policy by the territory's own citizens, there is an urgent need to study the socio-economic responses of islanders to alternative forms of money earning (especially copra production) and to gather detailed factual data on socio-cultural patterns affecting production and fuller and more efficient use of island resources. The GEIC Development Plan 1970-72 and the Mooring Report of 1968 gave high priority to strengthening the activities of the Department of Agriculture, yet both note that 'little data, unfortunately, is available on which to base the preparation of the agricultural programme'. This study proposes the systematic collection of such data.

SCOPE

- (1) Density of population per acre of land held, land and lagoon used and per unit-area of productive and cultivable land. Limiting effects of ecology on population size. Demographic characteristics of sample communities - comparison with patterns in other island groups. Residential patterns and extent of mobility. Meaningful definition of population pressure in GEIC context. Extent of problem of overpopulation within GEIC - potential for redistribution within the area before colony as a whole can be termed overpopulated at present standards of living and economic activity.
- (2) Study of existing agricultural practices in their variable ecological setting and degree of successful adaptation to atoll or reef island ecology (rainfall, soils, vegetation, water use, salinity). Structure and functioning of agricultural system. Study of forms of land use in relation to plot size, location, productivity and history of particular plots. Labour inputs, contribution to total income made by subsistence agricultural system and fishing.
- (3) Systems of land tenure and inheritance. Correlation of production with degree of fragmentation, male or female ownership or joint ownership or use. Trend to individual ownership in joint tenure areas? Comparison between land tenure practices for copra land and subsistence cropland. 'Caretaker' tenure and labour input and yield in comparison to landowner tenure. Attitudes towards absentee owners and possible consolidation, effects of producer cooperatives and other new organizations in landholding. Effects of and responses to Neglected Lands Policy. Local perception of overpopulation, as opposed to official attitudes.

- (4) Study of copra productivity, especially of labour input and price elasticity of supply. Effect of social structure and cultural values on methods of production. Customary sanctions upon methods of production and their influence on innovation, enterprise and output. Concept of geographical space, boundaries of village, and migration over small distances as affecting modes of land usage. Incentives and disincentives to copra planting, thinning, collection, pest control and improved drying and storage. Attitudes toward delayed returns. Copra marketing and existence of middlemen. Reactions to government-sponsored schemes and incentives (Coconut Grove Improvement Policy etc.). Study of volume of output - mapping, measurement of sample groves, planting, harvesting figures. Amount of production consumed, sold, exchanged (reciprocity), wasted. Competition between subsistence and cash economy for coconuts. Patterns of copra and other work organization, individual versus group work, division of labour. Scope in GEIC for diversification into other crops and to increase volume of copra available for export. Outlook of world market in copra.
- (5) Fishing - measurements of labour input, harvest, contribution to subsistence economy, potential for supplying urban centre, import substitution, problems of fish marketing.

(6) Consumption patterns

Sample household income and expenditure accounts including subsistence income and monetary income. Composition of diet of sample households. Study of structure of wants, classification of wants, including those derived from wage economy as well as subsistence economy. Likely effects on consumption of increase in coconut harvest. Size of customary money needs, other customary costs, including exchangeability between monetary and non-monetary customary costs. Inflation of customary costs. Identification of new material possessions as well as traditional acquisitions which are highly valued cultural symbols, conferring status to possessors. Flexibility of wants, determination of those deemed essential (constant demand) and 'discretionary wants' by compilation of household diet charts, analysis of store sales. Patterns of acquisition and disposal of cash, crops and other goods and services. Size and effects of remittances. Elasticity of demand for consumer goods and particular items relative to levels of income, availability, and prices of store goods. Utility of money, concepts of wealth, role of local store and its handling of finance. Savings institutions - goals and concepts of the future.

(7) Values and motivation

Study of motivation and values. Nature of and preferred rewards for effort, case studies of situations involving clash of custom versus cash and methods of reconciliation, priorities at times of conflict. Exchange of wealth studied against the background of social relations, authority system and individualistic trends and institutional structure. The ways in which the traditional reciprocity economy and modern market economy are integrated or conflict at village level. This study would be based on a

thorough study of the social structure and social organization by means of analyses of concrete case studies (continuity of maneaba customs, membership rights, relation between boti and kainga).

- (8) Efficacy of island councils and political organizations for stimulating economic development - effects of traditional politics on economy - e.g. taxation, seats in the maneaba, role of unimane and other leaders in control of land, labour and derivative resources. Channels of communication between government and key decision makers on islands.

(9) Labour and underemployment

Size and demographic characteristics of island labour forces, consequences of absentee labour, unbalanced age and sex structures, history of elasticity of aggregate and island labour supply to phosphate islands, Line Island plantations, Tarawa, overseas sources of employment. Proportion of migrant labour. Sluggish or ready response of subsistence sector to changes in aggregate labour demands and increases or decreases in wage rates. Elasticity of labour supply today - extent of 'fully committed' wage work, partially committed or 'modified target' work and relatively rigid 'target work' - identification of size of market for strongly committed wage workers and opportunity costs of this labour. Effort-price of incomes earned in village and island vis-a-vis effort-price of incomes earned in phosphate islands, plantations or Tarawa. Effect of good copra harvests and improved coconut varieties on labour supply. Extent and intensity of preference for money as against 'leisure' in village. Level of income that can be earned in islands, effort-price requirements of this income including sacrifice of 'leisure' - to be determined by study of individual perception, study of entrepreneurs and energetic farmers against the background of land tenure, institutional structure, community judgments of economic behaviour, norms and sanctions, social deviance or marginalism and changes in these values. Socio-cultural and economic context of choice about exchanging some 'leisure' (itself dependent on some monetary income?) for some income, and nature of risks, discomforts, insecurities and other 'costs' involved in such exchanges. Case studies of individuals who sacrifice 'leisure' to attain income goals vis-a-vis those who sacrifice income and contract their demand for non-island goods because of preference for 'leisure'. Comparison with sample household income and expenditure accounts. 'Agreeableness' of wage-earning jobs, nearness of employment to island of origin, effort-cost of transport. Extent to which GEIC is a sub-market within the international market economy or whether subsistence economy is strong and capable of expansion as during World War II.

- (10) Scope for labour export. Demographic, economic and social consequences for island labour force, family patterns, division of labour, dietary patterns. Possibilities and effects of overseas recruitment in shipping lines.

- (11) New forms of organization. Cooperatives as a viable system - relationship to traditional social organization. Study of operation of the producer cooperatives and private producer groupings.
- (12) Handicraft industry - modes of production, raw materials, supply potential, problems of variable quality, uses of income, nature of marketing outlets.
- (13) Shipping, transport and marketing problems, including differential effect of transport costs and delays in shipping on copra output, price of merchandise, and in buttressing the subsistence economy through diminishing the usefulness of money. Effects of recent improvements in transport and external supply sources.

Ray Watters (Associate Professor
in Geography)

Nancy J. Pollock (Senior Lecturer
in Anthropology)

Victoria University of Wellington
1 March 1971

Appendix 2. School Programme, L.M.S. Village Schools, 1914-15

LONDON MISSIONARY SOCIETYSyllabus of Subjects for all Classes in Village Schools.
November 1. 1914 to November 1. 1915

CLASS I

Reading From the Primer, pg.2-6, and Numbers to 100.
 Recitation The Lord's Prayer, Matt. 19:13-15. Hymn 105. I. John 3:1-4
 Writing Small and Capital Letters and short words.
 Recitation Multi' Table 2. Primer, pg.56 & 57. Ephesians 7:1-3
 and Matthew 4:3-12.

CLASS II

Reading Primer, pg.7-23. Recitation, Multi' Table 2-4.
 Catechism Primer, pgs, 54-57; 59-62. also pg.20. and the Commandments.
 Recitation Psalm 23. Hymn 171. Matt.5:44-45, 48, and Hymn 118.
 Writing Copying The Lord's Prayer from the Book.
 Arithmetic Addition, Subtraction, and writing Multi' Table 2-4.

CLASS III

Reading The New Testament. From the four Gospels.
 Writing The Lord's Prayer, and Multi' Tables 4-8.
 Arithmetic Addit' Subtract' Multi' & Division. Tables 4-8.
 Catechism Primer. Pages 32-40, 51-57; 25-32, 59-62.
 Life of Jesus Matthew 14-17, and 18-20.
 Bible Stories Pages 149-167; 294-316.
 Primary Geog. Pages 1-3, 26-29; and 18-25, 30-35.
 Recitation Psalm 103:1-13; Matthew 7:14-21.

CLASS IV

Reading From any part of New Testament.
 Writing Copying from either of the Gospels.
 Arithmetic Multi' Division by numbers up to 500. Cancellation.
 Reduction of British Money, and Multi' Tables 8-12.
 Catechism Pages 57-63; and 51-53.
 Bible Stories Pages 159-184; and 185-203.
 Life of Jesus Matthew 11-14, and 15-18.
 Primary Geog. Pages 10-19; and 20-27; and the Map of the World.
 Recitation Psalm 119:1-18; and John 10:1-16.

CLASS V

Reading From any part of the Bible.
 Writing in Ink By dictation, from the Bible.
 Arithmetic Multi, & Div: by numbers 500-1000. Cancellation. Reduction
 of British Money. And Weights and Measures.
 Bible Stories Pages 359-380, 1-40; and 41-94.
 Life of Jesus Matthew 19-28; and Mark 1-7.
 "Kaotan te Ota" The Sunday School Lessons. October 1914, January 1915.
 and April 1915, July 1915.
 Senior Geog. Pages 82-111; and 118-132, 1-10, and the Map of
 the World.
 Recitation Psalms 32 and 434; and Proverbs 15.

CLASS VI

Reading	From any part of the Bible.
Writing in Ink	By dictation, from the Bible.
Arithmetic	Multipli: & Div. from 500-1000. Cancellation. Reduction of British Money, and All Weights and Measures. The Gilbertese Arith. Book, pg.76-83 and Addit: of Fractions.
Bible Stories	Pages 359-380, 1-40. And 41-94.
Life of Jesus	With the Commentary. Matt: 19-28. and Mark 1-7.
"Kaotan te Ota"	The Sunday School Lessons. October 1914, January 1915. And April 1915, July 1915.
Senior Geog.	Pages 82-111; and 118-132, 1-10. And Map of the World.
Bible Dict.	Pages 38-59. (K-T); and 60-712 (T-W).
Recitation	Psalms 32 & 34; and Proverbs 15.

PREPARATORY SCHOOLS

Reading	From the Bible.
Writing in Ink	By dictation, from the Bible.
Arithmetic	Multiplication; Division by 500-1000; Cancellation; Reduction of British Money; Weights and Measures; From the Gilbertese Arith. Book 76-83 including L.C.M. and G.C.M. and addition of Fractions.
Bible Stories	Pages, 359-380, 1-40. And 41-94.
Life of Jesus	From the Commentary. Matthew 19-28. And Mark 1-7.
"Kaotan te Ota"	The Sunday School Lessons, October 1914, January 1915. And April 1915, July 1915.
Senior Geog.	Pages 82-111; and 118-132, 1-10. And the Map of the World.
Bible Dict:	Pages, 38-59, (K-T); and 60-71, (T-W).
Recitation	Psalms 32 & 34; and Proverbs 15.
New Testament	
History	Pages 1-38; and 85-124.
Friends of Jesus	Chapters 1-8; 9-12.
Customs of the	
Jews	Pages 1-34; 34-60.
English	English Primer, Lessons 1-12; 13-18.

N.B. The ideal which we have set before us in our Educational Scheme is to hold Half-Yearly Examinations in all Subjects in all Schools.

The Subjects in the Syllabus are therefore arranged in 2 Parts, the first of which is to be covered in the period from December to June, and the second from July to November.

Appended to Goward 1902 as page 31a and b.

Appendix 3. Items of Personal and Household Property, Sample Households

Item	Household															
	Enoka	Katirongo	Bakanoka	Kamantoo	Kaiea	Tokintekai	Temakai	Barawe	Maera	Komeri	Timea	Kaiaaba	Tembeti	Aam	Tebebita	Meri
<u>Buildings</u>																
Sleeping house	1	1	1	1	1	1	2	1	-	1	1	1	2	1	1	1
Storehouse	1	1	1	1	1	1	1	1	-	1	-	-	-	1	1	1
Cooking house	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Canoe house	2	1	1	1	1	-	1	1	1	1	1	-	1	1	1	-
Rest house (bushland)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toilet/wash house	1	1	1	1	1	1	2	1	1	1	1	1	2	1	1	1
Coconut store	-	-	-	1	-	-	-	-	-	1	-	-	1	-	1	-
Firewood store	-	-	-	2	-	1	1	1	-	1	-	1	1	1	-	1
Cupboard	1	-	1	1	1	-	1	1	-	1	1	-	1	1	1	1
Food safe	1	1	-	1	-	1	-	-	-	1	1	1	1	-	-	-
Pig pen	2	3	1	3	2	2	2	2	1	2	2	2	4	2	2	2
<u>Household equipment</u>																
Table	2	2	3	3	2	1	3	-	2	1	2	-	2	-	1	2
Clothing box	3	2	2	3	2	3	2	3	1	2	2	1	2	2	2	3
Chest of drawers	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Packing case	4	1	6	2	1	3	2	-	-	-	2	-	1	-	3	-
Suitcase	2	2	1	6	2	1	1	-	2	1	2	-	3	1	-	2
Cooking frame	1	1	-	1	1	1	1	2	-	-	1	-	1	1	1	1
Primus	-	1	-	1	1	1	-	1	-	-	-	-	-	-	-	-
44 gallon drum	-	-	-	-	-	-	-	1	-	1	-	-	1	-	-	2
Tub	1	-	-	2	-	-	1	1	-	1	2	-	1	1	1	1
Chamber pot	1	-	1	1	1	1	1	1	1	1	-	1	1	-	1	-
Bucket	3	3	2	3	4	2	2	3	3	3	2	2	2	2	2	3
Well bucket	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Garbage tin	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Lamp (pressure)	1	1	-	1	2	-	-	1	-	1	-	1	1	1	1	-
Lamp (hurricane)	2	1	1	2	-	1	1	-	1	-	-	-	2	-	1	1
Lamp (bottle)	1	1	-	1	2	1	1	2	1	-	1	1	1	2	1	2
Torch	-	1	1	4	2	1	-	1	-	1	1	1	3	3	1	2
Basin	1	3	1	1	4	2	2	3	1	2	4	1	5	1	4	3
Bowl	2	2	-	1	8	1	1	1	1	1	-	-	3	3	2	3
Boiler	1	4	3	3	4	3	2	3	1	1	2	1	3	4	2	1
Saucepan	2	1	2	2	-	1	1	2	1	1	1	1	2	1	-	3
Billycan	1	2	3	1	1	2	2	2	1	1	1	-	1	2	1	1
Frying pan	-	1	1	2	1	1	2	2	-	1	1	1	2	1	1	2
Kettle	2	3	1	4	4	2	2	3	1	1	-	1	2	3	2	3
Jug	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Cup	23	20	1	54	26	5	4	20	6	5	3	3	16	19	6	13
Plate	19	26	4	10	26	10	6	12	3	4	6	5	30	11	6	17
Spoon	30	20	4	24	26	12	8	14	5	3	4	5	15	12	3	21
Tablespoon	2	1	-	1	-	1	-	1	-	1	-	-	2	1	1	1
Teaspoon	2	1	-	1	-	-	1	1	-	-	-	1	-	1	-	2
Fork	3	-	-	-	-	-	-	-	1	-	-	-	2	-	-	-

<u>Household equipment cont.</u>																
Table knife	-	2	3	4	2	2	1	2	1	2	2	1	4	-	2	4
Toddy knife	3	1	1	2	2	1	1	1	1	1	-	1	1	2	2	2
Coconut grater	2	2	1	2	1	2	2	2	2	1	2	1	2	3	1	3
Babai grater	1	1	-	1	-	-	-	1	-	-	-	1	1	1	2	1
Pandanus grater	2	-	1	2	-	1	-	-	-	1	-	-	1	-	-	2
Mincer	-	1	-	2	1	1	1	1	-	-	-	-	1	1	1	1
Flour sifter	-	1	-	1	1	1	-	1	-	2	-	-	-	-	-	-
Egg beater	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Thermos	2	1	-	1	-	-	1	1	-	-	1	-	1	-	-	-
Sieve	1	1	-	1	-	-	1	1	-	-	-	1	-	-	-	-
Bread tin	-	1	-	1	-	-	-	8	-	2	4	3	9	4	-	-
Scone tray	-	1	-	1	-	-	-	-	-	-	-	-	-	2	-	-
Funnel	1	2	-	2	2	1	-	1	-	1	-	-	1	1	-	-
Iron	1	-	-	1	1	-	-	1	-	-	-	-	-	1	1	1
Tin (storage)	8	2	-	4	1	2	2	2	1	1	2	-	3	2	2	4
Bottle	54	20	2	50+	30	20	7	20	10	21	30	6	15	5	2	26
Jar	4	10	-	-	-	-	-	1	1	2	1	-	4	1	2	-
Float jar	3	-	1	4	2	1	1	4	1	1	-	1	3	-	2	-
Stone jar	1	-	-	1	1	-	1	-	-	-	-	-	-	-	-	-
Basket	6	4	5	5	1	1	4	3	3	4	2	2	16	6	3	-
Cigarette lighter	-	1	-	3	2	1	-	1	-	1	1	1	1	1	1	-
Steel and flint	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Mat (sitting)	5	3	1	4	6	3	3	5	6	2	5	2	4	5	2	4
Mat (sleeping)	4	2	2	30	4	1	1	3	3	3	2	2	6	2	4	8
Mat (floor)	3	1	1	2	4	2	1	2	-	2	4	2	3	2	2	2
Mosquito net	4	3	1	5	4	1	1	2	2	1	3	1	4	3	2	4
Pillow	6	5	4	12	8	2	3	4	2	3	4	2	6	4	2	6
Pillowcase	9	10	8	20	16	2	3	4	2	6	4	2	9	6	4	8
Blanket	3	2	2	4	4	-	1	1	2	2	1	1	3	2	-	4
Sheet	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
Towel	3	2	2	5	6	-	1	2	1	2	2	-	4	3	2	6
Tea towel	-	2	1	2	4	-	1	5	-	1	-	-	2	-	-	-
Radio	1	1	1	2	1	1	1	1	-	1	1	1	-	1	1	-
Bicycle	1	2	1	3	2	1	1	1	-	2	1	1	2	1	1	4
Clock	1	1	-	-	1	-	1	-	-	-	1	-	-	-	-	-
Padlock	3	2	2	4	-	5	1	3	-	3	2	1	4	4	3	-
Picture frame	-	1	1	2	-	1	1	-	-	1	-	-	2	1	1	-
<u>Fishing equipment</u>																
Canoe	1	2	-	1	2	-	1	1	-	1	2	1	2	1	2	1
Paddle	3	3	-	2	4	-	3	2	-	3	2	2	4	3	4	2
Float	3	-	-	-	1	-	1	1	1	-	-	-	-	-	1	2
Line	6	2	-	3	2	2	2	1	1	1	2	2	2	4	6	1
Spear	1	-	-	1	1	1	-	3	-	-	-	-	-	-	1	1
Rod	3	-	-	3	2	1	2	5	1	2	1	2	2	2	2	1
Hook	12	15	-	36	50	-	5	6	10	9	3	5	10	20	6	-
Sinker	-	-	-	-	-	-	4	2	1	-	1	1	1	6	-	-
Lure	-	-	-	1	2	-	1	-	-	-	1	-	-	-	-	-
Tauri	1	1	-	1	2	-	1	1	-	1	1	-	1	-	1	-

<u>Fishing equipment cont.</u>																
Diving glass	2	1	1	-	1	1	1	2	2	-	-	1	2	-	1	2
Net scoop	4	1	-	4	3	-	2	1	-	2	-	2	3	2	2	1
Net throwing	-	1	-	-	-	-	-	-	-	-	-	-	-	-	2	-
Net hoop	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-
Slip noose	1	-	-	1	-	1	-	-	-	1	-	-	-	-	2	-
Fishing knife	2	1	-	1	2	-	1	1	1	1	1	1	1	2	2	1
<u>Tools</u>																
Spade	1	1	-	2	1	1	1	-	-	1	-	-	1	2	1	-
Shovel	1	1	1	1	1	1	1	1	1	2	-	1	1	1	1	-
Bush knife	1	2	1	3	1	1	1	2	1	2	1	1	2	2	2	1
Axe	3	2	1	4	2	1	1	1	1	3	1	1	2	2	2	2
Crowbar	2	1	-	1	1	-	3	-	-	1	-	-	-	-	-	-
Pick	1	1	-	1	-	1	1	1	-	-	-	-	1	1	1	-
Soil sieve	1	1	-	1	1	1	-	1	1	1	1	-	1	1	1	1
Sharpening stone	2	1	1	2	1	1	1	1	1	2	1	1	1	1	1	1
Hacksaw	1	1	-	2	1	1	1	2	-	1	-	-	1	2	1	-
Saw	1	1	-	2	3	2	-	-	-	-	-	1	3	1	2	1
Hammer	1	1	-	2	2	1	1	2	1	1	1	-	1	1	1	2
Mallet	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Plane	3	1	-	4	3	1	1	3	-	1	-	1	1	3	2	-
Hand drill	2	1	-	3	1	1	-	1	-	-	-	1	1	1	2	-
Wood chisel	1	1	-	2	1	1	-	2	-	-	-	-	1	1	3	1
Cold chisel	1	1	-	2	1	1	1	2	-	1	-	-	-	1	1	-
Clamp	-	1	-	1	-	1	-	-	-	-	-	-	-	2	2	-
Vice	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-
Pliers	3	1	-	3	2	1	1	1	1	1	1	1	2	-	2	-
Spanner	3	1	-	4	4	1	2	2	-	3	3	1	3	3	1	4
Shifting spanner	-	1	-	3	-	1	1	2	-	-	-	1	2	1	1	-
Bicycle pump	-	-	1	1	1	-	-	1	-	1	1	1	1	1	1	1
Screws	72	-	-	-	-	-	10	-	-	-	-	-	40	20	-	-
Nails	>50	30	-	-	-	-	-	-	-	-	-	-	60	-	-	-
Canoe wood	1	-	-	1	1	-	-	1	-	-	1	-	-	-	1	-
Screwdriver	2	-	-	2	-	-	1	1	-	1	1	-	1	3	2	1
Paint (tins)	2	2	-	-	3	-	-	-	-	-	-	-	4	-	-	-
Paint brush	1	2	-	2	2	-	1	1	-	-	1	-	2	-	-	-
File	2	1	-	3	-	1	1	2	1	1	-	1	2	-	3	-
Rasp	3	1	-	2	3	1	1	2	-	1	-	1	1	-	2	-
Pandanus mallet	2	1	1	3	2	1	1	1	2	2	2	1	3	1	1	1
Leaf shredder	10	3	2	2	1	5	1	3	3	2	4	1	2	3	2	2
Hat mould	2	1	-	-	2	1	1	-	2	-	-	-	1	1	2	1
Sewing machine	1	1	-	2	1	1	1	1	-	1	-	1	1	2	1	1
Scissors	2	1	1	3	3	1	1	2	-	1	1	1	4	2	2	1
Needles	11	2	1	2	22	1	-	1	3	1	2	2	8	7	1	15
Crochet hook	2	1	-	4	2	1	2	1	2	1	2	1	2	1	1	1
<u>Clothing and personal items</u>																
Lavalava	27	14	6	50	40	8	8	10	6	8	11	8	13	14	13	38
Shirt, <i>tibuta</i>	21	12	5	22	56	8	7	10	10	7	14	8	13	25	9	22
Dresses	12	3	3	20	20	3	4	4	4	4	10	3	8	2	2	26

Clothing and personal items cont.																
Uniforms	7	3	-	12	4	2	2	2	2	1	4	2	6	2	1	19
Trousers	9	6	2	10	12	2	3	9	3	4	3	3	4	20	6	10
Underpants	13	9	2	16	28	2	5	4	13	12	5	8	15	5	2	32
Petticoat	-	2	-	6	12	-	-	2	2	2	2	1	4	1	-	10
Brassiere	-	-	-	4	10	-	1	-	-	-	2	-	2	-	-	-
Hat	3	1	-	4	3	-	2	1	-	2	-	2	2	2	1	1
Shoes	-	1	-	2	2	1	-	-	1	-	-	-	1	-	-	-
Grass skirt	3	1	-	2	-	1	1	-	1	1	3	-	1	1	1	6
Neck tie	-	-	-	-	2	-	-	-	-	-	-	-	-	2	-	-
Belt	1	2	-	1	3	-	-	2	1	1	2	1	2	1	1	-
Scarf	5	2	-	4	6	-	-	-	-	2	6	-	6	-	-	-
Sunglasses	1	1	-	2	1	-	1	-	-	1	1	1	1	-	2	-
Spectacles	1	-	-	1	2	-	-	1	-	-	2	-	1	1	1	-
Comb	3	2	1	6	8	2	2	2	4	2	3	2	4	2	2	3
Lengths new cloth	7	5	-	4	10	-	2	10	-	8	3	-	4	6	9	8
Items new clothes	12	8	6	6	-	2	-	10	-	4	1	-	6	-	-	3
Mirror	1	1	1	2	2	1	-	2	-	2	2	-	1	1	2	1
Razor	1	1	-	2	3	-	1	2	1	1	1	1	2	1	1	1
Tobacco pot	1	1	-	1	2	-	-	2	1	2	1	1	-	1	1	-
Pen knife	1	1	-	2	3	-	1	1	-	1	1	-	-	1	1	-
Bible	3	3	1	4	4	1	1	1	1	2	2	-	3	2	3	3
Song book	2	3	-	4	4	1	1	1	2	2	2	-	3	1	3	3
Other books	2	1	-	-	-	-	-	-	1	1	1	-	-	-	-	1
Photographs	20	25	5	50	24	6	10	2	2	15	6	4	20	11	8	-
Teddy bear	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Umbrella	1	1	1	2	4	-	1	1	1	-	1	-	2	1	1	1
Toothbrush	-	1	-	1	2	-	-	-	2	1	-	-	1	-	-	-

Appendix 4 I-Kiribati fish names and tentative identifications

Tamana name	Tentative identification	Common name
Ana	<u>Hemiramphus</u> spp. ^a	Garfish
Anaroro		Garfish
Anoi	<u>Sphyrna</u> sp. ^a	Hammerhead shark
Aongo	<u>Caranx</u> <u>Lugubris</u>	
Arinai	<u>Halichoeres</u> <u>trimaculatus</u>	Wrasse
Te ati	<u>Pelamys</u> sp. ^a	Bonito
Atiati	Possibly applies to all fish taken at one fishing place	
Aua	<u>Crenimugil</u> <u>crenilabis</u>	Mullet
Baba	<u>Acanthurus</u> <u>guttatus</u>	Lancet fish
Baibai	<u>Bothus</u> spp.	Sole, flounder
Baiku		Ray
Bakoa	<u>Ginglymostoma</u> <u>ferrugineum</u>	Shark
Bara	<u>Acanthocybium</u> <u>solandri</u>	
Bare		
Barebu		
Barere	<u>Pempheris</u> <u>oualensis</u>	
Bari		Kingfish
Baru	<u>Labroides</u> <u>dimidiatus</u>	
Bauteira		
Bawe	<u>Lutjanus</u> <u>vaigiensis</u>	Snapper, Goat fish
Bokiroro	<u>Gerres</u> sp. ^a	
Boni	<u>Arothron</u> spp.	
Bubu	<u>Rhinecanthus</u> <u>rectangulatus</u>	Trigger fish
Bureinawa	<u>Holocentrus</u> <u>tiere</u>	Soldier fish
Burewa	Possibly fishing for the above at night	
Ikabauea	<u>Sphyrna</u> sp. ^a	Barracuda
Ikakoa	<u>Aphareus</u> <u>furcatus</u>	
Ikamaua	<u>Scarcus</u> <u>Pectoralis</u>	Parrot fish
Ikanarina		
Ikaraura		Red fish
Ingimea	<u>Neothunnus</u> <u>macropterus</u>	Tuna
Ingo	<u>Lutjanus</u> sp. ^a	Red fish, snapper
Inunikai		
Kama	<u>Elagatis</u> <u>bipinnulatus</u>	Rainbow runner
Kauato		Large <u>Kuau</u>
Kiki		Octopus
Koinawa	<u>Acanthurus</u> <u>triostegus</u>	
Ku	<u>Holocentrus</u> spp.	Soldier fish
Kuau	<u>Epinephelus</u> <u>merra</u>	
Kuaua	<u>Caranx</u> <u>malampygus</u>	Kingfish

Appendix 4 continued

Tamana name	Tentative identification	Common name
Make	<u>Belone platyura</u>	Goat fish
Mataboua		Flagtail
Mon	<u>Myripristis</u> spp.	
Nunua	<u>Sphyraena fosteri</u>	Baracuda
On		Turtle
Onatitimea		
Onauti	<u>Cypselurus</u> spp.	Flying fish
Oningea		Parrot fish
Rabono	<u>Gymnothorax</u> spp.	Conger eel
Raku		Swordfish
Reiati	<u>Cirrhitus</u> spp.	
Rereba		Kingfish
Riba	<u>Acanthurus</u> spp.	Surgeon fish
Ribabanni	<u>Acanthurus</u> spp.	Surgeon fish
Rokea		Shark
Tababa		Shark
Tanin		
Tauri		Oil fish
Tauti		Porcupine fish
Tawatawa	<u>Euthynnus yaito</u>	Skipjack
Tewe		Goat fish
Ura		Crayfish

Identification from name lists in Randall (1955) unless otherwise indicated.

^aIndicates identification from Catala (1957).

Common names from Sabatier (1971).

Appendix 5 Plant Uses Recorded on Tamana

Kiribati Name	Botanical Name ¹	Common Name	Status ¹	Uses
Babai	<u>Cyrtosperma chamissonis</u>	-	ancient intro.	See text.
Banana	<u>Musa paradisiaca</u>	banana	recent intro.	Only rarely eaten as food.
Bero	<u>Ficus tinctoria</u>	fig	indig. or ancient intro.	Fruit eaten.
Boi	<u>Portulaca lutea</u>	purslane	indig.	Leaves boiled and eaten with grated coconut or drunk with toddy. Pig food.
Burukam	<u>Casuarina equisetifolia</u>	ironwood	recent intro.	Wood used for spears, house construction etc.
Iaro	<u>Psuederantherum carruthersii</u>	-	recent intro.	Ornamental plant in village. Flowers, leaves used in garlands. Leaves put on children to keep them warm.
Ibi	-	-	recent intro.	Seed found on beach 60 years ago. One tree only on island. Has hard wood like Itai.
Itai	<u>Calophyllum inophyllum</u>	-	indig. or ancient intro.	Wood used in canoes, house building etc. Flowers for garlands.
Kaiboia	<u>Dodonaea viscosa</u>	-	ancient intro.	Leaves in perfumed oil manufacture.
Kaibuaka	<u>Lantana camara</u>	lantana	recent intro.	Flowers for garlands. Leaves crushed in hands to clean them.
Kaina	<u>Pandanus tectorius</u>	screw pine	indig. and intro.	No general Gilbertese name for pandanus. Tou applies to the whole fruit. Roots used in dyeing and as a wetting agent on diving glass. Interior of stems pounded to make drink for children. Stems in house building. Leaves in mats, hats, baskets, thatch, cigarette paper. Fruit eaten. Flower in perfumed oil.
Kanawa	<u>Cordia subcordata</u>	-	indig.	Wood in canoes. Bark for skirts. Inner bark of stem scraped, squeezed in water and drunk for lethargy.
Kaura	<u>Sida fallax</u>	-	indig.	Leaves for compost. Flowers in garlands. Leaves crushed in children's bath water, drunk.
Kiaiai	<u>Hibiscus tiliaceus</u>	sea coast mallow	indig. or ancient intro.	Leaves for babai. Retled bark for fibre. Wood for outrigger booms, fishing rods. Not common.
Kiaou	<u>Triumfetta procumbens</u>	-	indig.	Flowers for garlands. Dried leaves for babai compost. Leaves crushed for wetting agent on diving glasses, fishing lures etc. Peeled stems added to boiled toddy to give white colour and for children's drink. Leaves in children's bathwater. Leaves in cleaning teeth.
Kiebu	<u>Crinum asiaticum</u>	-	ancient intro.	Decorative plant in village. Medical use - not specified.
Mai	<u>Artocarpus spp</u>	breadfruit	ancient intro.	See text.
Mam	<u>Jussiaea suffruticosa</u>	Willow primrose	ancient intro.	Flowers in garlands. Dried leaves in beverage.
Mao	<u>Scaevola sericea</u>	-	indig.	Leaves with saltwater as gargle for sore throat. Juice from ripe fruit for sore eyes. Leaf tips as plaster for sores. Flowers in garlands. Stems in toy blowguns. Inside of stem in garlands and as chewing gum.

Appendix 5 continued

Kiribati Name	Botanical Name	Common Name	Status	Uses
Maunei	<u>Cyperus laevigatus</u>	-	indig. or ancient intro.	Grass used in grass skirts.
Meria	<u>Plumiera rubra</u>	frangipanni	recent intro.	Flowers in garlands. Leaves on children for warmth. Leaves in medicine for children.
Mtea	<u>Portulaca samoensis</u>	purslane	indig.	Drought food. Pig food. Crushed leaves added to baby's bath water.
Mwemweara	<u>Carica papaya</u>	pawpaw	recent intro.	Fruit eaten. Flowers in garlands. Stems for whistles. Flowers, leaves fed to roosters.
Ngea	<u>Pemphis acidula</u>	-	indig.	Spears. Pegs in building.
Ni	<u>Cocos nucifera</u>	coconut	indig. or ancient intro.	See text.
Nimareburebu	<u>Hernandia sonora</u>	-	indig.	Canoe floats.
Non	<u>Morinda citrifolia</u>	-	ancient intro.	Fruit eaten. Leaves cut up and put in oil to reduce fever. Wood for spears.
Oreanta	<u>Nerium oleander</u>	oleander	recent intro.	Flowers in garlands.
Ren	<u>Messerschmidia argentea</u>	-	indig.	Leaves for pigfood and babai compost. Leaves medicinally to stimulate appetite of pregnant women. Stems in toy blow guns. Wood in canoe construction.
Ruku	<u>Ipomoea tuba</u>	convolvulus	indig.	Pig food. Leaf in medicine and in washing.
Taororo	<u>Colocasia esculenta</u>	taro	ancient or recent intro.	Root eaten. Leaves cooked in soups.
Tarai	<u>Euphorbia chammissonis</u>	-	-	Medicinally as a purgative and for constipation.
Tiare	<u>Gardenia taitensis</u>	Pacific gardenia	ancient or recent intro.	Flowers prized for garlands. Wood used for spears.
Tongo	<u>Bruquiera conjugata</u>	mangrove	indig.	Wood used for spears. Flowers for garlands. One plant only on Tamana. Disappeared after severe storm. Seeds are common on beach.
Uekueke	<u>Amaranthus dubius</u>	smoke plant	recent intro.	Medicinally. In treatment for persons having seen ghosts, leaf soaking in water and person washed in it. Also to reduce swelling, leaf pounded with oil, placed on swelling and covered with old leaf. Only one plant found on Tamana, but probably not a recent introduction. Medicinally root soaked in water also to cure lethargy and drunk for diarrhoea. Leaf tips in oil placed on sores.
Uri	<u>Guettarda speciosa</u>	-	indig.	Leaves for babai compost. Green leaves fashioned into conical baskets for garland flowers. Green leaves used to wrap bait in for kabara fishing. Flowers used in garlands. Wood used for canoe outrigger stays, in house frames. Used as hard wood in making fire by friction.
Uteute	<u>Fimbristylis cymosa</u>	-	indig. or ancient intro.	Grass stem crushed to give eye drops for reddened eyes. Crushed stems warmed and placed across the eye to relieve pain.
Wao	<u>Boerhavia diffusa</u>	-	indig.	Leaves used for babai compost, pig and chicken food. Flowers in garlands. May have been drought food.

¹ from Catala (1957).

Survey week													Total Store Expenditure	Mean Weekly Store Expenditure	Coefficient of Variation	Weekly Expenditure Estimated from Mean Store Expenditure 1971-1973																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
1	2	3	4	5	6	7																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Temakal	0.22	0.12	0.12	0.06	0.00	0.43	0.00	0.95	0.14	111.24	1.77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

^a Based on 4 or fewer weeks' data and excluded from calculations of the mean

^b Reflects purchase of bag of sugar for approaching wedding and excluded from calculation of the mean.

Bibliography

PRIMARY OFFICIAL SOURCES

Western Pacific Archives Records, Suva and Departmental files held in Tarawa. A large proportion of the WPHC material relating to Kiribati is now held in the National Archives, Tarawa.

G.E.I.C. Files

- | | |
|--------------------------|---|
| 2/5/15 | Agriculture Department Reports and Returns, Travelling Diary Tamana. |
| 3/1/3(i)(ii) | Reports and Returns, Annual Colony Reports G.I.D. |
| 3/3/6(ii) | Reports and Returns, Handing-over G.I.D. |
| 3/16/2 | Travelling Diaries Gilbert Islands, vol. I. |
| 3/16/28 | Reports and Returns Travelling Diaries Tamana Is, vol. I. |
| 12/7(i)(ii)
(iii)(iv) | Employment B.P.C. Ocean Island. |
| 14/1/1(i) | Employment Overseas Nauru Phosphate Corporation Nauru. |
| 15/5 | Land Usage and Copra Yield. |
| 30/2/2 | Administration Coconut Scheme, Appendix I. |
| 34/4/15 | Reports and Returns Travelling Diary Tamana Island Vols I, II. |
| 52/21/1(i) | Medical Unclassified, Birth Control. |
| 60/1/5 | Co-operative Societies Officer's Report, Tamana. |
| 62/21/2 | Colony Secondary Production and Industries Marine Local Fishing Industry. |
| 105/1/38 | School Leaver Problem: Beru. |
| 105/13/1 | Annual Summaries of Progress of Education 1968-71. |
| 113/2/16 | Local Government Legislation. By-Laws Tamana. |
| 151/2/2 | Copra Board. |
| 151/2/5 | Executive Council Discussion Paper No.28/73 Copra prices. |
| 165/1/1 | Handicrafts General. |
| 165/12/3 | Land Tenure in the Colony. |
| 185/12/3 | Courses and Training Seamen, Merchant Marine Training School. |
| MD1442 | Annual Report for Ellice Islands for the Year 1912. |
| C10 | Tarawa Teachers College. |

Reports and Other Publications

Department of Agriculture Annual Reports 1967, 1968, 1969.

Department of Agriculture Field Notes 1974.

Bedford, R.D., (1968) Urban Tarawa 1968: Some Problems and Prospects. presented to the Resident Commissioner.

Chambers, Anne, (1976) Nanumea Report, Victoria University of Wellington Rural Socio-Economic Survey of the Gilbert and Ellice Islands.

Davis, E.M.H., (1892) Papers Respecting the Declaration of a British Protectorate over the Gilbert Islands, by Captain Davis, of H.M.S. "Royalist" and General Report on Gilbert, Ellice and Marshall Islands, 1892. Royal Navy, Australia Station XVII.

Geddes W.H., (1975) North Tabiteuea Report, Victoria University of Wellington, Rural Socio-Economic Survey of the Gilbert and Ellice Islands.

Geddes, W.H., Chambers, Anne, Sewell, Betsy, Lawrence, R., Watters, R., (1979) Team Report; Rural Socio-Economic Change: Gilbert Islands and Tuvalu, Victoria University of Wellington Rural Socio-Economic Survey of the Gilbert and Ellice Islands.

G.E.I.C. (1932-36) Blue Books 1932-36.

G.E.I.C. (1933) Regulations for the Good Order and Cleanliness of the Gilbert and Ellice Islands

G.E.I.C. (1956) Colony Conference Proceedings.

G.E.I.C. (1970) Development Plan 1970-1972.

G.E.I.C. (1971) Development Plan 1971-1973.

G.E.I.C. (n.d.) Draft Development Plan 1973-1976.

G.E.I.C. (n.d.) Development Plan 1973-1976.

G.E.I.C. (n.d.) Gilbert and Phoenix Islands Lands Codes.

Green, L., Bukhari, M.S. and Lawrence, R., (1979). Decentralisation in the Gilbert Islands. Report submitted to the Gilbert Islands Government, Development Planning Unit, University College London.

Green, N., (1973) Education and Culture in the Gilbert and Ellice Islands.

Howarth, F., (1960) Report on Two Year Tour in the G.E.I.C.

- Lawrence, R. (1977) Tamana Report, Victoria University of Wellington Rural Socio-Economic Survey of the Gilbert and Ellice Islands.
- McArthur, Norma, Craig, J.B. (1963) G.E.I.C. A Report on the Results of the Census of Population 1963. Govt Press, Suva, Fiji.
- Mahaffy, A. (1909) Report by Mr Mahaffy, Assistant to the High Commissioner on the Gilbert and Ellice Islands Protectorate. Resident Commissioner's Office, Ocean Island.
- Maude, H.E. (1938) Report on the Colonisation of the Phoenix Islands by the Surplus Population of the Gilbert and Ellice Islands, Government Printer, Suva, Fiji.
- Medical Department (1971) Report of the Family Planning Section of the Medical Department for the Year Ended 31st December, 1971.
- Medical Department (1973) Report on the State of Family Planning Acceptance in the Gilbert and Ellice Islands at Mid-September 1973.
- Ministry of Home Affairs (1979) Republic of Kiribati. Report on the 1978 Census of Population and Housing, Vol. 1: Basic Information and Tables.
- Mooring, G.E. et al (1968) A Socio-Economic Survey of the Gilbert and Ellice Islands.
- Office of the Chief Minister, (1975) Gilbert and Ellice Islands. Report of the 1973 Census of Population and Housing, Vol.1: Basic Information.
- Pusinelli, F.N.M. (1947) A Report on the Results of the Census of Population, Gilbert and Ellice Islands Colony 1947. Govt Press, Suva, Fiji.
- Sewell, Betsy (1976) Butaritari Report. Victoria University of Wellington Rural Socio-Economic Survey of the Gilbert and Ellice Islands.
- Stabex Report (1978) Gilbert Islands Association of Overseas Countries and Territories with the EEC. Application for a Change of Status under Article 23.6 of the Council Decision of 29th July 1976. Planning Office, Ministry of Finance.
- Thurston, J. (1893) Journal kept by Sir John Bates Thurston, High Commissioner for the Western Pacific, during his Cruise to Inaugurate the British Protectorate over the Gilbert and Ellice Islands, 25 June-7 August 1893. Central Archives of Fiji, Western Pacific High Commission.

Watters, R., with Banibati, K. (1977) Abemama^a Report. Victoria University of Wellington Rural Socio-Economic Survey of the Gilbert and Ellice Islands.

Youngjohns, B.J. (1969) The Cooperative Movement in the Gilbert and Ellice Islands Colony, Report of a Visit by B.J. Youngjohns, Adviser in Cooperatives. Ministry of Overseas Development, London.

Zwart, F.H.A.G., Groenewegan, K. (1970) G.E.I.C. A Report on the Results of the Census of Population, 1968, Government Printer, Sydney.

Tamana Island Records

Tamana Cooperative Society Interest and Bonus Paid Books.

- Daily Cargo Register.

- Handicraft Journal.

Daily Copra Register.

Tamana Island Council Minute Books.

Kabowi n Abamakoro Minute Books.

UNOFFICIAL SOURCES - MANUSCRIPT

Pacific Manuscripts Bureau New England Microfilming Project, American Whaling Logbooks.

Log of Abigail, 27 Oct. 1847 to 26 July 1850 - PMB 571.

Log of Alabama, 1846 to 1850 - PMB 373.

Log of Alpha, no dates - PMB 373.

Log of Belle, 23 Feb. 1851 to 10 Sept. 1852 - PMB 680.

Log of Canton, 31 July 1851 to 22 May 1855 - PMB 541.

Log of Commodore Morris, 5 Dec. 1853 to 31 Dec. 1857 - PMB 789.

Log of Europa, 1862 to 1864 - PMB 823.

Log of Fortune, 23 Sept. 1840 to 21 July 1844 - PMB 831.

Log of Fortune, 17 Oct. 1850 to 19 May 1854 - PMB 862.

Log of Harvest, 17 Nov. 1828 to 13 Nov. 1831 - PMB 377.

Log of Herald, 11 Nov. 1847 to 4 Feb. 1854 - PMB 867.

Log of Independence, 29 Aug. to 20 Oct. 1827 - PMB 674.

Log of Lion, 11 July 1854 to 4 Dec. 1856 - PMB 875.

Log of Live Oak, 22 July 1869 to 1872 - PMB 834.

Log of Lucy Ann, 6 Nov. 1844 to 30 April 1847 - PMB 688.

Log of Margaret Scott, 1853.

- Log of Maria Theresa, 1859 to 1860 - PMB 325.
- Log of Martha, 1852 to 1857 - PMB 264.
- Log of Massachusetts, 1856 to 1859 - PMB 349.
- Log of Milton, 1 Sept. 1847 to 15 July 1851 - PMB 881.
- Log of Mohawk, 27 Feb. 1855 to 20 Aug. 1858 - PMB 677.
- Log of Nautilus, 1835 to 1838 - PMB 354, 835.
- Log of Navy, 10 Aug. 1859 to 30 Aug. 1863 - PMB 300.
- Log of Navy, 1869 to 1871 - PMB 815.
- Log of Phoenix, 1853 to 1855 - PMB 385.
- Log of Prudent, 1850 to 1853 - PMB 841.
- Log of Rose, 1803 to 1804 - PMB 226.
- Log of St George, 2 Sept. 1850 to 22 July 1852 - PMB 773.
- Log of Stephanie, 22 June 1864 to 23 April 1868 - PMB 221.
- Log of Triton, 1872 to 1876 - PMB 368.
- Log of William and Eliza, 1844 to 1848 - PMB 837.
- Log of William Penn, 26 Oct. 1844 to 3 April 1845 - PMB 854.
- Log of Young Hector, 1857 to 1860 - PMB 820.
- Log of Zone, 1855 to 1858 - PMB 831.

London Missionary Society Records

The records of the LMS were formerly held at Livingstone House, London. They are now housed at the School of Oriental and African Studies, University of London. Microfilm of the records are available at Alexander Turnbull Library, Wellington. The South Seas Letters, South Seas Letters and South Seas Odds were the main series consulted.

South Seas Journals

- Davies, S.H., 1880. Samoa - Visit to Tokelau, Ellice and Gilbert Groups 3 Sept.-6 Nov.
- 1882. Samoa - From Apia to Tokelau, Ellice and Gilbert Isles in the John Williams, 26 Aug.-23 Oct.
- French, A.E., 1899. Samoa, Papuata - Visit to N.W. Outstations in the John Williams, 10 June-2 Aug.
- Marriot, J., 1883. Samoa - From Apia to Tokelau, Ellice and Gilbert Islands in the John Williams, 1 Aug.-23 Oct.
- 1895. Samoa - visit from Apia to Tokelau, Ellice and Gilbert Islands in the John Williams, 4 June-18 July.

- Newell, J.E., 1885. Samoa, Savaii - Voyage to Tokelau, Ellice and Gilbert Islands in the John Williams. 7 Sept-20 Nov.
- 1894. Samoa, Malua - Visit to N.W. Out-stations with Miss Moore (no dates).
- 1896. Samoa, Malua - Visit to N.W. Out-stations in the John Williams. June-July.
- Phillips, C., 1881. Samoa, Tutila - From Apia to Tokelau, Ellice and Gilbert Islands. 3 Sept.-25 Nov.
- 1884. Samoa, Apia - Voyage to N.W. Out-stations. 8 July-15 Sept.
- Powell, T., 1871. Samoa - Visit to Tokelau, Ellice and Gilbert Groups. With illustrations. 19 Sept.-31 Dec.
- 1879. Samoa, Upolu - Visit to N.W. Out-stations. 2 Oct.-18 Nov.
- Pratt, G., 1872. Samoa - Visit to Tokelau, Ellice and Gilbert Groups. 15 July-16 Aug.
- Turner, G.A., 1874. Samoa - Visit to Tokelau, Ellice and Gilbert Groups. 26 May-2 Aug.
- Turner, G., 1876. Samoa - Visit to Tokelau, Ellice and Gilbert Groups. 9 May-21 July.
- Turner, G.A., 1878. Samoa - Visit to Tokelau, Ellice and Gilbert Groups. 11 May-21 July.
- Vivian, J.C., 1871-72. Tahiti - Voyage in the John Williams from Tahiti to Sydney calling at Numerous Islands en route.

South Seas Odds

- Goward, W.E., 1902. Report of Work in the Tokelau, Ellice and Gilbert Groups, LMS September 1900 to September 1902.
- Goward, W.E., 1910. Private and Confidential, London Missionary Society, The Gilbert Islands Mission, Statement and Proposals by the Rev. W.E. Goward, Jan 10, 1910.

Samoa and District

- LMS Correspondence with Pacific Islands 1877-1947.
- LMS Deputation to South Seas and Papua.
- Goward, W.E., 1915. Gilbert Island Mission, Replies to Questions.

Other Missionary Material

Gill, W.W., 1872. Diary of a Tour of the Gilbert, Ellice, Union and Loyalty Islands in the John Williams. 21 May-11 Oct. Sydney, Mitchell Library, MS B1444.

Nalimu Hawaiian Gilbert Islands Church Reports Tabiteuea 1870-1892. Hawaiian Evangelical Association. The Hawaiian Mission Childrens' Society Library, Honolulu.

THESES

Bathgate, M.A. (1975) Bihu Matena Golo: A Study of the Ndi-Nggai of West Guadalcanal and their Involvement in the Solomon Islands Cash Economy, Ph.D. Thesis, Victoria University of Wellington.

Bedford, R.D. (1967) Resettlement: Solution to Economic and Social Problems in the Gilbert and Ellice Islands Colony, M.A. Thesis, University of Auckland.

Macdonald, B. (1971) Policy and Practice in an Atoll Territory: British Rule in the Gilbert and Ellice Islands 1892-1970, Ph.D. Thesis, Australian National University.

McKinnon, J.M. (1972b) Bilua Changes: Culture Contact and its Consequences, a Study of the Bilua of Vella Lavella in the British Solomon Islands. Ph.D. Thesis, Victoria University of Wellington.

UNOFFICIAL SOURCES - PRINTED

- Alkire, W.H. (1977). An Introduction to the Peoples and Cultures of Micronesia, 2nd edition, California.
- Alkire, W.H. (1978). Coral Islanders. Illinois.
- Allen, P.S. (1920). Stewart's Handbook of the Pacific Islands, Sydney.
- Allen, P.S. (1922). Stewart's Handbook of the Pacific Islands, Sydney.
- Amin, S. (1974). Accumulation on a World Scale, New York.
- Amin, S. (1976). Unequal Development, New York.
- Aschmann, H. (1959). "The central desert of Baja California: demography and ecology", Ibero-Americana, 42: 1-282.
- Barrau, J. (ed.) (1963). Plants and the Migrations of Pacific Peoples: a symposium. Honolulu.
- Barrows, H.H. (1923). "Geography as human ecology", Annals of the Association of American Geographers, 13: 1-14.
- Bate, K., Tiata, T., Teanako, B., Fakaofu, Y. and Tautua, A. (1979). "Tradition" in Kiribati: Aspects of History, Institute of Pacific Studies and Extension Services, University of the South Pacific and Ministry of Education, Training and Culture, Kiribati.
- Bathgate, M.A. (1973). West Guadalcanal Report, Victoria University of Wellington, Socio-economic Survey of the Solomon Islands, Wellington.
- Bayliss-Smith, T.P. (1975). "The Central Polynesian Outlier Populations Since European Contact", in V. Carrol (ed.) Pacific Atoll Populations. Association for Social Anthropology in Oceania Monograph No.3, Honolulu.
- Bayliss-Smith, T.P. (1977). "Human ecology and island populations: the problems of change", in T.P. Bayliss-Smith and R.G. Feachem, (eds.). Subsistence and Survival. Rural Ecology in the Pacific, London.
- Bayliss-Smith, T.P. (1978). "Changing Patterns of Inter-Island Mobility in Ontong Jawa Atoll", Archaeology and Physical Anthropology in Oceania, 13, 1, 40-73.
- Bayliss-Smith, T.P. (1978b). "Batiki in the 1970s: Satellite of Suva". UNESCO/UNFPA Fiji Island Reports No.4, The Small Islands and Reefs. Canberra.
- Bedford, R.D. (1978). "Kabara in the 1970s: Home in Spite of Hazards, Economy and Population". UNESCO/UNFPA Fiji Island Reports No.4, The Small Islands and Reefs, Canberra.

- Bedford, R.D. (1981). "The Variety and Forms of Population Mobility in Southeast Asia and Melanesia: The Case of Circulation", in G.W. Jones and H.V. Richter (eds). Population Mobility and Development: Southeast Asia and the Pacific, Development Studies Centre Monograph No.27, Canberra.
- Bedford, R.D., Macdonald, B. and Munro, D. (1980). "Population Estimates for Kiribati and Tuvalu, 1850-1900: Review and Speculation", Journal of the Polynesian Society, 89, 2: 199-246.
- Beiabure, M., Teraku, T., and Uriam, K. (1979). "Creation", in Kiribati: Aspects of History, Institute of Pacific Studies and Extension Services, University of the South Pacific and Ministry of Education, Training and Culture, Kiribati.
- Bellwood, P. (1978). Man's Conquest of the Pacific: the Prehistory of South-east Asia and Oceania, Auckland.
- Belshaw, C.S. (1957). The Great Village: the Economic and Social Welfare of Hanuabada, an Urban Community in Papua, London.
- Bennett, J.A. (1976). "Immigration, 'Blackbirding' Labour Recruiting? The Hawaiian Experience 1877-1887", Journal of Pacific History, 11: 3-27.
- Bingham, H. (1908). A Gilbertese-English Dictionary, Boston.
- Boserup, E. (1965). The Conditions of Agricultural Growth: The Economics of Agrarian Change under Population Pressure, Sydney.
- Britton, S.G. (1980). "The Evolution of a Colonial Space-economy: the Case of Fiji", Journal of Historical Geography, 6, 3: 251-274.
- Brookfield, H.C. (1964). "Questions on the Human Frontiers of Geography". Economic Geography, 40, 4: 283-303.
- Brookfield, H.C., with Hart, D. (1971). Melanesia: A Geographical Interpretation of an Island World, London.
- Brookfield, H.C. (1973). "Full Circle in Chimbu: a study of trends and cycles", in H.C. Brookfield (ed.). The Pacific in Transition: Geographical Perspectives on Adaptation and Change, London.
- Brookfield, H.C. (1977). "Constraints to Agrarian Change". in J.W. Winslow (ed.), The Melanesian Environment, Canberra.
- Catala, R.L.A. (1957). "Report on the Gilbert Islands: Some aspects of human ecology", Atoll Research Bulletin, 59: 1-187, Pacific Science Board, National Academy of Sciences, National Research Council, Washington, D.C.

- Chayanov, A.V. (1925,1966). The Theory of Peasant Economy, Translated D. Thorner, R.E.F. Smith and B. Kerblay, Homewood.
- Chorley, R.J. (1973). "Geography as human ecology". in R.J. Chorley (ed.) Directions in Geography, London.
- Christian, F.W. (1899). The Caroline Islands, London.
- Connell, J. (1975). "Pacific Urbanisation: the Exceptional Case of Tarawa Atoll", Geographical Review, 65: 402-404.
- Connell, J. (1978). "Taim Bilong Mani: the evolution of agriculture in a Solomon Island society", Development Studies Centre Monograph no.12, Canberra.
- Connell, J. (1980). "Remittances and Rural Development: Migration, Dependency and Inequality in the South Pacific". Development Studies Centre ANU Occasional Paper No.22, Canberra.
- Connell, J., Dasgupta, B., Laishley, R. and Lipton, M. (1976). Migration from Rural Areas. The Evidence from Village Studies, New Delhi.
- Corris, P. (1973). Passage, Port and Plantation: a History of Solomon Islands Labour Migration 1870-1914, Melbourne.
- Curtain, R.L. (1981). "Migration in Papua New Guinea: the role of the peasant household in a strategy of survival". in G.W. Jones and H.V. Richter (eds). Population Mobility and Development: Southeast Asia and the Pacific, Development Studies Centre Monograph no.27, Canberra.
- Darwin, C. On the Structure and Distribution of Coral Reefs, London (first edition 1842).
- Davidson, J.M. (1968). "Nukuroro: Archaeology on a Polynesian Outlier in Micronesia", in I. Yawata and Y.H. Sinoto (eds). Prehistoric Culture in Oceania, Honolulu.
- Dyen, I. (1965). "A Lexicostatistical Classification of the Austronesian Languages", International Journal of American Linguistics, Memoir 19, Indiana.
- Eastman, G.H. (1941). In Times of Trial: being Decennial Report 1931-1940 of the Gilbert Islands and Nauru Mission, Beru.
- Ellis, A.F. (1936). Ocean Island and Nauru: Their Story, Sydney.
- Emery, K.O., Tracey, J.I. and Ladd, H.S. (1954). "Geology of Bikini and Nearby Atolls", U.S. Geological Survey Professional Paper 260-A.

- Epstein, T.S. (1965). "Economic Change and Differentiation in New Britain", Economic Record, 41, 94, pp. 173-92.
- Epstein, T.S. (1968). Capitalism, primitive and modern: some aspects of Tolai economic growth, Canberra.
- Epstein, T.S. (1970). "Indigenous Entrepreneurs and their Narrow Horizon". New Guinea Research Bulletin, 35: 16-26.
- Etekiera, K. (1979). "Te Aro: The New Religion". in Kiribati: Aspects of History, Institute of Pacific Studies and Extension Services, University of the South Pacific and Ministry of Education, Training and Culture, Kiribati.
- Eyre, S.R. and Jones, G.R.J. (eds), (1966). Geography as human ecology: methodology by example, London.
- Finney, B.R. (1969). "New Guinean Entrepreneurs". New Guinea Research Bulletin 27.
- Finney, B.R. (1973). Polynesian Peasant and Proletarians, Cambridge, Mass.
- Firth, R.W. (1957). "A Note on Descent Groups in Polynesia", Man, 57, 2: 4-8.
- Firth, R.W. (1964). Essays on Social Organisation and Values, London.
- Fisk, E.K. (1962). "Planning in a Primitive Economy: Special Problems of Papua-New Guinea", Economic Record, 38: 462-78.
- Fisk, E.K. (1974). "Rural Development". New Guinea and Australia, The Pacific and South-east Asia, 9, 1: 51-60.
- Fisk, E.K. (1975). "The Response of Nonmonetary Production Units to Contact with the Exchange Economy". in L. G. Reynolds (ed.). Agriculture in Development Theory, New Haven.
- Fisk, E.K. and Shand, R.T. (1969). "The early stages of development in a primitive economy: the evolution from subsistence to

- Freeman, J.D. (1961). "On the Concept of the Kindred". Journal of the Royal Anthropological Institute, 91, 192-220.
- Geertz, C. (1963). Agricultural Involution: the Process of Ecological Change in Indonesia, Berkeley.
- Geertz, C. (1965). The Social History of an Indonesian Town, Cambridge, Mass.
- Gifford, E.W. and Gifford, D.S. (1959). "Archaeological Excavations in Yap", Anthropological Records, 18, 2.
- Godelier, M. (1980). "Anthropological Economics: the Analysis of Production, Circulation and Consumption of Economic Goods", in I. Rossi (ed.). People in Culture: a Study of Cultural Anthropology, New York.
- Golson, J. (1962). "Polynesian Navigation", Journal of the Polynesian Society 71, 4: 79-154.
- Golson, J. (1972). "The Pacific islands and their prehistoric inhabitants", in R. G. Ward (ed.). Man in the Pacific Islands, Oxford.
- Goodenough, W.H. (1955). "A Problem in Malayo-Polynesian Social Organisation", American Anthropologist, 57: 71-83.
- Goodenough, W.H. (1963). Cooperation in Change, New York.
- Goreau, T.F., and Land, L.S. (1974). "Fore-reef morphology and depositional processes North Jamaica", in L.F. Laporte (ed.). Reefs in Time and Space: Selected Examples from the Recent and Ancient. Society of Economic Paleontologists and Mineralogists Special Publication no.18, Tulsa, Oklahoma.
- Grace, G. (1961). "Austronesian Linguistics and Culture History", American Anthropologist, 63: 359-368.
- Gregory, J.W. and V, Piché (1978). "African migration and peripheral capitalism", African Perspectives, 1: 37-50.
- Grimble, A.F. (1921a). "From Birth to Death in the Gilbert Islands", Journal of the Royal Anthropological Institute, 51: 25-54.
- Grimble, A.F. (1921b). "Canoe crests of the Gilbert Islands", Man, 21: 81-85.
- Grimble, A.F. (1922). "Myths from the Gilbert Islands", Folklore, 33: 91-112.
- Grimble, A.F. (1933-4). "The Migrations of a Pandanus People; as traced from a preliminary study of Food, Food-traditions, and Food-rituals in the Gilbert Islands", Polynesian Society Memoir 12 (incomplete). Supplement to the Journal of the Polynesian Society, 42: 1-84; 43: 85-112.

- Grimble, A.F. (1953). A Pattern of Islands, London.
- Grimble, A.F. (1957). Return to the Islands, London.
- Grimble, A.F. (1972). Migrations, Myth and Magic from the Gilbert Islands (arranged by Rosemary Grimble), London.
- Harriss, J. (1982). Rural Development Theories of peasant economy and agrarian change, London.
- Hartshorne, R. (1960). Perspective on the nature of geography, London.
- Hawley, A.H. (1944). "Ecology and human ecology", Social Forces, 22: 398-405.
- Hawley, A.H., (1951). "The approach of human ecology to urban areal research", Scientific Monthly, 73: 48-49.
- Hettner, A. (1905). "Das Wesen und die Methoden der Geographie", Geographische Zeitschrift, 11: 545-64, 615-29, 671-86.
- Howells, W. (1973). The Pacific Islanders, London.
- Howlett, D. (1973). "Terminal development: from tribalism to peasantry". in H.C. Brookfield (ed.). The Pacific in Transition: Geographical Perspectives on Adaptation and Change, London.
- Hughes, A. (1973). "What is Development", Pacific Perspectives, 1, 2: 8-19.
- Jarman, R. (1838). Journal of a Voyage to the South Seas in the "Japan" Employed in the Sperm Whale Fishery under the Command of Captain John May, London.
- Kaplan, D., Saler, B. (1966). 'Foster's Image of Limited Good': An Example of Anthropological Explanation", American Anthropologist, 68, 1: 202-205.
- Keesing, R.M. (1978). "The Kwai of Malaita: old values and new discontents", in E.K. Fisk (ed.). The Adaptation of Traditional Agriculture: Socioeconomic Problems of Organisation, Development Studies Centre Monograph no.11.
- Kenny, M. (1962-3). "Social Values and Health in Spain: Some Preliminary Considerations". Human Organisation, 21: 280-285.
- Kirion, M.T. and Karaiti, B. (1979). "Migration". in Kiribati: Aspects of History, Institute of Pacific Studies and Extension Services, University of the South Pacific and Ministry of Education, Training and Culture, Kiribati.
- Knudson, K.S. (n.d.) Titiana: A Gilbertese Community in the Solomon Islands, Oregon.

- Koch, G. (1965). Materielle Kultur der Gilbert-Inseln, Berlin.
- Ladd, H.S. (1973). "Bikini and Eniwetok Atolls, Marshall Islands".
in O.A. Jones, R. Endean (eds). Biology and Ecology of
Coral Reefs, I. New York.
- Lambert, B. (1975). "Makin and the Outside World" in V. Carroll (ed.).
Pacific Atoll Populations, Association of Social Anthropology
in Oceania Monograph No. 3, Honolulu.
- Lampert, R.J. (1968). "An Archaeological Investigation on Ocean Island,
Central Pacific", Archaeology and Physical Anthropology in
Oceania, 3, 1: 1-18.
- Langdon, R.E. (ed.), (1979). Thar She Went: An Interim Index to the
Pacific Ports and Islands Visited by American Whalers and
Traders in the 19th Century, Canberra.
- Lipton, M. (1977). Why Poor People Stay Poor. A study of urban
bias in world development, London.
- Lockwood, B.A. (1971). Samoan Village Economy, Melbourne.
- Loomis, A. (1970). To All People: a History of the Hawaii Conference
of the United Church of Christ, Tennessee.
- Lundesgaarde, H. (1966). Cultural Adaptation in the Southern Gilbert Islands,
Oregon.
- Lundesgaarde, H.P. (1974). "The Evolution of Tenure Principles on Tamana
Island, Gilbert Islands", in H.P. Lundesgaarde (ed.).
Land Tenure in Oceania, Association of Social Anthropologists
in Oceania Monograph No.2, Honolulu.
- Lundesgaarde, H.P. and Silverman, M.G. (1972). "Category and group
in Gilbertese kinship: an up-dating of Goodenough's analysis",
Ethnology, 11, 2: 95-110.
- Luomala, K. (1970). Babai (*Cyrtosperma chamissonis*) A Prestige Food in
the Gilbert Island Culture, VII Congress International des Sciences
Anthropologiques et Ethnologiques, Moscow.
- Margalef, R. (1968). Perspectives in Ecological Theory, Chicago.
- Matthews, W.K. (1951). "Characteristics of Micronesian",
Lingua 2: 419-437.
- Maude, H.C. and Maude, H.E. (1932). "The social organisation on Banaba
or Ocean Island, Central Pacific", Journal of the Polynesian Society
41: 262-301.
- Maude, H.E. (1963). "The Evolution of the Gilbertese Boti",
Polynesian Society Memoir 35, Wellington.

- Maude, H.E. (1967). "The Swords of Gabriel: A study in participant history", The Journal of Pacific History, 2: 113-36.
- Maude, H.E. (1968). Of Islands and Men. Studies in Pacific History, Melbourne.
- Maude, H.E. (1970). "Baiteke and Binoka of Abemama, Arbiters of Change in the Gilbert Islands". in J.W. Davidson and D. Scarr (eds). Pacific Islands Portraits, Wellington and Auckland.
- Maude, H.E. with Ida Leeson (1968). "The Coconut Oil Trade in the Gilbert Islands". in H.E. Maude, Of Islands and Men, Melbourne.
- Maxwell, Capt. (1881). Gilbert, Ellise and Other Islands, Captain Maxwell to Commodore Wilson, H.M.S. 'Emerald' in Newspaper Cuttings, Vol.52, Mitchell Library, Sydney.
- Mellor, J.W. (1966). The Economics of Agricultural Development, New York.
- Mitchell, J.C. (forthcoming). "Towards a Situational Sociology of Wage-Labour Circulation". in R.M. Prothero, M. Chapman (eds), Circulation in Third World Countries, London.
- Moorehead, A. (1966). The Fatal Impact: an Account of the Invasion of the South Pacific 1767-1840, London.
- Morrell, W.P. (1960). Britain in the Pacific Islands, London.
- Moul, E.T. (1957). "Preliminary Report on the Flora of Onotoa Atoll, Gilbert Islands", Atoll Research Bulletin, 57: 1-48, Pacific Science Board, National Academy of Sciences - National Research Council, Washington, DC.
- Munk, W.H. and Sargent, M.C. (1954). "Adjustment of Bikini Atoll to Ocean Waves, Bikini and Nearby Atolls, Marshall Islands", U.S. Geological Survey Professional Paper 260-C: 275-80.
- McArthur, N., I.W. Saunders and R.L. Tweedie (1976). "Small population isolates, a micro-simulation study", Journal of the Polynesian Society, 85: 307-326.
- MacArthur, R.H., and Wilson, E.O. (1967). The Theory of Island Biogeography, Princeton.
- Macdonald, B. (1971-2). "Local Government in the Gilbert and Ellice Islands 1892-1969", Journal of Administration Overseas, 50: 280-293, 51: 11-27.
- Macdonald, B. (1982). Cinderellas of the Empire, Canberra.
- McKinnon, J.M. (1972). Bilua Report, Victoria University of Wellington Socio-economic Survey of the Solomon Islands, Wellington.
- Newell, N.D. (1972). "The Evolution of Reefs", Scientific American, 226: 54-65.

- Newell, N.D., and Rigby, (1957). "Geological Studies on the Great Bahama Bank", in R.J. LeBlanc and Julia Breeding (eds). "Regional Aspects of Carbonate Deposition". American Association of Petroleum Geologists Special Publication 5.
- New Zealand Meteorological Service (1970). Annual Meteorological Summaries Stations in Fiji, Tonga, New Hebrides and Western Pacific High Commission Territories 1951-1970, Suva.
- Odum, E.P. (1969). "The strategy of ecosystem development", Science 164: 262-270.
- Osborne, D. (1966). The Archaeology of the Palau Island. Bishop Museum Bulletin, 230, Honolulu.
- Park, R.E., Burgess, E.W. and McKenzie, R.D. (1967). The City, Chicago.
- Parnaby, O.W. (1964). Britain and the Labour Trade in the Southwest Pacific, Durham, N.C.
- Pawley, A. (1972). On the Internal Relationships of Eastern Oceanic Languages. in R.C. Green and M. Kelly (eds). Studies in Oceanic Culture History, Pacific Anthropological Records no.13. B.P. Bishop Museum, Honolulu.
- Purdy, E.G. 1974. Reef Configurations: Cause and Effect. in L.F. Laporte (ed.). Reefs in Time and Space: Selected Examples from the Recent and Ancient. Society of Economic Paleontologists and Mineralogists Special Publication no.18. Tulsa.
- Randall, J.E. (1955). "Fishes of the Gilbert Islands", Atoll Research Bulletin 47, Pacific Science Board, National Academy of Sciences, National Research Council, Washington D.C.
- Rappaport, R.A. (1963). "Aspects of man's influence upon island ecosystems: alteration and control", in F.R. Fosberg (ed.). Man's Place in the Island Ecosystem, Honolulu.
- Reinman, F. (1968). "Guam Prehistory: a Preliminary Report". in I. Yawata and Y.H. Sinoto (eds). Prehistoric Culture in Oceania, Honolulu.
- Reisenberg, S.H. (1965). "Table of Voyages Affecting Micronesian Islands", Oceania, 36: 155-170.
- Roberts, R.G. (1953). "The Dynasty of Abemama", Journal of the Polynesian Society, 62: 267-278.

- Rogers, E.M. (1969). Modernization Among Peasants: The Impact of Communication, New York.
- Sabatier, E. (1971). Gilbertese-English Dictionary (translated from French, Sister Oliva), Sydney.
- Sachet, M-H. (1957). "Climate and Meteorology of the Gilbert Islands", Atoll Research Bulletin, 60. Pacific Science Board, National Academy of Sciences, National Research Council, Washington D.C.
- Sahlins, M.P. (1972). Stone Age Economics, Chicago.
- Salisbury, R.F. (1962). From Stone to Steel: Economic Consequences of Technological Change in New Guinea, Melbourne.
- Salisbury, R.F. (1970). Vunamami: Economic Transformation in a Traditional Society, Berkeley.
- Sauer, C.O. (1941). "Foreword to Historical Geography", Annals of the Association of American Geographers, 31: 1-24.
- Schnore, L.F. (1961). "Geography and human ecology", Economic Geography 37: 207-217.
- Schutz, B. and Tenten, R. (1979). "Adjustment", in Kiribati Aspects of History. Institute of Pacific Studies and Extension Services, University of the South Pacific and Ministry of Education, Training and Culture, Kiribati.
- Scott, G.A.J., Rotondo, G.M., Rannie, W.F. (1976). "The 'Tangential Component' in Pacific Atoll Development, Diffusion and Demise". Unpublished paper delivered to 1976 Annual Meeting of the Canadian Association of Geographers at Universite Laval.
- Silverman, M. (1971). Disconcerting Issue: Meaning and Struggle in a Resettled Pacific Community, Chicago.
- Shankman, P. (1976). Migration and Underdevelopment: the Case of Western Samoa, Colorado.
- Simmons, R.T., Graydon, J.J., Gadjusek, D.C. and Brown, P. (1965). "Blood Group Genetic Variations in Natives of the Caroline Islands and in other parts of Micronesia", Oceania, 36, 2: 132-170.
- Skeldon, R. (1977). "The Evolution of Migration Patterns During Urbanization in Peru", Geographical Review, 67: 394-411.
- Spoehr, A. (1957). "Marianas Prehistory", Fieldiana Anthropology, 48, Chicago.
- Stoddart, D.R. (1965). "Geography and the Ecological Approach. The Ecosystem as a Geographic Principle and Method", Geography, 50, 3: 242-251.

- Stoddart, D.R. (1967). "Organism and ecosystem as geographical models", in R.J. Chorley and P. Haggett (eds). Models in Geography, London.
- Stone, B.C. (1963). "The role of pandanus in the culture of the Marshall Islands. in J. Barrau (ed.). Plants and the Migrations of Pacific Peoples: a symposium, Honolulu.
- Stone, L.E. (1951). "The Soils and Agriculture of Arno Atoll, Marshall Islands", Atoll Research Bulletin 5 and 6, Pacific Science Board, National Academy of Sciences, National Research Council, Washington D.C.
- Tansley, A.G. (1935). "The use and abuse of vegetational concepts and terms", Ecology, 16: 284-307.
- Thompson, L.M. (1932). "Archaeology of Marianas Islands", Bishop Museum Bulletin 100, Honolulu.
- UNESCO/UNFPA Project on Population and Environment in the Eastern Islands of Fiji (1976). Draft General Report No.1, Canberra.
- Waddell, E.W. and Krinks, P.A. (1968). "The Organisation of Production and Distribution Among the Orakaiva", New Guinea Research Bulletin, 24.
- Walsh, A.C. (1982). "Migration, Urbanisation and Development in South Pacific Countries", Country Report VI Comparative Study on Migration, Urbanisation and Development in the ESCAP region ESCAP Thailand.
- Waters, A.R. (1973). "Migration, remittances and the cash constraint in African smallholder economic development", Oxford Economic Papers 25, 3: 435-54.
- Whitmee, S.J. (1871). A Missionary Cruise in the South Pacific - Being the Report of a Voyage amongst the Tokelau, Ellice and Gilbert Islands in the Missionary Barque "John Williams" during 1870, Sydney.
- Wiens, H. (1962). Atoll Environment and Ecology, Newhaven.
- Wilkes, C. (1945). Narrative of the United States Exploring Expedition during the years 1838, 1839, 1840, 1841, 1842. 5 vols and atlas, London.
- Williams, M. (1971). Three Islands, Adelaide.
- Yawata, I. (1963). "Rice Cultivation of the Ancient Mariana Islanders", in J. Barrau (ed.). Plants and the Migrations of Pacific Peoples: a symposium, Honolulu.