The Australian National University
Development Studies Centre

Atoll Economy:
Social Change in Kiribati and Tuvalu

no.4

Tamana

Roger Lawrence

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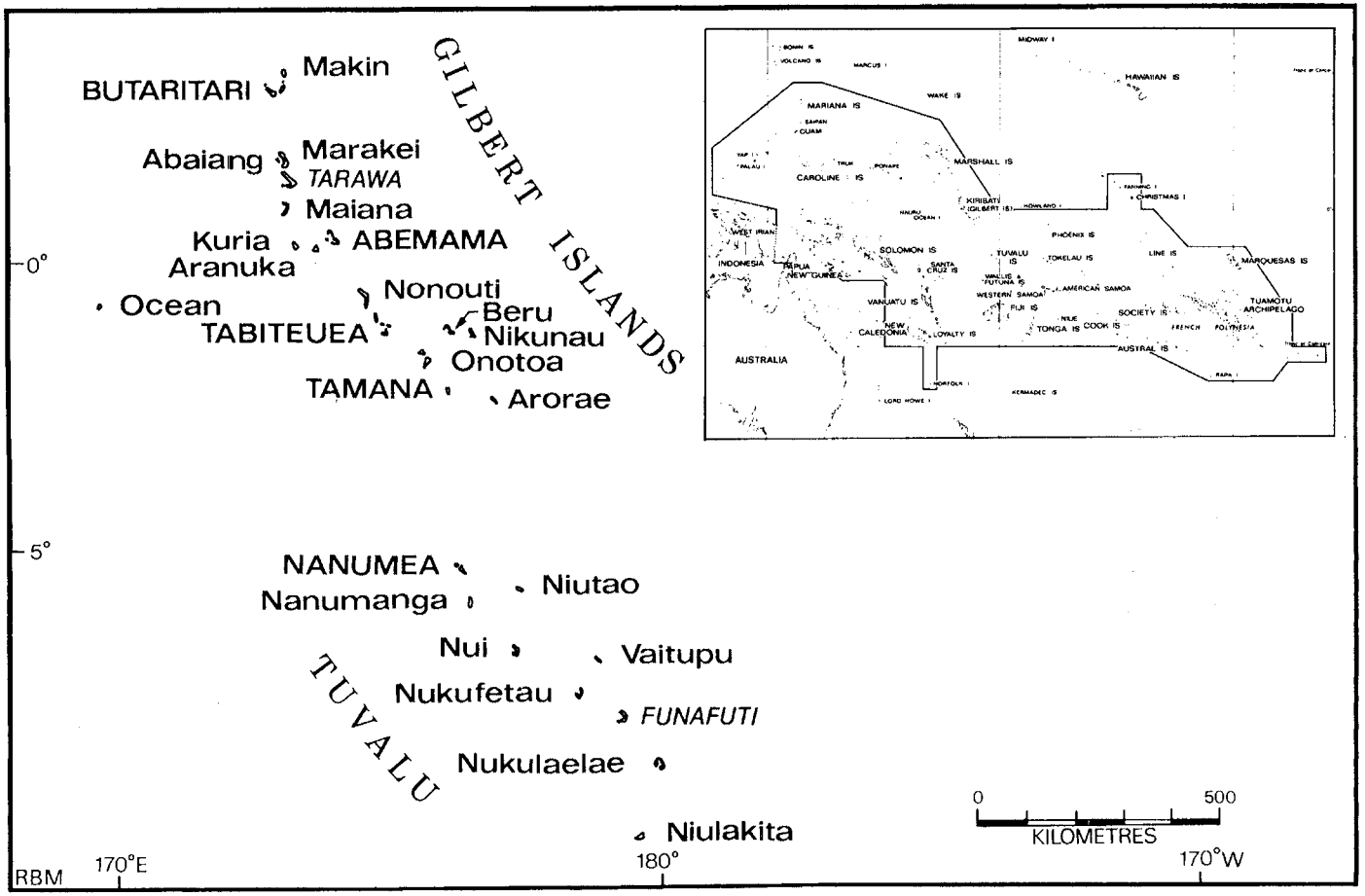

Gilbert Islands and Tuvalu. The 5 islands studied in this series are set in capitals. Tarawa is the administrative centre for the Gilbert Islands and Funafuti for Tuvalu.

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Abstract

Tamana was chosen for study because of extreme smallness, high population density and potential for great pressure on local resources, accentuated by low, unreliable rainfall and frequent severe droughts. Six hundred km from Tarawa, the islanders belong to the southern Kiribati subculture, differentiated from central and northern islands, and Tamana is not torn by sectarian strife between rival missions.

The report describes the physical resource base; recent history, stressing the impact of traders, missionaries and colonial administration; social organization and tradition-based systems of gaining access to resources; balance between population and resources; value systems providing motivation for action.

Data are presented on household composition, organization and resource base; daily activity patterns and allocation of time; production in subsistence and cash sectors. The household is a loosely knit entity without defined long-term economic strategies. Most household time is allocated to subsistence and social activities, and the importance of remittances accounts for limited commitment to cash earning. Households have ability to move between subsistence and cash sectors depending on external conditions.

Wider social and economic groupings in subsistence and cash-earning activities and village and island affairs are described; perceptions of government and response to government-promoted development schemes are discussed.

Conclusions review the island environment, economic system and scope for achieving appropriate development taking cognizance of scale, enhancing capabilites already present and maintaining viability of the present system.

Roger Lawrence is a senior lecturer in the Department of Geography, Victoria University of Wellington. He graduated in geography at the University of Sydney and Australian National University where his M.A. research was focused on Aboriginal habitat and economy. In 1979 he returned to Kiribati as part of a team from Development Planning Unit, University College London to report on prospects for decentralization and implications of proposals to shift the administration from Tarawa.

Introductory note by Development Studies Centre

The Victoria University of Wellington Rural Socio-economic Survey of the Gilbert and Ellice Islands was undertaken by geographers and anthropologists in a 5-person team during the period 1971-74. It aimed at the systematic collection of data on 4 Gilbert Islands (Kiribati) and 1 Tuvalu (Ellice) Island in order to describe the way of life and dynamics of the present day economic and social systems and the changes occurring or likely to occur in response to internal or external forces. This project was funded as the result of an agreement between the United Kingdom Ministry of Overseas Development and the Victoria University of Wellington Geography and Anthropology Departments, with the guidance and administration of the head of the Department of Agriculture, the Central Planning Office and other government officers in Tarawa (United Kingdom Aid Research Scheme No.R.2625 A & B).

The project came about as a result of government realization of three factors affecting the future of the colony: the likelihood that phosphate deposits on Ocean Island would be exhausted in the near future, the extension of development planning in the colony, and a planned increase in coconut planting and copra production in the 1980s. The phosphate deposits had offered a mode of employment that was the source of a steady flow of cash to the Kiribati families of the workers, but how this cash fitted into the local economy needed to be established before the effects of its exhaustion about 1980 could be evaluated. Government schemes to provide alternative employment opportunities for both Kiribati and Tuvalu islanders, such as work with overseas shipping lines, needed assessing in terms of the possible effects of recruiting persons from the village sector. How people spent their time was a largely unknown factor, as was the degree to which people felt the need to acquire cash. Little was known about the nature of the subsistence economy or its relationship to the cash sector. There was much uncertainty as to the motivations that lay behind copra production, particularly as these may be affected by climate or other local factors, as well as by changes in price. In short, the team was given the task of providing social, economic and population data to help in the more detailed planning towards improving village life.

Any adequate study of a village economy must view economic forces in the context of the whole social and cultural setting of outer island life, including an appreciation of Kiribati and Tuvalu values, attitudes and aspirations. Thus it was decided that each team member should devote his or her attentions to one atoll in order to obtain as complete a picture as possible: Butaritari, Abemama, Tabiteuea North and Tamana in Kiribati, and Nanumea in Tuvalu were the final choices made in consultation with various government officials.

The planning, training of team members, initiation of the study, coordination of fieldwork and supervision of the writing-up phase were the responsibility of the directors of the project, Ray Watters and Nancy J. Pollock. Ray Watters has taken overall responsibility for publication. Roger Lawrence also assisted substantially at the team report stage.

The reports were published 1975-79 with the approval of the governments of the Gilbert and Ellice Islands:

W.H. Geddes, North Tabiteuea Report
Anne Chambers, Nanumea Report
Betsy Sewell, Butaritari Report
Roger Lawrence, Tamana Report
Ray Watters with Kabiritaake Banibati, Abemama Report
Team Report.

Because of the importance of the project and the significant quality of the contributions, and because they are one of the few examples of analysis in depth of village social and economic organization in Oceania, the Development Studies Centre of the Australian National University is publishing the reports in a new series, 'Atoll Economy: Social Change in Kiribati and Tuvalu'. This series has the approval of the governments of Kiribati and Tuvalu.

Although events subsequent to the fieldwork and publication have overtaken them, it was decided not to update the material except for minor comments. Some editing and consolidation of material has been done.

The area which was the subject of this study was called the Gilbert and Ellice Islands Colony (GEIC) up to 1 January 1976; from that date the Ellice Islands became separate as Tuvalu, and Tuvalu achieved independence from Britain in October 1978. The Gilbert Islands Colony became the independent country of Kiribati in July 1979.

Each monograph in the series stands alone but the glossary of Kiribati words and the bibiliography containing references for all 6 reports will be found in the summary volume no.1, 'Islands on the Line', which is the report, conclusions and recommendations by the survey team. The glossary of Tuvalu words is in the Nanumea volume.

An outline of the research project is appended to volume no.1.

Abbreviations used in all texts for sources of material in island reports are:

A.R.	Abemama Report
B.R.	Butaritari Report
I.L.	Islands on the Line: Team Report
N.R.	Nanumea Report
T.R.	Tamana Report
TN.R.	Tabiteuea North Report.

The mixture of Imperial and metric measures in these reports reflects the fact that at the time of the study local GEIC usage was Imperial measures. In recent years Australia and New Zealand have adopted the metric system. In some cases metric equivalents have been shown.

Amounts of money are given in Australian dollars and cents, the official currency of the GEIC.

Readers should appreciate that the reports do not always contain obvious or well-known factual information about coral atolls or the Gilbert and Tuvalu Islands: such information was not included in these reports to government as it was already well known by government officers and local people. For such information readers should consult Catala (1957) and Colony Annual Reports.

Financial assistance towards publication has been provided by the Overseas Development Administration, London, Victoria University of Wellington, and the New Zealand Ministry of Foreign Affairs.

Foreword

Tamana was chosen as 1 of the 5 islands to be studied in the Victoria University of Wellington Rural Socio-economic Survey of the Gilbert and Ellice Islands because of its smallness and extreme distance (600 km) from the capital, Tarawa, which is the link between the colony and the outside world. Moreover, its population density (290 per km^2) is amongst the highest in the group, suggesting great pressure on local resources. Along with Tabiteuea, Tamana differs in terms of sub-culture from the central Gilberts (e.g. Abemama) and the northern Gilberts (e.g. Butaritari). At the same time, as a southern island, Tamana frequently experiences severe and prolonged droughts. The island culture has responded to this environmental hazard by elaborating a pattern of subsistence that differs somewhat from some other islands (e.g. an emphasis on fishing). Lacking the relatively large land area of Tabiteuea or the abundant rainfall of Butaritari, the people of Tamana have had to emphasize the utilization of other local resources, coupled with access to money-earning opportunities off the island. Finally, in contrast to the other 4 islands Tamana is a reef island, not an atoll. The absence of a lagoon has major consequences affecting ways of getting a living.

Roger Lawrence began preparatory study in Wellington in 1971 and commenced fieldwork on Tamana in December 1971. He carried out three periods of fieldwork on the island between 1971 and 1974. His wife Judy accompanied him on the last term of fieldwork. He also carried out research on official records in the Western Pacific Archives, Suva; on Tarawa; and on other primary sources at the Mitchell Library, Sydney and the Alexander Turnbull Library, Wellington.

The aim of this report is to provide data of a kind that could be useful to both government and local residents in a period of intensified economic and social planning. Publication of this report [June 1977] is indeed timely for it coincides with a period of important decision making and planning as a prelude to the achievement of independence for the Gilbert Islands. In his conclusions Roger Lawrence notes the legacy of dependence and a lack of assurance in facing the future. It is important that

policies be formulated now that will encourage local self-confidence and increased participation by Tamana people in decisions about their own island and nation, that will emphasize the attractiveness of village life, preserve Gilbertese values and strengthen a broad subsistence and cash base as a sure foundation in an uncertain world.

Ray Watters

Nancy J. Pollock

Directors, Victoria University of Wellington Rural Socio-economic Survey of the Gilbert and Ellice Islands

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Acknowledgments

This report was written with the willing and invaluable assistance of many people: on Tamana, on Tarawa and in Wellington.

My debt is foremost to all the people of Tamana whose friendship, help, kindness, interest and, above all, rollicking humour made fieldwork with them an unforgettable experience. Tauman, Tamaroa, Tebatanga, Rakenang and Terorati gave invaluable assistance as interpreters, discussants and guardians of my manners. Special appreciation must also be voiced of the patient cooperation and assistance given by the members of the sample households who accepted regular visiting, repetitive questioning and considerable invasion of privacy without complaint or loss of interest.

The staff of the various government departments visited on Tarawa were all helpful and on many occasions expressed interest and gave assistance beyond my initial requests for help. The staff of the Department of Agriculture were directly responsible for our well-being and R. Bryden and D. Wimblett are owed special thanks. J. Pitchford and N. O'Brien of the Medical Department kept me up to date on developments in family planning. M. Walsh of the Planning Office showed continuing interest in the project and provided much useful information.

In Wellington the support, discussions and assistance of the project directors, other team members and the Geography Department staff were much appreciated. Robin Mita, Janice Cox, Cameron Horlor and David Winchester provided mapping and cartographic assistance and advice. My wife, Judy, gave invaluable assistance in the field and in the much less enjoyable and more tedious task of proof-reading.

Roger Lawrence
Wellington
June 1977

Introduction: project and methodology

Tamana Island was selected as 1 of the 4 Gilbert Islands to be studied in the Victoria University Rural Socio-economic Survey of the GEIC because of its smallness, relative remoteness and high population density in an environment characterized by low and variable rainfall. These characteristics place Tamana at one end of the spectrum while Butaritari and Abemama with their larger, wetter islands, lower population densities and internal air services occupy the other end. History has shown Tamana to be a classic Malthusian situation where population growth, droughts and death through malnutrition kept the island population in an uneasy state of balance. However, the colonial era and the integration of Tamana into the wider economy of the colony and particularly the labour economy of Ocean Island, Nauru and Tarawa have changed some of the rules of the game. The uncertainty of the future means that the spectre remains. Despite the fragility of their world Tamana people pride themselves on being happy, kind, community-minded and cooperative people which is probably a function of the smallness of the island and the unity bestowed by its Protestant religion. Arorae is the only other island in the group which does not have to contend with Protestant/Catholic factionalism. However, many of the findings on Tamana can probably be generalized to the other drought-prone islands of the southern Gilberts. Discussions with other team members suggest that there is a common thread of values to all 4 islands and that these are fundamental to the nature of Gilbertese society.

Fieldwork was carried out in three separate periods crammed into university long vacation breaks and one period of longer research leave granted by Victoria University. They covered December 1971-February 1972, December 1972-May 1973 and December 1973-February 1974. To avoid becoming the 'property' of one particular family and thus ensuring the jealousy of all others, I set up my headquarters in the Mission Rest House which was neutral ground as far as the 3 villages were concerned. All 3 villages, Bakarawa, Bakaka and Barebuka, were most cooperative, kind and keen to help with the study. For reasons not fully understood by myself, rapport was easier with Barebuka village and my intensive household studies gravitated towards this village. To avoid

offending the other villages informants on general matters from Bakaka and Bakarawa were used extensively. Insights into the operation of family and community life were gained by joining fishing expeditions with the young men of several sample households which led to meals and then participation in family feasts and celebrations. You can ask a lot of questions during 14 consecutive evenings at a wedding. Information gained during these informal discussions complemented information gained in the more structured data surveys and observations of the way people acted (rather than the way they said they would act when questioned directly) gave some interesting insights into values and motivations. It is hoped from this material to give some feeling for local values and aspirations which must surely provide the starting point for any development planning.

The survey data provide some assessment of land, palm and *babai* resources, the deployment of time by the household, income-earning sources and levels, expenditure patterns and diet. The latter data are based on the results of daily surveys of the sample households over the 7 weeks of intensive data collection. In one sense the data provide a baseline for planners, but it can really only be successfully interpreted against the background of the working out of Tamana goals and value systems.

The report is divided into four main parts. Part 1 concerns itself with the island setting; the land, the people, their social and value systems. Part 2 presents the data on the sample households; their structure, resource base, use of time, income and expenditure patterns and diet. Part 3 looks beyond the household to the larger groupings involving the cooperation of households in work and cash-earning groups, in village and island affairs and with their response to the activities of various government departments which impinge upon their lives. Part 4 contains conclusions and recommendations.

PART 1

The island and the people

Chapter 1

The island setting

'Tamana faces the sea' is an often quoted statement which summarizes Tamana people's view of their world. This seaward-looking orientation manifests itself in the everyday activities of the people, in their diet and food preferences, in their view of what a good, active man should do with his time, and even in their attempts to use the Tamana Island Council, a recent and non-traditional administrative body, to pass by-laws regulating individual's fishing activities and thus husband the resources of the sea. All of these are a measure of the importance of the sea and its resources to Tamana. Land is also important, particularly insofar as it provides a means of demonstrating 'belonging' and claiming one's place in the community; but the sea is all-pervading. The sea, and especially the sea to the west of the island, was the means by which the outside world impinged on Tamana. The comings and goings included the migrations and war-making expeditions of their own people and more recently the whalers, slavers, traders, missionaries and the government, all of which have led to important changes in the nature of Tamana society. In contrast, the land and the east is the domain of traditional values and behaviour.

THE PHYSICAL ENVIRONMENT

The island

Tamana is a reef island 5 km long and just over 1 km wide. It has an area of 525 ha making it the smallest island in the Gilberts group. Being a reef island rather than an atoll means that the area of reef flat and the length of reef edge available for exploitation are considerably reduced. Lagoon resources are similarly absent. The sea around the island is 1,800 m deep within 300 m of the island. The open sea is an area of changing wind and ocean currents. The fear of being swept away from the tiny land mass is a very real one making fishermen constantly watchful and wary. It limits the distance which they are willing to travel from the island, and the range of weather conditions in which they will put to sea on fishing expeditions. Tamana is some 100 km from its nearest neighbour, Arorae, and 600 km from the administrative centre at Tarawa.

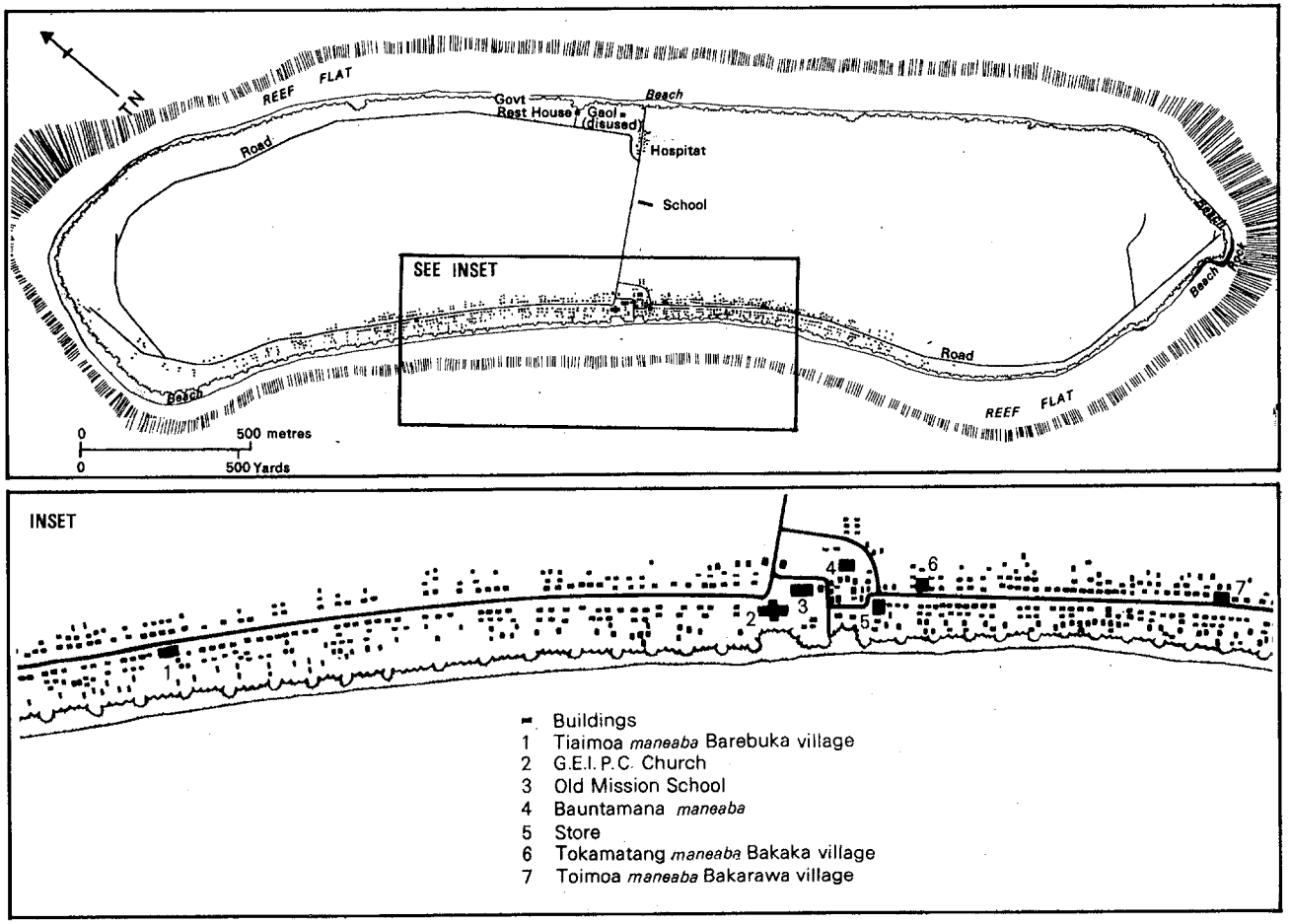

Fig. 1.1 Tamana

The sea

Figure 1.2 portrays the main ecological zones recognized by the people. The marine zones reflect the reef structure and each tends to be characterized by distinctive fish populations or fish-feeding movements and each is exploited by differing age and sex groups using different technologies. The *karo* is the deep ocean and is the preserve of the strong and experienced canoe fisherman. The *kamai* overlies a narrow shelf in the reef slope about 4 m below the surface. Its origin probably relates to a change in sea level. It can be fished from canoes, but more frequently it is fished by young men and boys with floats, lines, spears and nets. The *kawarawara* is the zone of grooves, holes and caverns in the reef edge between the *kamai* and the reef flat proper through which the water rushes on the rising and falling tide. Around high-tide level young men spear fish and crayfish in the caverns, while old men fish more sedately with rods from the surface. The *waiwai* is the reef flat of cemented coral debris. It is just above neap low-tide level but is exposed for several hours at low water during spring tides. The surface is dimpled with solution pools and the outer edges are honeycombed with holes and pools connecting with the *kawarawara*. At low-water spring tides many people, men, women and children, comb the pools day or night with nets, knives, nooses, fish poisons and wire hooks to trap the small fish, eels, octopus and shellfish in the pools.

The land

The main land types distinguished are differentiated on the growth patterns and growth histories of the main productive trees, coconuts and pandanus and particularly the response of these trees to serious drought conditions. The response of these trees is largely determined by groundwater conditions and these reflect the interplay of incoming rainfall and the nature and development of the debris mantle. Three main land types are distinguished: *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 name gives a measure of the seriousness of drought in this environment.

The 'land of the dead' encompasses mainly the areas of higher lands around the edges of the island. In sections of the coast exposed to the north-east, south-east and south these higher areas are composed of shingle ridges thrown up during major storms. Similar ridges are present in other areas but they are not as marked, suggesting that accretion is more continuous and the material is sand rather than freshly broken little rounded coral fragments. Because these areas are higher than the rest of the island and located towards the edges of the island where the underlying water lens is thinnest, water availability and quality have an obvious effect on palm growth. Coconut palms grow poorly in the land of the dead at the best of times. Wind and salt damage

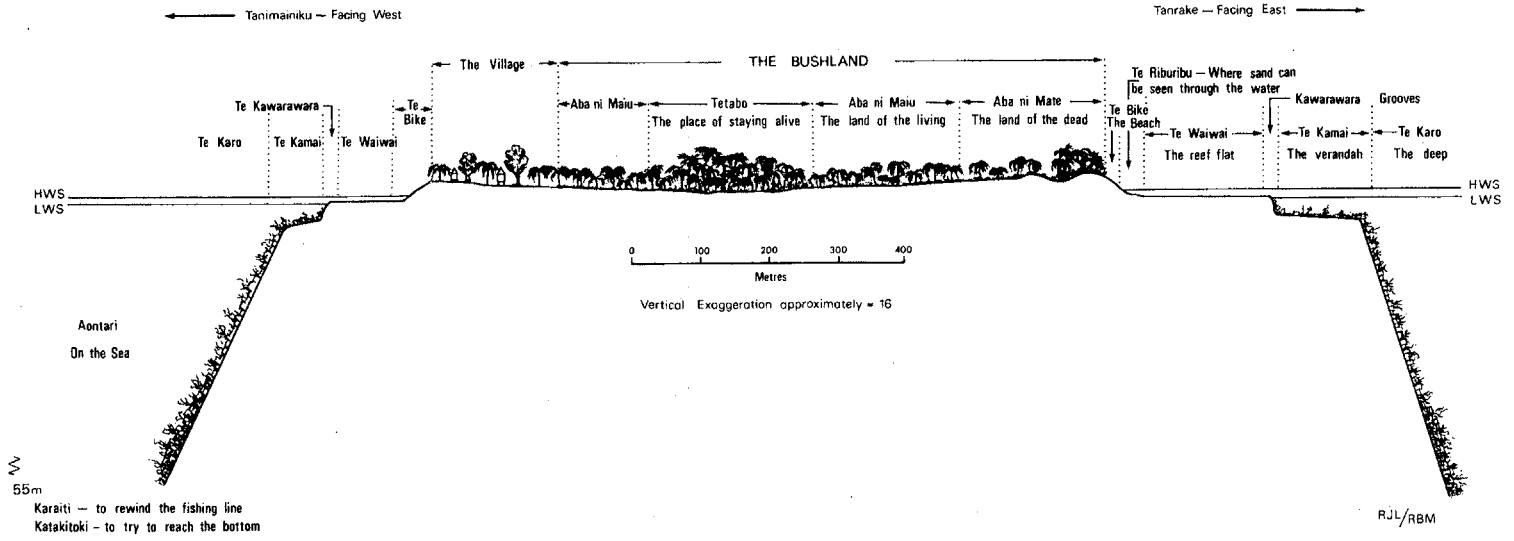

Fig. 1.2 Cross section showing major ecological zones on Tamana

is an added problem. Palms die as a result of even moderate droughts. Palm seedlings, even using proper planting techniques, are difficult to establish. Without planting, the absence of a seed source means that insufficient time is available between droughts for the slow lateral migration of coconuts under natural conditions to colonize these areas, and where planting has not been actively pursued, many areas within the zone are vegetated by *te mao (Scaevola sericea)*,[1] *te ren (Messerschmidia argentia)*, pandanus and *te uri (Guettarda speciosa)* (see Figure 1.3). The vegetation along the western edge of the island within the village areas has been much modified by planting, more frequent cleaning and brushing and trampling.

The soils of the area are very variable and reflect the nature of the parent material, the topographic surface and the vegetation. The main distinction in parent material is between *te tano* (sand), *te kirina* (sharp gravelly broken coral) and *te atirababa* (larger blocks of coral and platey pieces of broken reef pavement). Because of the sparseness of the vegetation and the dry conditions at the surface, the zone of humus enrichment is shallow or non-existent. Tamana people maintain that the *te atirababa*, and more particularly *te kirina* soils are preferable to the *te tano* soils because they are 'cooler'. If any differences between the soils do exist it is probable that they reflect the differing water-holding capacities of the soils. Catala found the water-holding capacities of the coarse soils to be equal to or better than pure sand (Catala, 1957:7).

Much of the area is probably underlain by a band of cemented material which is of variable hardness. *Te ba* is the hardest material and sparks when hit with an axe. *Te batano* is a softer material which can be cut with an axe or mattock. In the higher areas around the periphery of the island it is many feet below the surface, discontinuous or variable in distribution and is not regarded as an agricultural problem. Indeed, the water under *te ba* is alleged to be more pure and less salty than that under *te batano* and favoured for *babai* pits. This probably explains why most of the *babai* pits are dug in the higher areas, rather than in the centre of the island where the water lens is closer to the surface.

The 'land of the living' is simply what the name implies, land from which a living can be gained. It forms a band on the inland side of the 'land of the dead'. The land surface is generally lower, but not low enough to be broken at any time by the water table. Palms grow and bear well under normal and wet conditions. They continue to bear in moderate droughts although in severe droughts the setting of fruit or even flowering may

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[1]Botanical names are those used in Catala, 1957.

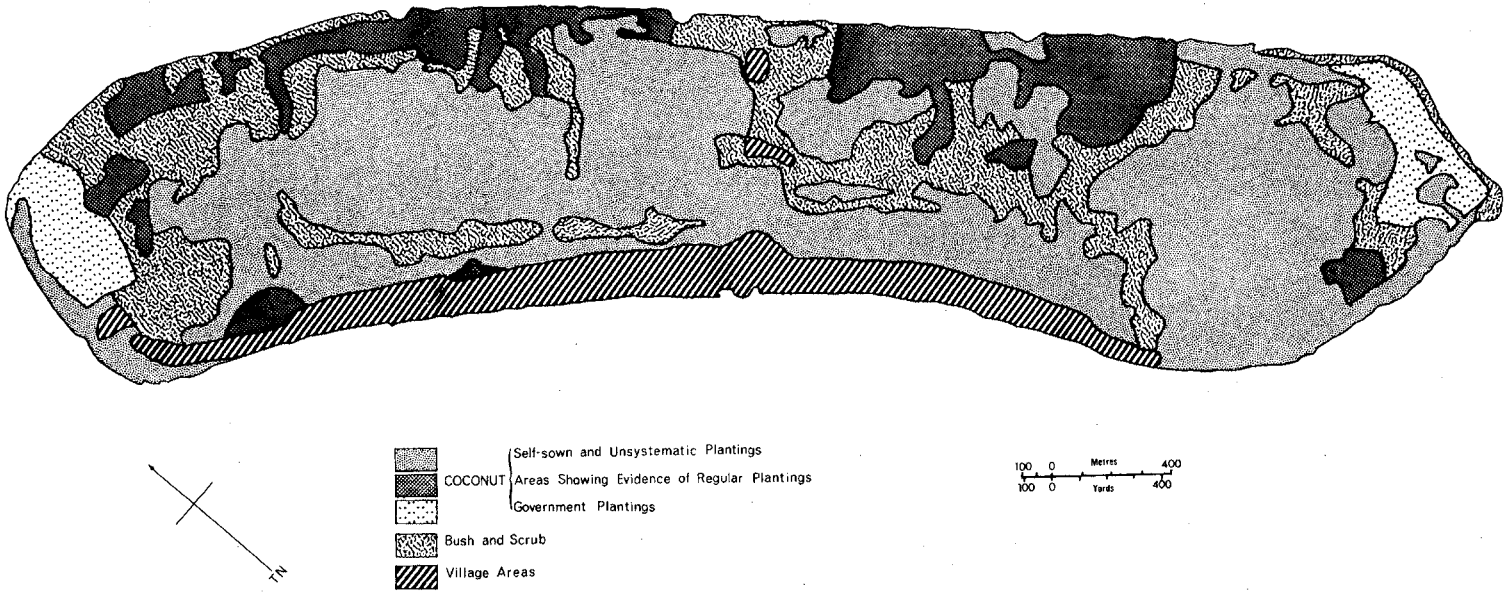

Fig. 1.3 Tamana: vegetation

cease. Under extreme drought conditions palms may die, making replanting necessary. The abrupt boundaries between planted and unplanted lands in the 'land of the living' and the 'land of the dead' show up very clearly in the air photographs and vegetation map (see Figure 1.3). Palms in the 'land of the living' tend to be older than those in the 'land of the dead' suggesting that droughts severe enough to kill palms are less frequent and replanting is needed less often. Many lands in the land of the living were replanted in both coconuts and fruiting pandanus after droughts in the mid 1930s. *Te ren, te mao* and *te uri* are still prominent features of the vegetation, especially on less well-cared for lands, but important trees or shrubs like *te bero (Ficus tinctoria)*, pawpaw and *nimareburebu (Hernandia sonora)* make their appearance. Soils tend to reflect the more dense vegetation in that plant litter layer is more developed and litter accumulation in the upper soil horizons is more evident. *Kuana* (guano) is found in a few localities within the area and is occasionally crushed and used as a fertilizer when planting coconuts.

The 'place of staying alive' applies to the low-lying, wet lands in the centre of the island. The water lens is close to the surface and may even break the surface and lie in pools during excessively wet periods. The *baneawa* fish-ponds of times past were located in these areas. Under natural conditions the 'place of staying alive' had the only areas where coconuts established readily without planting and as a result the vegetation consists of 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 wells created by falling senile palms. The soils are characteristically *te bon*, a soil consisting of a very much thicker dark humus layer over gravel. A thin *batano* layer may be present within 30 cm of the surface. Palms are said to bear poorly in the wet conditions because of waterlogging. In drier years they bear better and in drought years these lands are of greatest importance as drought refuges. Here, in droughts as serious and prolonged as those in the mid 1870s, the palms continued to flower even though no fruit formed and the decimated Tamana population kept itself alive on fish from the sea and toddy cut from palms in the *tetabo* lands.

The land types described above are more than areas showing the interrelationship of topography, soil, moisture conditions and vegetation pattern. Analysis of palm densities on 116 of the land plots measured shows little relationship between the land types distinguished and palm densities. Palm densities can be as high on 'lands of the dead' as any in the 'lands of living' or 'the place of staying alive' and this underlines the importance of past planting activities and the role of man in substantially altering the vegetation, even in the rigorous and limited reef island environment. The land types are then not static. Man can transform 'dead' lands into 'living' lands by sustained

planting. However, it takes only the vagaries of climate and a major drought to reveal the true nature of the land.

The climate

The climate of Tamana is an oceanic equatorial one characterized by high, relatively uniform temperatures with a low yearly range of variation. The year is divided into two seasons, *Aumaiaki* and *Aumeang*. The seasons are delineated in reference to the movements of the constellation *Nei Auti* (Pleiades) and the star *Rimwimata* (Antares). *Aumeang* covers the period from September to March and the December to February period in particular is characterized by westerly winds, squalls and irregular currents. *Aumaiaki* brings more steady conditions with trade winds blowing steadily from the east, less rain and regular currents.

The average annual rainfall for the period 1951-70 on Tamana was 1,141 mm (SD 625). The wettest year between 1951 and 1970 was 1953 with a rainfall of 2,538 mm. 1968 was the driest year with a rainfall of 254 mm. On the average December to April tend to be wetter months, but all of these figures have little reality because variability and drought are such an important characteristic of rainfall patterns. Insufficient time depth of reliable rainfall data and only occasional references to palm growth responses prevent any sophisticated treatment of drought patterns. The following comments from various sources give some idea of the frequency and severity of drought conditions, even if they do not give an adequate picture of duration and intensity.

1863 Drought on Tamana. 'People in starving condition. One hundred and fifty natives taken to Hope Island' (Arorae). Log of ship *Navy* ... 1857-63.

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.

1872-75 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.

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 4 years. Population shows a steady increase 1887-95. Marriott, 1895.

1899 'People have suffered because of long drought.' French, 1899.

1902 Worst drought in living memory. Oral tradition.

1909 Drought affecting production. Mahaffy, 1909a.

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.

1924-25 Drought general in Gilberts. Sachet, 1957.

1925 Drought broke December. Sachet, 1957.

1926-27 Drought prevailed in the Gilbert Group for the whole of the period 1926-27. Sachet, 1957.

1932-34 '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.

1938-39 Severe drought during 1938-39. Sachet, 1957.

1947 'Rainfall infrequent after March. Growth of nuts retarded, conditions improved December.' Annual Colony Report G.I.D. 1947.

1949-50 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.

1951-52 '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.' Cooperative 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.

The subjective data have many inadequacies and the correspondence with annual rainfall data is not clear cut. A more precise delimiting of the amount by which monthly, quarterly or yearly rainfall must fall below the norm before drought conditions ensue is not possible. However, it does indicate that drought is a persistent feature of Tamana climate. During the last decade there were at least three periods when palm growth and possibly palm bearing were affected by drought conditions. Drought characteristics grade from short sharp ones lasting no longer than 6 months to long drawn out droughts with below average rainfall for several years in succession. Copra production can be seriously affected by these droughts, although, as Chapter 8 shows, drought is not the only factor affecting production; price factors are also very important. The prolonged and intense droughts in the early 1870s

led to death by malnutrition or a combination of malnutrition and reduced resistance to disease. At no time, either in recent history or oral tradition did the fresh water lens beneath the island fail or become too saline to drink. Within the living memory of Tamana people there has been no large-scale loss of life through drought and malnutrition and this probably is due to several factors. Droughts as severe as those in the 1870s may not have recurred since. The population levels are only now exceeding those in the early 1870s and population pressure on resources between 1870 and the present would have been lower; the introduction of new technology may have increased the efficiency with which the marine environment is exploited; and finally, government donations of food and food bought with money remitted from overseas may have lessened the dependence of the population on coconuts. The picture bears little comfort for the future when it is remembered that population pressure is rising and external income sources are likely to diminish. It suggests that the population will be less well able to cope with future vagaries in climate and could need periodic government support if droughts of several years' duration occur.

The environmental factors described here must surely stress the precariousness and limited nature of the reef island environment. It lacks stone and mineral resources. The infertile soil consists mainly of little altered calcium and magnesium carbonates largely lacking in humus. The plant and animal kingdoms are characterized by a limited number of species and the number of economically useful cultivars sucessfully introduced into this environment is even more severely limited. Ocean and reef fish resources are rich and varied although somewhat limited by the length of shoreline and technological factors restricting the fisherman's ability to range widely over the open sea. Shellfish and lagoon fish are lacking. Surface water is lacking except in artificially excavated pits and wells. Rainfall does not have to fall much below 'normal' or average conditions before the vitality of breadfruit trees is affected. Frequent and prolonged droughts have a marked effect on coconut production. Despite these factors the environment is 'home' to Tamana people and over time they have evolved a way of life, albeit in the past a precarious one, which has contended with the limitations imposed.

HISTORICAL INFLUENCES

Oral tradition on Tamana tells of migrations of people in the distant past from what is now the Marshall Islands to Samoa and back to the southern Gilberts. More recently, probably in the seventeenth century, Tamana warriors were involved in invasions of the central and northern Gilberts under the leadership of Kaitu and Uakeia. However, the contacts and changes which occurred during the nineteenth century probably had much more fundamental

and far-reaching effects on the social and economic lives of the people and the working out of these effects is still evident in Tamanans' view of themselves, their role in the wider Gilbertese community and in their view of the European and his responsibilities.

Whalers, traders and blackbirders

Tamana was probably first visited by Europeans in 1804 when Captain George Cary in the American ship *Rose* en route for Canton spent 2 days at Tamana bartering beads and coconut for hoop iron (Maude, 1968:112). Within 15 years the area 30 to 40 miles south-west of Tamana became a favoured whaling area (Maude, 1968:121). Although whaling continued into the 1870s in the Gilberts it is not possible to evaluate its impact on life on particular islands. Contact and trade were probably of very restricted nature and consisted of the bartering of coconut, chickens, curios, shells, mats and women for hoop iron, nails, whales' teeth, beads and mirrors (Maude, 1968:235).

With the whalers came first the beachcombers and then the resident traders. The first record of the appointment of a permanent trader to Tamana was J.A. Manich as agent for the Sydney shipowner Robert Towns in 1855 (Maude, 1968:265). In 1869 the Goddefroy Company appointed Miguel Casal trader on Tamana (Maude, 1968:282) and in 1878 Messrs McArthur and Company of Auckland had a trader on the island (Turner, 1878). Trading on Tamana was not easy or lucrative, especially during the severe droughts of the 1870s. In 1870 there were 3 Europeans on Tamana (Whitmee, 1871). In 1880 there were 2 traders operating on Tamana (Davies, 1880), but in 1881 there was only 1, Henry Schumacher. Schumacher had been a soldier in the Franco-Prussian War of 1870-71 and left for the Pacific soon after 'so as to avoid being involved in the next Franco-Prussian War' (Phillips, 1881). The first specific references to Schumacher on Tamana are in Phillips (1881) and Maxwell (1881), by which time he was already 'a member of the native government and one of the 24 rulers' (Phillips, 1881) which implies that by this time Schumacher had a sitting place in the *maneaba* and took part in *boti* meetings. By 1882 he was a member of the church (Davies, 1882) and a deacon and teacher of arithmetic in the church school in 1885 (Newell, 1885). He dynamited a reef passage to improve landing facilities in 1884 (Phillips, 1884). Schumacher, or Tumeka, as he became known in Gilbertese, continued to live on Tamana, except for a spell of 10 years on Marakei, until his death sometime around World War I, possibly in 1911. He married a Tamana woman and 2 of his children were still living on Tamana in 1972.

Somewhere around 1905 Chinese traders entered the scene when An Tong set up a second store on Tamana. He married a Tamana woman but had no children, dying on Tamana in the same year as

Schumacher. Another Chinese trader, Kam Ta, took over Schumacher's store and ran it until his own death in 1914. An Australian named George Carter, who had previously traded in the Ellice, set up a store after World War I and stayed for about 10 years. Thereafter, the island was visited periodically by On Chong and Company ships which were based in Butaritari. The island was visited about four times a year. This situation continued until the setting up of a cooperative store after World War II.

The changes encouraged by trading in the economic and social sphere were probably not fundamental. The main export goods of copra and sharkfin could be produced without conflicting with traditional production and did not call for a major reorganization or reallocation of productive resources. The goods traded in return were largely peripheral to the economy, being mainly tobacco, hoop iron and cloth etc. Trade on Tamana must always have been meagre because of the small size of the island and the problem of periodic drought. As a result there were never a large number of Europeans living on the island at any one time and Schumacher's history suggests that they never formed a distinctive entity. Instead, Schumacher became assimilated into the Tamana social system, changing as it was under the impact of missionization, and left no elite or dynasty behind him which was 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.

The labour trade probably had deeper and more far-reaching effects on Tamana experience. It began on Tamana in 1847 when Benajamin Boyd's ships the *Portenia* and *Velocity* obtained 17 recruits from Tamana (Maude, 1968:268). References to the labour trade between 1847 and the early 1870s are fragmentary, but it is likely that the trade had great effect on the Tamana population in the 1860s and 1870s. In 1869 a Tahitian vessel called at Tamana, fired on the people, killing 4 and took over 100 away in their boat (Whitmee, 1871). Attitudes towards the slavers appear to have hardened to resistance by 1870 when Whitmee records that the Tamanans armed themselves with every kind of weapon they could find to resist the *John Williams*, thinking it was a slaver (Whitmee, 1871). Resistance did not lessen the number leaving the island. In 1872, 80 (Gill, 1872) or 'hundreds' (Pratt, 1872) left Tamana and against the background of severe drought and starvation it is not surprising that the recruitees were told 'there was plenty to eat in Fiji and no work' (Pratt, 1872). Sixty more were 'kidnapped' in 1876 (Turner, 1876) and a further 121 left for Fiji and Samoa in 1878. By 1880 the missions probably had some influence in regulating the labour trade and repatriation of workers was more organized. Initially it appears to have been a haphazard process. Whitmee brought 2 Tamana men and their wives back to Tamana from Nui in 1870 (Whitmee, 1871) and in 1872, 22 Tamana men were brought from Beru to Tamana (Pratt, 1872). In 1879, Powell refers to 80 workers returning from Tahiti and over

the 1881-82 period, Davies notes the swelling of the population by the return of labourers from Fiji (Davies, 1882), suggesting that repatriation may have become a more regular part of recruiting activities. Recruiting was still going on when Fanny Stevenson cruised through the southern Gilberts in 1890 (Stevenson, 1914).

The labour trade was the precursor to the work pattern characteristics of Tamana in the twentieth century where young men leave the island, travel, see new islands and work to get money and capital goods before returning to Tamana. It is rather surprising that the obvious hardships suffered and the bitterness felt toward the early 'men-stealing vessels' did not colour Tamanans' willingness to recruit for work on Ocean Island and Nauru. In the context of the rapid changes which accompanied missionization, labour recruitment was probably also important in that it further reduced the already depleted population and made it difficult to maintain traditional forms of organization, speeding the process of change. Exposure to new places and new ideas may have increased individuals' receptiveness to change. Many workers either visited or were left on other islands and often married or adopted friends' children before eventually returning to Tamana. LMS missionary Powell reports disapprovingly that 80 workers returning from Tahiti in 1879 brought back with them the 'mormon delusion' (Powell, 1879).

LMS mission

Whereas whaling, traders and the labour trade may have contributed indirectly to social change, direct attempts to change certain characteristics of Tamana society was the avowed aim of the London Missionary Society. Unlike most other Gilbert Islands, the missionization of Tamana was carried out by a mission of one denomination only. The process was rapid, complete and succeeded in completely 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. In the following 10 months he met with, in the Reverend 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 conversions proceeded apace. By August 1872, Gill claimed 'that only one family adhered to heatherism' and '150 persons could read the New Testament in their own language and are now beginning to write' (Gill, 1872). Gill's statement is probably an exaggeration since Phillips (1884) claims that the process of conversion was all but complete in 1884. By 1875 children were in schools. Schooling became compulsory in 1881 (Phillips, 1881). Annual examinations were held in Samoan (Phillips, 1884). Pandanus sided houses measuring 40 by 20 ft with eaves 6 ft from the ground were introduced in 1876 to replace the 'low hovels of heathenism' (Turner, 1876) and in 1879 it was '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). Some time after 1881 the *maneaba* and presumably the *boti* system with it disappeared, the former being resurrected in an emasculated form by the Protectorate government early in the twentieth century. Indeed, one informant in his late seventies told me that there were no *maneaba* and no *boti* system on Tamana; the British introduced the *maneaba* to Tamana.

The changes brought about by missionization were fundamental and permanent. From a pattern of dispersed hamlets throughout the island people were concentrated into 1 village on the western side of the island. The link between kin group membership and residence was broken. The *kainga* was no longer a residence group and residence was no longer a means of demonstrating membership of a kin group and exercising rights to land. An individual was required, first by the church and later by the colonial government, to live on the western side of the island on lands which did not belong to him. At the same time this enabled an individual to claim simultaneously rights to land through membership of more than 1 kin group. This helped destroy the *maneaba* system and the very basis of the pre-mission island organization. New forms of organization based on the village or divisions within it developed to take its place. The church introduced an education system slanted pre-eminently to the Samoan mission centre at Malua with much of the teaching in the Samoan language. Examinations in Gilbertese rather than Samoan were first held in 1899 (French, 1899). The church reinforced the traditional values of equality, penalties for drunkenness, theft and injury to others, while outlawing dancing, festivity and other expressions of 'heathenism'. Incidentally the church also appears to have provided a sink for much of the new found wealth from labour and copra sales. From the scant data available, annual church collections rarely netted less than $200 (US dollars were then in use); in 1878 donations, book sales and levies for the pastor's salary totalled $684.95 (Powell, 1879), an astonishing sum from a population of around 500.

The rapidity of change and the apparent completeness and unanimity with which it was accepted is atypical and probably due to the fact that no other religious groups attempted to missionize Tamana and create divisions within the society. The small size of the island also meant that no groups could escape exposure to the new influences. However, behind all this is the inescapable fact that the Tamana population was decimated by drought and recruiting. In 1872 the population numbered exactly 1,000 (Pratt, 1872); by 1878 through death by starvation and people leaving to work in Fiji and Samoa, the population was reduced to 282: 62 men, 73 women and 147 children (Turner, 1878). The ability of the population to maintain traditional forms of organization and everyday life must have been severely reduced and change less easily resisted.

Early colonial era

In 1892 Great Britain declared a Protectorate over the Gilbert Islands and became directly responsible for its control and administration. In many ways the early colonial administration reinforced the changes initiated by missionization. Mahaffy, the Assistant to the High Commissioner, reported after his 1909 tour on the success of attempts to restrict housing to the village areas and develop uniform housing (Mahaffy, 1909a). Village *meanaba* were built on government directive although the *maneaba* system of government was not resurrected. It was replaced instead by a system of village councillors *(kaubure)* headed by a chief *Kaubure* and responsible to an appointed Native Magistrate. The *Kaubure* and the Native Magistrate were assisted by village policemen. The new system of organization bore no relation to the former kin group based system of government. The main concern of the *kaubure* was the cleanliness of the village areas and private houses, the regulation of individual behaviour by enforcing curfews, restrictions on dancing, gaming etc. and ensuring the proper husbanding of lands and *babai* pits, even to the extent of specifying on which day each week a landowner must work in his *babai* pits. The minutiae of the regulations and the severity of fines set out in the Colony statute *Regulations for the Good Order and Cleanliness of the Gilbert and Ellice Islands* make diverting reading.

While the development of the *Kabowi n Abamakoro* and the more recent Island Councils represents a real attempt to increase the scope and representativeness of local government and give it more responsibility in controlling island affairs, the legacy of the historical influences experienced during the last century cannot be obliterated. The most fundamental changes in Tamana society over the last hundred years have been wrought by factors external to the society itself; by a missionization program regulated from Samoa and London; and through a colonial government whose initial intentions were undeniably paternalistic and whose influence was mainly felt through infrequent visits of District Officers and the *Kaubure*, Native Magistrates and policemen who had no counterpart in the traditional form of government. The all-pervasive outcome of these influences is the feeling among Tamana people that their destiny is beyond their own control, that they need 'protecting', both from the external world and themselves and the role of government is seen simply to protect. If Britain steps out of this responsibility Tamana people expect Australia, New Zealand or America to step into it. At the same time they pride themselves on their reputation among all other islands in the group for beind kind, happy, community-minded and, above all, cooperative and responsive in their acceptance of the superior wisdom of the Government.

POPULATION

Captain Randell, the trader from Butaritari, estimated the population of Tamana in 1860 to be 3,000.[2] The estimate is probably on the high side. By the time the first head count was taken in 1872 the population was exactly 1,000 (Pratt, 1872). The extent to which these figures show the depredations of the 1863 drought and the labour trade can never be fully assessed. Some indications of the vicissitudes of the Tamana population can be reconstructed from missionary journals. By 1878 the population was reduced to 282. Slaving and recruitment explain only part of the decline. The severe droughts of 1872-75 and 1877 were accompanied by widespread malnutrition and death. Schumacher, a trader on the island who arrived some time after 1871, states that 800 people died of famine and disease in 1872-75 (Maxwell, 1881) but this is likely to be an overestimate. Two hundred and sixteen deaths were specifically attributed by the resident pastor to starvation in 1877 (Turner, 1878). Population growth patterns in the succeeding period are cloaked by the comings and goings of recruited labour. The increases are too large to be attributed to natural increase. By 1881 the population had reached 375 (Phillips, 1881), was 596 by 1885 (Newell, 1885) and stood at 747 in 1896 (Newell, 1896). The colony census totals for Tamana are given in Table 1.1.

Table 1.1

Tamana: population changes documented in colony censuses

Census	1916	1931	1947	1963	1968	1973
Total population	805	989	883	1,254	1,422	1,392
Per cent annual change between censuses		+1.52	-0.67	+2.63	+2.68	-0.42
Tamana population claiming Tamana as home island	n.a.	n.a.	833[a]	1,205	1,372	1,301
Total population in GEIC claiming Tamana as home island	n.a.	n.a.	1,127[a]	1,581	1,835	1,888
Per cent population claiming Tamana as home island resident on Tamana	n.a.	n.a.	73.91	76.22	74.77	68.91

[a]By island of birth

[2]Contained in a newspaper cutting quoting the Reverend Dr Gulick appended to Gill, 1872.

Combining the data sources suggests that the Tamana population reached a nadir in 1878, probably earlier than did the rest of the colony, and from then on (given the fluctuations caused by the comings and goings of workers) showed a small but steady increase. Between 1896 and 1916 this averaged 0.39 per cent per annum; between 1916 and 1931 the rate of increase rose to 1.52 per cent per annum. Pusinelli (1947) attributes the decline between 1931 and 1947 to emigration to Phoenix Island (45), war deaths (41) and a possible increase in the number of absentee recruits. Rather curiously, he fails to mention the dysentery and measles epidemic in 1936 when deaths exceeded births by 123 (GEIC Blue Book 1936). Pusinelli argues that there was no evidence to suggest a decline in fertility. Annual rates of increase between 1947 and 1968 were uniformly high. The decline between 1968 and 1973 provides some interesting facts. Part of the decline must be attributed to out-migration which increased during the period; the number of Tamana born people on the island dropped by 71 and the number of outsiders rose by 41. However, a comparison of ratios between the numbers of children aged 0-4 years and the females of reproductive age (15-44 years) in the population (which gives a crude measure of the extent of current replacement of population) suggests some basic changes in Tamana population may be occurring. Table 1.2 summarizes these data.

Table 1.2

Replacement ratios: Tamana 1947-73

Census	1947	1963	1968	1973
Children 0-4 years	119	193	247	296
Women 15-44 years	255	258	272	307
Ratio children less than 5 years per 1,000 women aged 15-44	466	748	908	615

As the ratio is based on children 0-4 years who are survivors rather than the total number of births to the women, the figures for 1947 to 1968 probably show the general improvement in medical care and a decline in child mortality. The sharp decline in the ratio revealed by the 1973 census cannot be attributed to an increase in infant mortality. It demonstrates a decline in fertility as a result of the family planning program of the Medical Department's Health Education Office. Whether this trend will continue is open to question. In December 1972, 99 women in the age group 15-44 (30 per cent of the age group) were using contraceptive devices *(Report on the State of Family Planning Acceptance in the Gilbert and Ellice Islands at Mid-September, 1973)*. At this point it is only possible to say that there has been a decline in fertility, the magnitude of the decline corresponds fairly closely with the proportion of women using contraceptive

devices. If this level of usage is maintained it will continue to have a significant effect on the rate of Tamana population growth. The critical point is whether women continue to restrict their fertility.

Temporary and permanent emigration has always had an appreciable effect on Tamana population. Since the emigrants still retain rights to land and other property it is important to get an estimate of people of Tamana origin not resident on Tamana. The data on 'islands of usual residence' and 'home islands' or 'islands of birth' in the censuses give some measure of this. Table 1.1 shows that the proportion of potential to actual Tamana residents stayed remarkably constant over the 1947-68 period when around 25 per cent of potential Tamana residents resided off the island. Between 1968 and 1973 a marked outflow of Tamana residents occurred and the proportion of absentee to actual residents rose to 31 per cent. While this gives some measure of the size of the pool of potential claimants to land on Tamana, past mobility and intermarriage mean that some individuals giving Tamana as their home island have potential claims to lands on other islands. A survey of the 529 household heads and their spouses[3] (government employees excluded) showed that 422 (79.77 per cent) had both parents of Tamana origin and hence would not be likely to inherit lands on other islands unless through more remote kin or by non-biological inheritance. Fifty-four (10.21 per cent) had 1 parent coming from another island and an additional 53 (10.02 per cent) had both parents coming from islands other than Tamana, the latter either coming to Tamana on marriage or being adopted by Tamana foster parents. In both instances the individual would have potential claims to lands on other islands.

Table 1.3 gives some indication of the destinations of people leaving Tamana. Tarawa stands out clearly as an increasingly important destination for people leaving Tamana. In comparison, out-migration to most other destinations has remained static over the 1947-73 period and hence has declined in importance relative to Tarawa. The figures quoted above relate only to movements within the GEIC. As at 31 December 1970 83 individuals of Tamana origin were on Nauru, 42 of them men in the employment of the Nauru Phosphate Corporation (F14/1/1(i) Employment Overseas Nauru Phosphate Corporation, Nauru). The 1971 household census suggests, as a minimum estimate, that there were 20 Tamana people in the New Hebrides, 11 in the BSIP (no longer legal claimants to Tamana lands), 11 on Rabi Islands, 9 on colony and overseas ships and 2 in New Zealand. This would put Tamana's potential population around the 2,000 mark. It is not possible to estimate how much of this movement relates to employment, particularly in the case of Tarawa where movement is not controlled by recruiting policies. My subjective impression is that chain migration to Tarawa is

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[3]Based on the writer's household census of Tamana Dec. 1971-Jan. 1972.

Table 1.3

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

important. Once one person in the family has a job in Tarawa others follow to visit and may after some months of waiting get a job themselves.

The data presented in Table 1.3 question some of the common misconceptions about the effects of out-migration on the structure and composition of Tamana population. I was told by several government officials of the dearth of young men on Tamana and the corresponding predominance of young married women. These assertions are not supported by data. Out-migration from Tamana to other destinations within the GEIC is not male biased. There were at the time of the 1973 census as many Tamana women enumerated in other localities as men. There were more Tamana women than men on Ocean Island, in the Ellice and on the Gilbert Islands other than Tarawa. Out-migration to Tarawa and the Line Islands favoured men rather than women though the differences are small. Comparison of the percentage emigrant population over 15 years old with the percentage of the Tamana Island population over 15 years old suggests that as at 1973 emigration to Tarawa, Gilbert Islands other than Tarawa, and the Ellice was biased towards those over 15, but again the differences were not large. Tamana children under 15 years were well represented in Ocean Island and the Line Islands, reflecting the policy of allowing the recruited labourers to take wives and a specified number of children. The distortion in age and sex structure of Tamana Island population caused by out-migration to destinations within the GEIC is probably small; people of both sexes and all ages are moving. The age structure of the total population remaining on Tamana is not appreciably different from that for the Gilbert Islands as a whole (see Table 1.4).

Table 1.4 presents the age and sex structure of the Tamana Island population and the Gilbert Islands as a whole. It gives a rather more complete picture of the impact of out-migration because it also portrays the impact of migration to destinations outside the GEIC; on the other hand it includes inward migration as well. These data show a predominance of females over males in two areas; in the 30-44 age group and in the over 50s. The 30-44 age group pattern is largely attributable to migration to areas outside the GEIC. The discrepancy is produced by a surplus of 46 females over males in the age group and this is explained by the small preponderance of males over females on Tarawa and the Line Islands and with estimates of the number of single males or males unaccompanied by their spouses in employment at Nauru, the New Hebrides and on overseas ships. The fact that the discrepancy is most marked in the 30-44 age group suggests that the out-migrants are more likely to be married rather than single men probably going overseas for a specified period of contract labour. Differences in the male/female ratios in the over 50 age group reflect the deaths of Tamana men on Ocean Island during World War II and possible differences in the life expectancy of men and women.

Table 1.4

Age and sex structure Tamana 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

Table 1.4 also shows that a high proportion (41.21 per cent) of the Tamana population is under the age of 14 years. The differences between cohorts in the 0-14 age range show in the 5-9 age group the high replacement ratios evident in the 1968 census and the decline in fertility between 1968 and 1973 as a result of the family planning campaign.

Optimum population and overpopulation

The resurgence of colony population revealed in the 1931 census renewed interest in the question of overpopulation and the need for resettlement. Various government officials made attempts to estimate the optimum population for each island and, using this as a measure, decide whether the island was over- or underpopulated. In 1931 Maude (1968:319) assumed that the 1840 population on all islands was the optimum density. No estimate of Tamana population is available. If Randell's 1860 estimate of 3,000 is used this gives Tamana a very large optimum population and a density of 2.31 persons per acre. In 1949 Cowell[4] amassed all the available estimates of coconut consumption for subsistence, desirable cash income (£5 in 1949), palm yield, optimum spacing and areas of bare or only partially planted lands and came to the conclusion that 2.33 acres was necessary to support 1 person, thus giving Tamana an optimum population of 560 persons. The 1947 population of Tamana was 883. Even if the assumptions on which the estimates were based were valid, the figures derived have little applicability to the real world. I would argue that the whole concept of an optimum population is of little relevance to Tamana and possibly many other islands within the group as well. There are several reasons for this. Firstly, the concept of an optimum seems to be based on some sort of mean level of production of coconuts. In a climate as variable as Tamana's, such a mean is a figment of the imagination and has no reality. History suggests that the maximum population which could be supported on Tamana during the prolonged drought of the early 1870s was around 400. What reality has this figure in a string of good years when the dead palms have been replanted and are producing 30-40 nuts per year?

In the present context such calculations ignore the effect of the remittance economy which tends to dilute the relationship between land *per se* and population. Chapter 8 shows that 45 per cent of the mean sample household's income came from remittances and untraced, probably external, sources. Copra provided only 9 per cent of the mean household's income. The total cash income was predominantly spent on food. Rice and flour, the staple store foods, appeared in some 13 per cent of the meals taken. The

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[4]F15/5 Chief Lands Commissioner to Secretary to Government, Memorandum on Land Usage, Copra Yield, Population and Development, 11 Feb. 1949.

problem is complicated at any one point in time by the need to delineate which population one is considering: the actual resident population or the potential Tamana population. Thirty-one per cent of the potential Tamana population was resident off the island at the time of the census in 1973, some of whom were in employment and whose remittances to kin on Tamana express kin obligations. The execution of such obligations keeps their claims to land on Tamana alive.

Given these problems it seems pointless to talk about an optimum population for Tamana and to consider this in isolation from the general economic conditions within the colony. The productivity of the environment varies so greatly that mean conditions have no reality. At any one time the ability of the island to support population will be a function of the rainfall over the preceding 2 years, the numbers of people absent from the island, the number in employment and the cash they remit, the price of copra and its influence on the number of nuts diverted from subsistence to cash earning, the purchasing power of the money remitted and earned, and how this money is spent. A change in any one of these variables would affect the lives of Tamana's resident population and the island's ability to support them. Looking to the future it is impossible to ignore changes in expectations. Greater travel and increased exposure to Tarawa through the radio must have some effect on expectations and the island's ability to support population at a particular level of consumption.

Chapter 2

Social organization and land tenure

The organizing principles of Tamana society have undergone enormous changes in the last century. Some traditional institutions have disappeared completely, the relationship between kin and residence has altered beyond recognition. The shifting of people from ancestral lands to the village, dominated first by the church and later by the church and government officers, has called for new forms of organization, reflecting physical residence rather than kin ties. Understanding the form and function of these modified and emerging social groups is essential to the understanding of the way people interact and the possibilities for action that they perceive in the new social order.

SOCIAL ORGANIZATION

Utu

The *utu* is, and probably always has been, the basic kin group recognized on Tamana and it is the social unit which has changed least over time. The term seems to be used in at least two separate senses. In one sense it denotes all people who can demonstrate descent from a common ancestor and through it share rights to land. In a wider sense *te utu* refers to all those regarded as kin through blood or adoption by one individual. Within this relationship genealogical distance becomes a basis for distinguishing degrees of relatedness and so people refer to the unrelated as 'not *utu*', but within the group differentiate on a scale from 'not true *utu*' to '*utu* but distant' and so on, down to the strong ties amongst close kin with common interest in land, houses and other property. Responsibilities lessen with distance.

Relatedness implies a code of conduct towards members of one's *utu*. Family solidarity is an important ideal. One must not talk disparagingly of or openly criticize members of one's *utu* and should respond by defending a member of one's *utu* when he or she is spoken of insultingly by other individuals.

The *utu* rarely comes together to act as a corporate group. The size of the meeting in any one instance is determined largely by the seriousness of the occasion calling for action. A serious family quarrel resulting in a call by one party for the casting out of another from the *utu* might be dealt with by representatives of either parent's siblings or their offspring because more widespread publicity would bring shame on the whole *utu*. On the other hand a wedding calls for much wider cooperation and involves more distantly related kin. The *utu* of the bride and the *utu* of the groom mount separate celebrations and hence a marriage is simply a *utu* celebration. Close kin call a meeting of all *utu* members wishing to take part in the celebration and levies of coconuts, *babai*, chickens, flour, rice, cloth and cash are fixed. If a *utu* member cannot or does not want to provide these goods he does not take part in the celebration and his absence is then taken as a lack of goodwill or solidarity towards the organizers and his distance category probably drops a peg or two.

Kainga

The *kainga* is a difficult concept to discuss because its character appears to have differed on different islands and its meaning on Tamana has changed considerably with the reorganization of settlement during missionization. Traces of its original significance still linger on. In the early contact period the *kainga* was clearly a land tract occupied by the *utu* in its narrower sense. Powell (1879) describes houses as being scattered all over the island rather than being concentrated in villages. Turner (1878) states that

> 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 land with their father. But a brother dare not go to a brother's lands and take nuts off it even when he has no nuts of his own.

Evidence from Maude (1963:33) questions the exclusiveness of patrilineal access and suggests that first preference for residence would be in the father's father's *kainga* or either of the mother's parents' *kainga* could also be exercised. Residence appears to have activated rights, otherwise the individual had only potential rights to land in particular *kainga*.

The *kainga* refers primarily to a district and there are 116 of these districts recorded in the Lands Register. Many take their names from physical features associated with the lands, but others are cryptic and obscure. Some *kainga* stretch in long thin strips across the island, but many are smaller and do not cover the width of the island. It is not clear whether all these tracts had kin

groups associated with them simultaneously. It might be inferred (from Phillips, 1881) that in 1881 only 23 kin groups were represented in the *maneaba* and hence only 23 *kainga* were functioning after the severe depopulation of the 1870s. There is no strong evidence to suggest that the *kainga* residential site was distinguished from, and physically removed from, the bushlands *(buakonikai)* from which food was gained. Indeed, it is probable that the distinction between bush and village lands may have been a product of relocation.

Land access was through membership of a particular kin group and residence. Land was held individually and its possession carried with it a responsibility for the well-being of the relatives through which access was gained. This would, presumably, have made it difficult to activate membership in more than one *kainga* at any one time. The strong tie between land and kin extended to higher levels of organization where the resident kin group associated with the *kainga* occupied a specified sitting area *(boti)* in the *maneaba*.

The close association between kin and land was broken with missionization when converts were directed to build new houses in newly set aside village areas along the western shore of the island. According to oral tradition, the owners of *kainga* within the new village area were told by the pastor that they were not to stop people building houses on their land. Thus one can speculate that relocation created the division between 'bush' and 'village' lands and at the same time made it possible, by separating residence site and food-producing land, for an individual to exercise rights in more than one of the abandoned *kainga*. Residence was no longer the criterion of belonging. However, traces of the relationship between kin and land still remain. In discussing who participated in particular feasts and why, informants would use *utu* and *kainga* interchangeably, and explain the absence of a particular person by saying 'he is not of my *kainga*' even though the person physically resides on the same *kainga* land.

Such a situation arises because the former *kainga* divisions within the village area persisted as administrative districts within the newly formed villages. At the present time the village *kainga* contain a heterogeneity of unrelated people and bear no relation to extended kin groups. Indeed it is relatively rare for adjacent house sites to be inhabited by closely related kin, particularly in the more densely settled parts of the village, and it is not unusual to have 'not *utu*' people as immediate neighbours. Pressure on available village lands and past regulations restricting the siting and spacing of houses on village lands have limited the possibility of *utu* members concentrating in one section of the village and caused younger siblings in particular to disperse to other available house sites or take up residence with more distant kin. In turn, this separation has probably reduced the *utu*'s ability to maintain a common sphere of interest in everyday

activities and encouraged visiting to become an important part of maintaining kin relations.

While the *kainga* has largely lost its kin associations, it has taken on functions relating to the organization of the church and the village. The *kainga* now provides a focus of common interest through neighbourliness and because its members act together providing food for church and village feasts and labour for community projects. The *mronron* (small cooperative stores) appear to have evolved out of these community divisions and membership is in most cases restricted to the *kainga*. The *mronron* provides a common sphere of interest and action for people within the *kainga* and differences in the success of different *mronron* lead people to think of *kainga* A as being different from *kainga* B. The fact that the *kainga* is no longer a traditional unit probably makes it easier for the people within it to pursue 'non-Gilbertese' goals, particularly in making money and endeavouring to raise the living standard of its members above those of the rest of the community. Individuals and kin-based groupings would be more likely to be controlled by traditional value systems.

Maneaba and the *boti*

Like the *kainga*, the *maneaba* function has been so transformed over the last century that it retains few, if any, of its traditional functions. Oral tradition describes Tamana as being divided into halves: north and south. Each section had associated with it a *maneaba* or more properly a '*maneaba* for waiting'. The function of these *maneaba* was not primarily religious and was apparently not associated with a formalized *boti* system. Instead, they were informal meeting places where elders met and settled minor disputes arising between individuals or groups within either half of the island. Major disputes, matters concerning the island as a whole and disputes between the island halves, were referred to the central *maneaba*. The '*maneaba* for waiting' also provided refuges for members of the opposing half fleeing retribution.

The central *maneaba* was presided over by the keepers of the gods and contained relics of sacred ancestors. It was the focus of the social life of the community. Its organization was formal and regulated. Each kin group associated with a *kainga* was allotted a particular sitting place *(boti)* in the *maneaba* and, by extension, was known by it. Position in the *maneaba* allocated certain rights and obligations to the kin group and towards other major kin groups. Maude (1963:11) describes the *maneaba* as being the place where

> all discussions concerning peace or war or any of the other innumerable concerns affecting the common weal [were held]; it was the Law Court, where offenders against the customary norms were tried, and disputes heard and arbitrated by the

Old Men; and the centre for the many ceremonies and feasts of a formal character, as well as the more dignified community recreations and dances.

The *maneaba* evidently disappeared temporarily some time after 1881 and was reintroduced, allegedly by government directive, some time early in the twentieth century. Village *maneaba* were built in 1941. With the reintroduction of the *maneaba*, traditional associations were not revived. The present *maneaba* functions primarily as a community meeting house. The regulatory functions associated with the *maneaba* have been absorbed by the courts, *kaubure*, village councils and more recently by Island Councils. *Boti* seating no longer applies and people tend to sit wherever they like, although some old men still choose to stand in front of particular posts when speaking.

Post-missionization organizations

The emergence of the village as an entity lacking in a strong kin-oriented base has inevitably led to the emergence of new forms of organization. At a basic level it is probable that the household as an entity separate from the *utu* has become more important and the physical separation of *utu* members has possibly reduced interaction between *utu* members and increased contact with non-*utu* members, particularly in organizations like *mronron*. The factors affecting household composition are discussed more fully in Chapter 4. At this point it suffices to say that kin relations are important in determining who might live in which household because they influence the range of potential household localities; they do not explain why people live together. Here disputes, other kin's needs, marriage, childbearing, wealth and alternative living sites all play their part and as a result the household is a constantly changing, fragile social unit. At the same time the household does function as a reasonably self-contained economic unit and its members do usually cooperate for immediate economic ends.

Villages

The contiguous village area on Tamana is divided into 3 villages. Initially, there were 2 villages corresponding with the traditional north-south division of the island, but a dispute between the Native Magistrate and members of the southern village allegedly led to the formation of a third central village. Each village has a *maneaba* controlled by the *Botaki n Rorobuaka* (meeting of married men) and assisted by the *roronga* (single men). Women are represented in women's clubs but the role of these is mainly supportive and the clubs themselves appear to be more recent and less enduring than the *rorobuaka*. Membership of the *rorobuaka* is by village of residence although some men still activate membership of *rorobuaka* in other villages through ownership of *kainga*

land in that village or claiming to have been born in the other village. Its activities are regulated by an elected committee. The president is not elected. Each member must take a turn at being president.

The *rorobuaka* are concerned mainly with the regulation of village affairs: raising funds for the *maneaba*, organizing village feasts, choirs, string bands and providing labour for projects organized by the Island Council or *Unimane* (Old Men). The concerns of the *rorobuaka* are *'makuri n te kawa'* (the work of the village) which distinguishes it from the *Unimane*, the Island Council, the Island Council of Church Members (ICC) and the Tamana Cooperative Society whose responsibility is *makuri aon te aba* (the work of the whole land). No structure exists whereby *rorobuaka* from each village can come together to discuss village attitudes to island affairs. Island affairs can only be discussed at a *maungatabu* called by one of the bodies with the exception of the ICC whose responsibility is *makuri aon te aba*. Particular villages can ask their representatives on such bodies to call a *maungatabu*. The meeting is free to anyone who wishes to attend. Unlike the *rorobuaka* attendance is not compulsory.

None of these higher bodies have evolved from traditional forms of organization. The *Unimane* is a pale shadow of the former *maneaba* organization. Membership is open to all men over the age of 50 and is regarded as a waste of time by many potential members. Its main function is to raise money for the central *maneaba* and to organize welcome feasts for official visitors to the island and workers returning from overseas. The ICC owes its origin to organizational changes within the Gilbert Islands Protestant Church and, along with its associated women's group, concerns itself fairly narrowly with the affairs of the church and the GIPC headquarters in Tarawa. The Island Council, the courts and the cooperative society are all seen as part of the government and the Island Council in particular is seen as the means by which Tamana gains contact with Tarawa. People draw the distinction between the Island Council which 'stands for the government' and the *Unimane* which 'stands only for the island'. Time has not produced an institution to replace the former *maneaba* system and which is seen by the people as satisfactorily unifying the island, representing their aspirations and confronting the realities of the new situation where dialogue with Tarawa is seen as essential. The *Unimane* cannot do this because it is not seen as effective and the older men rarely have the command of English seen as essential for dealings with Tarawa. On the other hand the Island Council is seen as part of the government and not part of the Tamana social structure.

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 household has emerged as the primary unit of economic cooperation, but in comparison with the *utu* the household is a constantly varying and fragile social unit often lacking in long-term economic goals because its resource base and labour supply changes with household membership. The *kainga*, as a means of delimiting a residence-based, rather than kin-based, group appears to have some potential as a basis for longer-term economic effort because it aggregates resources, particularly labour, into large units and given continuity of enthusiasm the labour force *in toto* may have some stability even though individual membership is constantly changing. *Kainga*-based groups, because they are new and non-traditional, may not be subject to the same pressures to conform as kin-based groups. The village has emerged as an important social unit, but as yet an entity expressing island aspirations and replacing the traditional *maneaba* system has failed to emerge. At the island level the church is the most influential unifying principle and Tamana people value their unity of religion, referring to islands strained by sectarian strife as 'Northern Irelands'.

LAND TENURE

Land tenure is dealt with in this chapter because land is one of the means by which individuals are identified as belonging to kin groups.[1] Land is synonymous with belonging and its enduring nature provides a means of demonstrating identity through the generations. Because land is inherited by individuals from individuals it also specifies social relations and underlines an individual's rights and obligations towards certain people.

Land is held either individually under single title or under joint title with siblings, or more rarely, either parent's siblings. Joint title holders are always related and the joint title functions primarily as a holding operation until a partition of the estate is agreed to. 'Ownership' implies the right to control the use of property, but it does not give the owner the right to exclude his issue from getting a livelihood from his lands unless he can show that he has been neglected by his offspring. An owner

[1]Details of land inheritance patterns and actual landholdings of sample households are discussed in Chapter 5.

is also restricted in the ways he can dispose of his lands unless he has the agreement of his close kin. If a landowner leaves the island he is able to leave his lands in the care of anyone he chooses during his absence.

Lands are most commonly distributed amongst biological heirs in either of two ways. A division can be decided upon while the owner is still living. The allocated land might then be used by the children and the division not registered until the owner's death. If the division is registered it is not uncommon for the parent to retain several lands and thus ensure that he is not neglected by his heirs. If a division is not decided on prior to the owner's death the next of kin or their representatives meet, decide on a distribution of the lands and then apply to the Lands Court to have it registered. Sons receive more than daughters and contrary to the statement in the Lands Code,[2] on Tamana eldest sons usually inherit more than other sons and also usually inherit the parental house site. Daughters are often given 1 plot on marriage and excluded from subsequent divisions. Where a landowner dies without issue his lands go firstly to real brothers and sisters, then half brothers and half sisters who are next of kin for the properties of the common parent. If the landowner's parents had no other issue the lands are inherited by the relevant parent's siblings or their offspring. Inheritance by illegitimate children is covered by the provision for *te aba n nati n tama* (land of the bastard child) which entitles the bastard child of a male landowner to 1 land, 1 *babai* pit and 5 *niba* (separate holes each taking 1 *babai* plant). The child's mother claims to the Lands Court, naming the alleged father, and the Court may agree to the transfer of land to the child.

Several forms of non-biological inheritance are encountered on Tamana. Data presented in Chapter 5 suggest that these forms of transfer are numerically of little importance. They may have some significance in allowing the redistribution of land to more distant kin groups. The most commonly encountered forms of non-biological inheritance on Tamana are listed below.

Te aba n tabetabe or *te aba n natinati* (the land of the adopted child). In this transfer the adopted child gains lands from his adopter. The transfer can only take place if the adoption is registered with the Lands Court and such an adoption will only be approved if the Court is satisfied that the adoptive parent's real issue, or his family if he is issueless, will not be left in hardship. The adoption might be approved in any case if it can be shown that the landowner's real issue has neglected him. The adopted child still inherits from his natural parents in the normal manner. He may inherit from either or both of his adoptive parents

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[2]The official translation of the *Gilbert and Phoenix Islands Lands Code* is the basis of this section.

as if he were a real child, but whichever must be specified at the time of registering the adoption. This tends to underline the importance of adoption as a means of expressing solidarity within a *utu* rather than between different *utu*.

Te aba n tibutibu (the land of the adopted grandchild). This transfer signifies a relationship with the adopted which is not as strong as that of an adopted child. The adoption must be registered with the Lands Court and meet the same criteria. The adopted grandchild still inherits from his normal parents. The land he can receive from his adoptive grandparents is limited to 1 land and 1 *babai* pit.

Te aba ni kuakua or *te kaburebai* (the land of nursing). Here a distant relation or non-relative is given land in return for being cared for by the recipient during a long illness or old age. The transfer is restricted to 1 land only and the owner may only choose a nurse from outside his immediate family if he can demonstrate to the Court that he has been neglected.

Te aba n akoi (the land of kindness). *Te aba n akoi* is a rarer form of transfer where a land is given in return for some kindness shown to the owner. The transfer can only be made with the Court's consent and the guiding principle is again that the gift should not leave the next of kin in hardship.

Land exchanges, sales and inheritance

Land exchanges and sales are both permitted in the Lands Code. Land sales can only be made with the approval of the Court and providing the next of kin agree. The Court's chief concern is to ensure that the lands remaining are sufficient for the landowner and his offspring. No land sales have been recorded in the Tamana Lands Register and there is no tradition of selling land on Tamana, although Turner (1878) states that workers returning from Fiji used the money earned to buy land. Several Tamana families have bought land on Kuria and Aranuka and settled some of their children there. Land exchanges are more common and have to be registered in the Lands Court. There is little evidence to suggest that exchanges are used to consolidate holdings into larger contiguous areas. Exchanges often involve the swapping of bushlands for village sites to enable individuals to build within the village. The Lands Code also provides for the return of lands belonging to absentee owners to their next of kin on the island if after an absence of 15 years it can be established that the owner or his kin do not intend returning to the island. There is no evidence to suggest that this section of the Lands Code has ever been invoked and discussion with informants produced adamant statements that this was not Tamana custom and it would be shameful for one individual to lay claim to these lands and thus preclude another kinsman's claim to them.

Land tenure in theory, as expressed in the Lands Code, and in practice as reflected in individual decisions taken by the Lands Court, shows how closely land and society are interwoven. An individual can expect to have title to land regardless of age, sex or marital status, but the very act of inheritance implies a particular relationship and fulfilled obligations to those from whom the land was inherited. Even then the landowner is not free to dispose of his land except in the manner prescribed in the Lands Code unless he has the consent of his near kin. If he dies issueless his lands revert to his consanguineal kinsmen. If he has issue he cannot, without prosecuting them in Court for neglect, disinherit his offspring. At best he can reward or punish the behaviour of his future benefactors in the details of redistribution by apportioning productive and unproductive lands accordingly.

The Lands Code operates to ensure that the prospects of a member of the Tamana community being left landless are remote. However, implicit in this process is subdivision and the further reduction in size of land plots. In addition, differences in the past, present and future fecundity of different *utu* mean that the distribution of lands is by no means uniform. A few *utu* have more land than they wish to use under present economic conditions while others have less. The fact that direct inheritance is more frequent than non-biological forms of transfer (see Table 5.1 and Lundsgaarde, 1974:197) suggests that the population is well aware of the prospect of diminishing resources and is concerned to reserve remaining resources for their immediate heirs. Other value systems ensure that some redistribution takes place in the short term through the use of other kin or in-laws' lands especially if these are overseas, but such allocations are temporary and do not give rise to permanent redistribution of resources. Behind them is clearly the belief that no person of Tamana descent should be denied a living there.

Any official attempt to permanently redistribute resources is fraught with enormous problems. The magnitude of the problem is immense. In 1974 Lundsgaarde (1974:188) records that there were 639 registered landholders (potential landholders would be even more numerous) having title to some 2,243 plots of land. In mean figures this suggests that the average title holder on Tamana would have title to 0.82 ha in 3-4 separate plots. Even if land were equally distributed among households, the mean Tamana household would have access to only 2.43 ha in 9-10 plots. When the Agriculture Department is considering programs promoting agricultural development aimed at single landholders with at least 8.08 ha in a contiguous unit the scope for and point of reaggregation and possible reallocation is questioned, especially since traditional individual inheritance rights would have to be proscribed to prevent the process of fragmentation beginning anew. Such a solution would interfere with the basic tenets of Tamana society and traditional emphasis on the family, kinship bonds and the principles of land tenure which together create, express and

perpetuate these bonds. Attention might more realistically be focused, firstly, on a suitable population policy, and secondly, on ensuring that Tamana people have adequate access to employment opportunities off the island, so as to provide a pool of land for redistribution in the short term. Attention should be given to improving palm resources on all lands, particularly on those belonging to absentee owners. Tamana people themselves should be encouraged to come up with a formula which might enable more productive use to be made of absentee lands and ensure their continued productivity.

Chapter 3

Tamana values and attitudes to wealth

This chapter is impolite and might offend the sensibilities of many Tamanans since it discusses sentiments which should not be recognized, and much less discussed in public. However, if the aim of this report is to help understand Tamana society this is unavoidable if government is to consider the issues and I can only apologise if any Tamana readers are offended.

BORAOI

Probably the most staunchly held ideal of Tamana society is that of *boraoi*, 'equality or conformity'. 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 or prejudice another Tamana person's right to gain a livelihood from Tamana. Action of this kind would encourage the envy of other people, causing them to whisper bad things and accuse the culprit of boastfulness, arrogance and pride. It is a greater sin to be envied than to envy. *Boraoi* is not a static concept dealing only with the present situation; it is also extended to include future generations. This is most apparent in land conveyances. Some registered landowners have not, in their lifetime, lived on Tamana and are not likely to do so in the future. Under Section 12 of the Lands Code, their lands could be redistributed among the owner's kin on the island. This provision is rarely exercised because of the underlying belief that all people of Tamana blood have a right to claim a livelihood from the island. By invoking the provision, the offspring of the landowner would, at some future date, be denied access to a living. The person or persons applying for the redistribution would be going against *boraoi* in trying to get more land than is rightfully due to them.

This belief in equality was immediately apparent to the LMS missionaries when they first visited Tamana, as is evident in Gill's (1872:72) terse summing up of the island, 'strict democrats here and no circumcision', and it still bedevilled the administration's early attempts to set up cooperatives on Tamana after World

War II. In 1957 the Cooperative Societies' Officer (F60/1/5:32) 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.

Democracy is two edged. At a village meeting shortly after higher allowances for Legislative Council representatives were announced, a member suggested that since their representative got his huge salary only through their having voted for him, his allowance should be surrendered to the Island Council for division among all the people of the island.

While the belief in equality is staunchly held, it does not reflect reality as Tables 5.1-5.6 clearly show. Not all individuals or families have the same access to land, post-primary schooling, employment, capital goods and remittances, and this gap has probably widened, rather than narrowed, with the years. The fact that the divergence between the ideal and reality has not given rise to overt dissatisfaction and conflict or the modification of the ideal is attributable to several factors. Firstly, the situation is not a topic of polite conversation, and secondly, appreciation of the situation is pervaded and coloured by *tibanga*, the Tamana view of fate.

My first attempts to broach the question of wealth and differences in access to resources met with the pat assurances that there were no differences on Tamana because of *kaboraoi* (*ka-boraoi*, *ka* meaning 'to make'). Later, when my local knowledge made it more difficult for my informants to maintain this viewpoint, they explained that while differences did exist it was *mama* 'shameful' to talk about them, and if the persons singled out as being richer than others found out, they would be very angry. Shame, or the fear of being shamed, is an important control on individual behaviour.

TIBANGA

Tibanga was a term which cropped up very frequently during rambling discussions on the life histories of people in the sample households. It is declined *tibangau* (my ...), *tibangam* (your ...), *tibangana* (his ...) which leads me to gloss it as 'share' from the verb *tiba* and by extension 'fate' or 'lot in life'. *Tibanga* is clearly something over which the individual has no control. In elaborating the term my informants spoke of 'power or guidance from above' or more specifically nowadays *E aronira te Atua*,

'guidance from God'. So it is *tibanga* whether one has many lands or few, a small or large family, whether one gets selected to work on Ocean or Nauru, whether one goes to secondary school and gets a job on Tarawa or even on Tamana. There is very little that the individual can do about it. In a situation of individualized land tenure, governed by fairly narrowly defined rights of inheritance and with no buying or selling of land, where employment opportunities are determined largely by the number of vacancies in the colony's 2 high schools, or by a ballot for recruitment with the phosphate companies, it is easy to see why fate or *tibanga* plays an important part in Tamana life. Fate is seen as something exerted from outside and conscious attempts to escape are rare. Initially the Island Council School scheme on Tamana was seen by the people as a means of modifying fate. It was given a great deal of community support, even to the extent of building more class rooms than the government sanctioned. This too has led to disillusionment; no matter how big you make your island school it doesn't increase the number of places available at secondary school, and, in the Tamana experience, it only marginally improves the children's chances of getting secondary education and jobs in Tarawa. Most tellingly, one informant explained to me that '*tibangam* is for making you happy; you say *tibangam* to console yourself after you have failed to achieve some goal'. In many instances it stifles the attempt.

If development is seen largely as an effort to form island economies into a western mould, these two aspects of Tamana values, *tibanga* and *baraoi*, are likely, unless replaced, to limit its success. They may help explain the present paucity of entrepreneurial activity on Tamana and the preference for the anonymity of group rather than individual ventures. Any conscious or unconscious attempt to change the aspirations or expectations of the Tamana people should take account of the fact that these indigenous values are attuned to an environment where resources and scope for development are very limited.

GOALS FOR INDIVIDUALS

Turning from the general values of society at large to the goals and aspirations of individuals, the individual is expected to tread the path between being *te akoi*, 'generous' and *kaiko n rang*, 'selfish'. An *akoi* person gives of a surplus he may have without being asked, without expecting immediate reciprocation and responds to *bubuti*. While this quality was valued before missionization, it is now thought of in terms of 'following the Bible'. A person who is *kaiko n rang* (literally 'mad about storing') never responds to *bubuti*, keeps everything to himself and is generally despised for this. Being realists, Tamana people say that being *te akoi* is a bit of a bore because one has to smile at everyone and always invite people to your house. It is

much more practical to be *tatabui*, to be 'economical or 'temperate'. The definition by example frequently given by informants was that, 'if you have 10 cents, you spend 5 and save 5'. *Tatabui* is a desirable characteristic, it implies being careful without being selfish, looking after what you have got and not wasting things. Obviously the boundary between being *tatabui* and *kaiko* is a fine one and often varies with the standpoint of the observer.

Despite the all-pervading ideal of equality Tamana people distinguish three wealth categories relating to land, material possessions and money. A person with much land is *kauaba* ('rich in land'). Through being *tatabui* one can amass material goods and become *kaubai* ('rich in things'). With the advent of the copra trade people who were *kauaba* had greater access to imported goods and became *kaubai* while those who had little land could not eat and make copra too. Work on Ocean Island and Nauru and the development of a remittance economy has somewhat changed the terms of reference of *kaubai* and produced yet another wealth category, *kaumane* 'rich in money'. Among the present adult generation there is the feeling that being *kauaba* is still the basis of real wealth because lands produce all the time, money comes only when you work and both money and things can be targets for *bubuti*; land is inalienable.

While these wealth categories are recognized by Tamana people they confer no status on the possessor of wealth. Wealth and status are not related in Tamana society. Each individual is required to play an equal part in village affairs and leadership follows a strict pattern of rotation. The ways in which wealth might be used to gain status are thus short-circuited. The pressure is on the individual to act in ways which will not make him conspicuous in the community. Satisfaction is gained, not through conspicuous displays of wealth, but by letting the general public see how well your house is thatched, your canoe is maintained or *babai* pit 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. These are regarded as poor substitutes for local foods. They are digested too quickly and fail to make the eater feel 'full' for a whole day.

The aim of every household on Tamana is to be *oinibai*. Sabatier's glossing of the term as 'a valuable thing' is too restricted; in Tamana usage, the term conveys the idea of freedom, being self-sufficient, being free to control your own activities, and above all to be above the need to *bubuti* ('to borrow, to request, or beg'). Thus *oinibai* and *bubuti* are mutually exclusive; to *bubuti* is an admission of dependence on others and brings *mama* on the individual. In many respects the concept of being *oinibai* on Tamana is similar to *inaomata* in the northern Gilberts (see B.R.: ch.3, The moral framework). The term *inaomata* is used

on Tamana but in the sense of 'freedom' — being free to leave a meeting or such like. It is not applied to a person's status because here it would mean 'like a king or a chief' and this is anathema to the belief in *boraoi*, in equality.

Land rights are basic to the concept of being *oinibai*; without these you cannot control your own activities or set up an independent household. Similarly, a person cannot be *oinibai* if his lands are still held in joint tenure with his siblings, and no *katautau* ('formal disposal of land') has been agreed on. In this situation an individual is not in control of his land and there is no incentive to tend and plant up lands to which tenure is uncertain, which in the long term reduces the food and copra-earning resources available to the individual and his offspring.

Over the years relatively low copra incomes, access to more wage employment and a greater range of imported goods on Nauru and Ocean have changed the situation. Aspirations have risen and independence is now seen as having land, house, bicycle, sewing machine, canoe or imported timber to make a canoe, clothing boxes, radio, cooking utensils, money for school fees, taxes, and such like. It is now considered impossible to raise enough money by traditional means to purchase these goods on Tamana (if they were available) and so going to Ocean or Nauru is seen as the way to *karekea te kainano*, 'to stop being poor'. It is a segment of the Tamana life cycle where a young man goes away to work, to see another island and new and different things and at the same time get the necessary capital goods to set up his household, returning after a few years' absence. To go away to work and return without these goods would incur censure and shame because it would show the Tamana public that you haven't been working hard. Clearly, employment on Ocean Island and Nauru is not seen as an alternative to life on Tamana; it is a necessary part of it; something that makes existence on Tamana easier and more pleasant. Unless some alternative employment is found to replace Ocean and eventually Nauru, this pattern of life on Tamana will have to change. Already there is some ill feeling among young people as recruitment opportunities narrow. They are under the impression that recruitment for Nauru is favouring people with previous work experience, which reduces their chances of going away to get the capital goods needed to become *oinibai*. If this is the case the rich will get richer and the poor poorer, unless *bubuti* ensures the necessary redistribution of goods and this is by no means certain. Government might encourage a recruitment policy which spreads diminishing employment opportunities throughout the community.

In contrast to the degree of assimilation of work on Ocean and Nauru into the Tamana system of values, work on Tarawa is approached with more ambiguity. It has never been viewed in the same way as work on Ocean or Nauru. Those going to Tarawa in the past were few in number; mainly those leaving the island at a young age to attend high school. Very few returned to island life;

many have responsible jobs in the civil service at Tarawa. This lack of high school education limits many Tamana persons' chances of getting a job in Tarawa. Secondly, most workers compare working conditions on Tarawa unfavourably with those on Ocean and Nauru where the company provides all the necessities of life, accommodation and rations, while wages go basically into savings or towards the purchase of capital goods. Not so on Tarawa; a worker is left to look after himself, and even if he does manage to save under these conditions, the stores don't stock the goods like sewing machines, canoe wood and braided fishing lines needed for life on Tamana. Non-contract work, and promotion based on years of service, make it more difficult for an individual to pass between island life, employment and back again.

Work on Tarawa cannot be a segment of the life cycle of a Tamana man, it is basically a separate life system. Despite these difficulties Tamana people are incorporating wage work on Tarawa into their system of values. Most parents want their children to work on Tarawa, and in doing so their children will be *oinibai* or *inaomata*, in the sense of being freed from the need to cut toddy and work on the land for a living. In this their parents believe their children are controlling their own activities. By extension the parents think themselves *oinibai* because they control their children. They expect their children to provide them with money and goods from their salaries, and to return to Tamana if and when their parents need them. Whether this is realistic has yet to be seen. Remittances from Tarawa are substantially less than those from Ocean or Nauru (see Table 8.5), and several parents have made representations to the Island Council asking that their children on Tarawa be forced to remit money or return to Tamana. This suggests that employment on Tarawa is not as successfully integrated into the values or fabric of life on Tamana, and any growth in employment on, or chain migration to, Tarawa will compound the problem and have serious implications for the future vitality of the subsistence economy on Tamana.

PART 2

The household

Chapter 4

The household

The aim of this section is firstly to present data on the salient characteristics of economic life on Tamana, particularly data on time allocation, income and expenditure, capital accumulation and diet. From these it might be possible to answer questions on indigenous priorities, the part played by subsistence production, and the day to day involvement in the cash economy. The household is the obvious unit with which to start a study of this kind, since it is at the household level that production and consumption are organized.

HOUSEHOLD SIZE AND COMPOSITION

In the preceding section on social structure very little was said about the household. This was intentional because it became increasingly apparent during the course of fieldwork that the household was a unit of expedience or convenience rather than an enduring social unit. While the 'eating from the one pot' definition of a household was found to be the only satisfactory way of delimiting entities which cooperated together for most subsistence tasks, it did little more than this; diversity in household composition and size, and variability over time were the norm.

Tables 4.1 and 4.2 summarize data collected during a census of all Tamana households in December 1971 and January 1972.

Household size

Household size ranged from 1 to 16 members with most households having between 3 and 7 members. Mean household size for Tamana was 5.91 persons. The difference in mean household size between villages was not significant.[1]

[1]A student t Test was used to test differences between the mean number of persons per household in Barebuka and Bakarawa. The means were not significantly different at the 95 per cent confidence level. In all tests in this study values are tested for significance at the 95 per cent confidence level.

Table 4.1

Size of households, Tamana, January 1972

Number of members	Number of households			
	Barebuka	Bakaka (excluding Government Station)	Bakarawa	Tamana (excluding Government 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	1,440
Mean size of household	5.63	5.78	6.34	5.91
SD	2.87	3.18	3.35	3.14

Source: Fieldwork, household census Dec. 1971-Jan. 1972

Table 4.2 presents data on household composition and the most obvious feature of the data is diversity. The first four categories of column 1 relate to essentially nuclear families made up of 2 generations only, which account for one-third of all households. Interpretation of the remaining data is more difficult because kin relationships were worked out in reference to the household head. This is realistic, but could result in households with basically the same pattern of kin relationships being assigned to different categories depending on which member assumes the position of household head. However, it is clear that households with more complex kin patterns than the parent-child relationship are more common than nuclear ones and account for 60 per cent of all households. The table also suggests that where a marriage remains intact the

household is more likely to be augmented by the male's kin, whereas if the woman maintains an independent household after the death of her spouse or after divorce or separation it is likely to be augmented by her kin. Eighty-nine households (37.87 per cent) were headed by women. Finally, households with members unrelated to either the head or the spouse of the head are uncommon (5.95 per cent), and their presence reflects bonds of friendship, particularly those made while in employment off the island.

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 parent's part, but often there is a deeper motive involved; by looking after an aged relative or neglected person the child can expect a gift of land in return.

On marriage the newly married couple live first with the man's kin, but as the birth of the first child becomes imminent, the couple move to the girl's kin and usually stay there until the child reaches the age of 1. This pattern may be repeated with following pregnancies. There is no pressure on the couple to set up an independent household; 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 all important interpersonal relations between potential household members). Early married life is characterized by a shuttling between 2 lots of kin.

As time progresses 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 Chapter 3). When 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 are 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.

Table 4.2

Household composition, Tamana, 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	

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

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.

These factors underline the wider economic aspects of household structure. Kinship factors do not explain why more complex household configurations develop. The limited choice of possible dwellings is a much more important factor and is likely to become increasingly so, particularly if long-term employees on Ocean Island return to Tamana.

Divorce and the absence of husbands in employment explain many of the households headed by women. The expected behaviour of a woman on the break-up of a marriage is that she return to her parent's household with the children. Conversely, when a man is recruited for employment overseas and does not take his family with him, the wife is expected to live with his kin where her fidelity is assured. However, Table 4.2 shows that 89 households (37 per cent) were headed by women and consisted of women and children only, or were augmented by other members of her kin group. This suggests that traditional residence patterns may be undergoing change.

Population mobility and changes in household composition

No mobility data on an island-wide basis are available, but frequent visits to the sample households enabled some measure of changes in these to be made. During the study period only 2 of the 16 households had no changes in personnel; 1 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 7 points at which data were 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 emphasize the fluidity of household composition, and also provide a caution in the interpretation of household data on production and performance.

The indices presented in Table 4.3 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 4.4 classifies external moves by purpose and age and sex of the mover. Visiting is clearly the most important reason for overseas travel. Employment as a reason for moving is over-represented because 2 of the 3 males in the 30-59 age group were in fact coming to Tamana for leave or returning at the end of

Table 4.3

Mobility by age and sex for members of the sample households, assessed at 7 points in time between January 1972 and December 1973

Age category	Sex	MOBILITY DATA: 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	MOBILITY INDICES: 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

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 stress the variability and complexity of household composition and the fluidity of the household unit, and caution against thinking of the household as a concrete and enduring social unit. Rather, they emphasize the household as a functional unit brought together for widely different and varying reasons. These factors make generalization difficult and should always be kept in mind when interpreting the following data.

Table 4.4

Purpose of overseas moves by members of sample households assessed at 7 points in time between January 1972 and December 1973

	Age groups												
	>60		30-59		19-29		12-18		<11		All age groups		
Purpose	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.

HOUSEHOLDS STUDIED

Selection procedures

Against this background of diversity in household composition and problems of the representativeness of data, the methodology adopted evolved with field experience. Initially, the approach to data collection was significantly influenced by the work of C.S. Belshaw, T.S. Epstein and others, and the experience gained by members of the preceding Solomon Islands project. The household was obviously the logical unit on which to focus data collection, but clearly it was impossible to collect data on all 235 Tamana households. A sample had to be taken and a true statistical random sample would have been too large to handle. Experience has shown that 15-20 households is the practical limit. This creates a dilemma because the sort of information needed to ensure a satisfactory coverage of household types in a stratified sample was precisely the sort of data which we were setting out to collect.

Faced with this problem and limited time available (I wanted to run at least 1 week of data collecting to be able to return to Wellington with some sort of experience of the problems ahead) a somewhat unnecessarily clumsy, arbitrary sampling approach was adopted. It was necessary to assume that differences in age structure of households might be meaningful in economic performance, that having kin in overseas employment was probably an important source of income, and that access to land in terms of the number of plots used could be taken as an indicator of potential for performance in the subsistence sector. Active males (between 15 and 60) were arbitrarily given a score of 100, females in the same category 90, males in employment overseas a score of 120 and people in wage employment on the island a similar score. The active sector was then expressed as a ratio of total household size regardless of age, and it was hoped that this ratio would give an arbitrary measure of labour potential for the household. The range of scores was then divided into quintiles and 3 families were drawn from each quintile. Within each quintile, land access determined the choice of families; 1 family in each was selected with access to greater than the average number of coconut lands, 1 with the average and 1 below. Other factors influencing the choice were the desire to have some households headed by women, some households related, some in close physical proximity, some close to the copra-buying point and the store, and some far away. All families had to be accessible enough to allow data collecting in 1 evening. To try to satisfy all of these it became necessary to choose households from 1 village only. In hindsight the wisdom of this was questionable. Some diplomacy was necessary to mollify the other villages. However, closer knowledge of all villages showed that slight differences did exist, most markedly in the villages' fund-raising activities for the church, but the range of household types was probably not radically different from village to village.

The validity of the selection procedure was never tested. Indeed, unforeseen factors, particularly the mobility of household members, meant that it was impossible to test it, and the whole basis of selection was questioned. My approach, and indeed the approach in most published studies to date, assumes, rightly or wrongly, that the household is a concrete reality and its personnel stable over time. The data presented in Table 4.3 show that on Tamana this was not the situation. Between January 1972 and January 1974 3 of the 14 households initially selected disappeared, another 2 households joined with other households and broke away again several times during the study period. In all 167 personnel changes were recorded for the households studied. Faced with these 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 bits after they split up. Altogether data were collected for 16 distinct household units: 11 through the whole survey period of 7 weeks, 1 for 6 weeks, 1 for 5 weeks, 2 for 3 weeks and 1 for 2 weeks, while 2 of the households joined as 1 for 4 weeks (see Table 6.4). This gave rise to data problems particularly in the comparison of households for which

differing data spans were available, or in looking at the performance of 1 household over time. However, greater familiarity with household types on Tamana suggests that those selected cover the range of households present: from the small, relatively stable households to the larger, more complex and often less stable households; from households with few dependants and relatively large potential labour forces to households with few adult members and large numbers of dependants; from households oriented strongly to the local sector with few alternative income sources, to those dependent largely on wages and remittances. The degree to which these are representative of Tamana households in general cannot be adequately established.

Methodology

Having selected households, the next decisions concerned what data to collect, when and how. The week was chosen as the most suitable time span, longer periods gave rise to boredom and reduced data quality. Each household was visited each evening for 7 weeks spread over 3 visits to Tamana. Data were collected on Sundays, but to aid comparability with the other reports, Sunday data were not included. The main effect of excluding data for Sundays is to reduce the representation of time allocated to attending church, visiting and club meetings since most *mronron* made up their books on Sunday evenings after church. Expenditure at *mronron* on Sundays was included in weekly totals.

Data were collected for the weeks beginning 7 February 1972, 15 January, 5 February, 5 March, 9 April, 12 December and 19 December 1973. The clustering of dates in December-April period was unavoidable, but data were collected for both the easterly and westerly seasons.

On each visit household members were asked to outline their activities for the day in the order that they carried them out and using the doer's estimate of time taken. No arbitrary duration was placed on time; a day was taken as 24 hours. Each activity was recorded under the local categorization and later regrouped if necessary, for the purpose of analysis. It soon became clear that certain activities were not clearly distinguishable as activities in people's minds and so data on eating, sleeping, personal hygiene and resting were lumped in the category 'unallocated time'. Allocated time relates to the time that informants saw themselves as being active. For diet data, the number of meals taken, the number of partakers, and the ingredients were recorded. To get specific data on quantities would have been too disruptive, and such data are of little use in dietary analysis unless matched by data on individual intakes. Such data are notoriously hard to collect and generally unreliable, particularly for food intakes of younger age groups. Household income and expenditure over the week were also recorded. Additional data on land access, coconut and *babai* resources and an inventory of capital goods were also

Table 4.5

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
Meri	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
Tembeti	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')

Timea	M	52	Nuclear most of time	5	4.30	3.30	1.30	2	20.65	123.87	N.D.
Barawe	M	72	Other	5	3.30	2.60	1.27	1	26.36	131.79	1.57
Kaiea	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 caculated for the core household, the least changing and most regularly present population.

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

Age	Labour Units
	0-9 = 0.0
	10-14 = 0.3
	15-60 = 1.0
	60- = 0.6

collected. Supplementary information was gained from cooperative society store records and Telmo (telegraphic money order) journals.

HOUSEHOLDS CLASSIFIED

Increasing familiarity with the sample households during the course of fieldwork and later data analysis lead me to think that there are two basic household types on Tamana. These types do not clearly reflect a Chayanov-type cyclic or developmental relationship between the age of the household head and changes in the ratio of dependants to workers through which all households pass. The difference is situational and depends upon the household's access to resources and, more importantly, whether the household has access to outside sources of income through near kin in employment. The latter factor at least reflects changes in the age structure of households over time, but is not the necessary outcome of such changes. More detailed analysis in later sections will show the basis on which the household types were differentiated. The first type includes those households which operate primarily in the local sector and where changes in local sources of income (as opposed to other income sources) are more important in determining changes of income. Changes in income sources other than local production are most important in determining income changes in the second type of household. For the want of better terms the household types will be referred to as 'local-dominated households' and 'other-dominated households'. Table 4.5 summarizes some of the characteristics of these household types.

The data presented in Table 4.5 are of importance for several reasons. The distinction between household types is mirrored in other characteristics. The mean age of household heads in local-dominated households is lower while mean household size is larger. These are younger households with large numbers of dependent children, and this is supported by the consumer units per household scores. The local-dominated households have a significantly higher mean number of consumer units per household than the other-dominated households. A higher proportion of the local-dominated households are of nuclear structure, while the second type is characterized by more complex configurations. This is in keeping with the younger character of the local-dominated households. Rather unexpectedly, this difference is not reflected in the labour structure of the households. There is no significant difference between the household types in labour unit scores, which suggests out-migration of older children to employment or other households is common. The net result of these two factors is to create significant differences in the ratio of consumers to labourers between the two groups, local-dominated households having more consumers to labourers. While these differences probably reflect differences in age structure of households between the two types, the most important implication of the difference is its effect on the chances of households having near kin, particularly children or their spouses

in employment. This is strongly borne out by the data on employment of children or their spouses at Ocean Island, Nauru, Tarawa or on ships. The local-dominated households have fewer children in employment. All these factors are reflected in income differences between the household types; they are quite strongly differentiated on mean annual per capita income and less strongly on the basis of mean annual household income. In both instances the local-dominated households had lower mean annual incomes. Since these types were differentiated on the basis of non-local sources of income, it is not surprising that there was no significant difference in per capita land access between household types.

This section looks only at the differences between household types in the above characteristics. It is premature at this point to consider the interrelationships between these variables; this must await more detailed analysis in later sections.

Chapter 5

Household resource base

The aim of this section is to provide a brief summary comparing the resource bases of the sample households. Individual resources and their usage will be discussed more fully in later sections. Many of the differences between household types discussed in the preceding section relate to differences in access to resources — resources defined in their widest sense — land, people, capital goods and education. Land remains the traditional symbol of wealth. Traditionally, if one had land one had access to cash and with it the goods that cash could buy. This is no longer the situation and the disparity between tradition and reality is widening. With the growth of employment opportunities at Ocean Island and Nauru capital goods became synonymous with employment. It was through periodic employment that one gained the goods seen as necessary for the good life on Tamana. Now, with the spectre of no Ocean Island and changing recruitment patterns, education is seen as the means to future well-being. This applies particularly to secondary education and the employment opportunities it is thought to open up in Tarawa. The life-style generated around employment in Tarawa is an alternative rather than a supplement to life on Tamana. Thus land, and past and present employment are the main factors in the current Tamana resource base. Education is an investment in the future and people tend to be regarded as ubiquitous, although out-migration to permanent employment and the impact of family planning programs might call for a reappraisal of this attitude.

ACCESS TO LAND

Table 5.1 summarizes the land access details for the sample households. The table emphasizes the distinction between ownership and usage; between lands actually vested in household members and lands used by the household. In most instances the number of lands used by the household exceeded the number of lands vested in its members, and this illustrates the flexibility of the system. No household was denied access to land and large tracts of land did not go unused because of the absence of their registered owners.

The 15 households surveyed[1] used 150 plots of land, giving a mean of 10 plots per household. The least advantaged household used 5 plots while the most used 18. This indicates a fair disparity in land access and in those households dependent on local resources for their cash incomes, land access is an important factor in income levels (Table 4.5 and Chapter 8). The disparity in land ownership, rather than access, is more marked. Many individuals had no lands registered under their names, but only Bakanoka had inherited no lands of her own and had no prospect of doing so. Looking more closely at the figures on land ownership and use, 107 of the 150 plots used were vested in household members or members and their siblings; 95 of these were used by the households. The unused lands were held in joint tenure and used only by siblings resident elsewhere, or were unofficially transferred to daughters on marriage. Only 1 plot could not be located by its owner.

The data presented in Table 5.1 illustrate some of the general principles of land inheritance discussed in Chapter 2. The table shows that land is inherited through both parents, males inherit more land than females and the inevitable corollary of this, more land is inherited from the father than the mother. Meri, Enoka and Komeri are sister, brother and eldest brother's eldest son respectively; the fact that Komeri inherited more land from his father's parents illustrates precedence given to the eldest son. One surprising feature of the data is the small number of plots inherited from people other than parents. Only 6 plots were inherited through adoption and one by the 'land of kindness' conveyance. Given the frequency of adoption in Tamana society this is somewhat surprising. Transfers of land resulting from adoption were probably more common in the past where it gave rise to some redistribution of land, but increasing land pressure probably explains the situation described here.

All households except 1, used lands vested in individuals other than household members. A large proportion of these (29 out of 55) are undistributed lands which will come in due course to household members. In most instances an unofficial division of lands is already in operation and awaits ratification by the Lands Court or the demise of aged parents. Only 18 plots used belonged to people absent from Tamana, and most of these were available because of short-term absences of their owners in employment at Ocean Island or Nauru. Seven plots belonged to people who had been away for many years or had never been to Tamana. Despite problems arising from the small sample size, there appears to be little evidence of vast quantities of absentee-owned lands going unused on Tamana. These lands form an important supplement to the sample householder's lands. Table 5.1 shows, however, that such

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[1]One household had shifted to Tarawa before this survey could be completed.

Table 5.1

Land plot ownership and usage, sample households, Tamana

Household landowners	Lands vested in household members							Other lands used		Total lands used
		Conveyance			Encumbrances					
	No. lands vested	Distribution from father or father's line	Distribution from mother or mother's line	Other	Self	With siblings	Vested lands used	No.	Vested in	
MERI	3	1	2	-	2	1	3	1 1	Sister's absent husband Estranged husband	4
Household	3	1	2	-	2	1	3	2		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	-		5
His wife[a]	-	-	-	-	-	-	-	1 1	Probably belongs to mmfbds Probably belongs to descendant of ffmm	2
Household	5	2	2	1	5	-	5	2		7
BAKANOKA	-	-	-	-	-	-	-	2 1 1 1	Son's dead wife Absent son Husband's daughter by previous marriage Dead adopted son's wife	5
Household	-	-	-	-	-	-	-	5		5
TEMAKAI	-	-	-	-	-	-	-	2 2 1 1	Father's land shared siblings Father's land self Mother's land shared siblings Mother's land self	6
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 unofficial distribution by ff - never ratified in court	3
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	
His wife	–	–	–	–	–	–	–	5	Father's undistributed lands - used with mother and siblings	7
								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	–		4
His wife	1	–	1	–	–	1	1	4	Undistributed father's lands	5
Household	5	4	1	–	4	1	5	4		9
BARAWE	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 mfsisd	
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
TEBEBITA	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	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.

Table 5.2

Land area and coconut resources, sample households, Tamana

Household	No. of plots used	Area[a] of lands vested in or will become vested in household members	Area of other lands used	Area of total lands used	Area of village lands	Area of bush-lands	Bushlands per capita	Bearing palms bushlands	Palms yet to bear bushlands	Bearing palms per capita	Bearing and yet to bear palms per ha bushlands
Meri	5	0.52	0.16	0.68	0.10	0.58	0.05	59	56	5.36	198.28
Katirongo	-	1.02	-	1.02	0.07	0.95	0.19	79	118	39.40	207.32
Enoka	7	2.83	0.84	3.67	0.62	3.05	0.23	326	257	25.08	191.15
Bakanoka	5	0.35	0.59	0.94	0.19	0.75	0.37	53	57	28.50	146.67
Temakai	8	3.35	-	3.35	0.41	2.94	0.42	200	201	28.57	136.39
Kaiea	9	3.71	-	3.71	0.43	3.28	0.55	169	215	28.17	117.07
Aam	9	3.18	0.28	3.46	0.12	3.34	0.67	197	257	39.40	135.93
Kamantoa	9	5.40	-	5.40	0.26	5.14	0.73	319	362	45.57	132.49
Kaiaba	14	5.13	0.18	5.31	0.07	5.24	0.74	354	321	50.57	128.82
Tembeti	13	4.26	0.39	4.65	0.51	4.14	0.82	271	267	54.20	129.95
Maera	9	4.40	-	4.40	0.27	4.13	0.83	253	242	50.60	119.85
Barawe	18	5.50	2.79	8.29	0.44	7.85	1.57	451	389	90.20	107.01
Komeri	11	7.17	-	7.17	0.48	6.69	1.67	447	545	111.75	148.28
Tebebita	12	3.27	2.21	5.48	0.38	5.10	1.70	215	361	71.67	112.94
Tokintekai	17	4.47	0.89	5.36	0.17	5.19	1.73	290	378	96.67	128.71
Total all households	150	54.56	8.33	62.89	4.52	58.37	12.27	3683	4026	765.71	2140.91
Mean all households	10.00	3.64	0.56	4.19	0.30	3.89	0.82	245.53	268.40	51.05	142.73
SD	4.19	1.92	0.85	2.18	0.18	2.10	0.58	125.34	132.00	29.68	31.33

[a]All areas in ha

land does not necessarily become available to the households most in need of land. Kin networks and friendship bonds are important in determining who gains use of absentees' lands. As it is not a permanent transfer of land, the registered owner is not obliged to make the land available to immediate kin and so there is some room for a temporary redistribution of land. In short-term absences it appears customary for the male's kin to use the wife's lands regardless of need. Data on Meri's and Bakanoka's households show less common strategies for getting access to lands and this reflects their need to supplement their meagre landholdings. The use of all these lands to which tenure is not clearly established presents problems in maintaining or improving productivity. Users are loath to plant lands to which they do not have tenure. Indeed, custom prevents the user planting lands. To do so would imply a usurping of ownership and bring shame on the user. As a result many undistributed and absentee lands tend to be neglected.

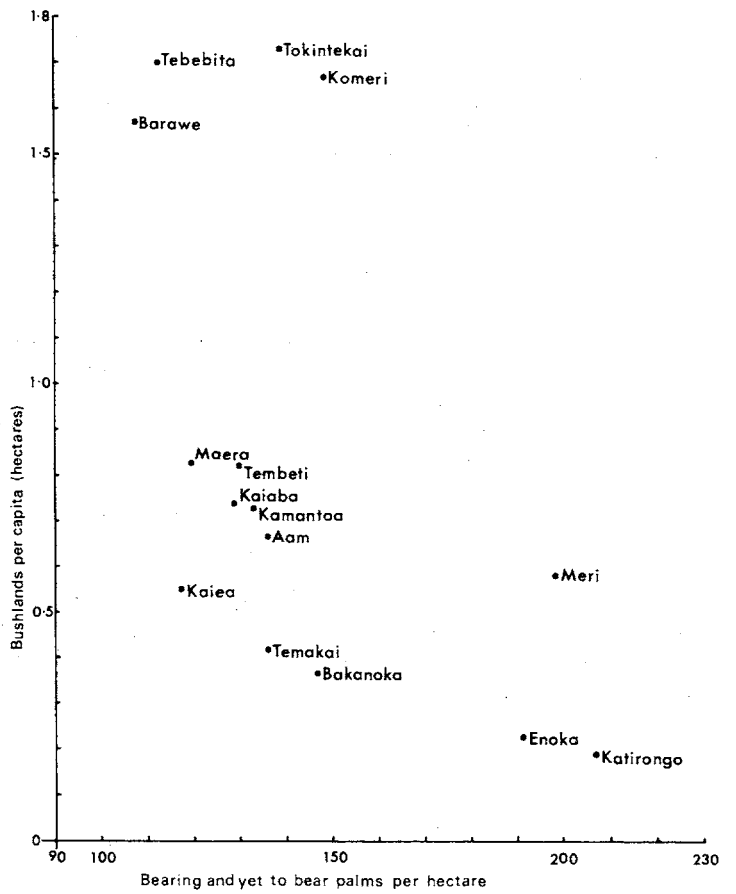


Fig. 5.1 Tamana: land resources and palm densities, sample households

Table 5.2 expresses land access data in areal terms rather than number of plots. No attempt is made to classify bushlands on the basis of land types distinguished in Chapter 1 because these do not appear to be reflected in coconut palm densities. The data on area of bushland used and bushland per capita underline more strongly the discrepancies in access to resources that exists. Differences in land access are broadly paralleled in coconut palm resources available to the households.

Figure 5.1 presents the relationship between lands available and palm densities; for most households there seems to be little tendency to plant more densely to compensate for limited land access, except in the case of Enoka, Meri and Katirongo's households. These 3 households have the lowest per capita bushlands available to them and their lands have considerably greater palm densities. This reflects the planting policies of the present landholders and their parents before them. They were evidently more acutely aware of their limited palm resources and large families, so actively planted their lands to increase the resources available. The fact that most households have approximately the same number of palms yet to bear as they have bearing now suggests that present levels of production can be maintained into the future. The implication of differences in access to land and palm resources and their bearing on household performance will be discussed in Chapters 7 and 8.

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 *niba* giving a mean of 2.70 pits and 27 *niba* per household (*niba* are small holes, large enough to take 1 plant, dug through the hardpan; *rua* is the large pit containing many plants). 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 5.3. 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 5 pits have been dug by present householders, which underlines the lesser importance of *babai* in the economy.

LIVESTOCK

All households kept pigs. The numbers held at any one time ranged from 1 to 7, 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 ...

CAPITAL GOODS AND EMPLOYMENT

The point was made earlier that the possession of capital goods is closely linked with employment. A study of the full list of possessions in Appendix 1 shows that a small number of the material possessions owned by the households and presumably needed in everyday life on Tamana can be fabricated there. A large number of these possessions are non-traditional and imported; very few are available from the store on Tamana, or even in Tarawa. The range of tools and implements is particularly impressive. Probably very few items are essential to everyday economic life; without a canoe one cannot fish for ocean fish, without a bicycle it is difficult to gather up large numbers of nuts to make worthwhile batches of copra. Households get by without these items, but there is a deal of shame in not being independent and having to borrow equipment from others. It is the aim of all households to be independent.

Table 5.4 presents a summary of ownership of some of the more important items. The households are ranked in descending order of age of the head.

Generally, the level of ownership is high; possibly higher than that on Tabiteuea North and similar to that on Nanumea (see TN.R.: ch.6, Possession of European goods; N.R.: ch.9, Capital resources), but care should be taken in comparing such data because the sample sizes differ considerably. If the differences are in fact real, they probably reflect heavier recruitment for Ocean Island and Nauru from the southern Gilberts following World War II.

The trend suggested by the Tamana data is that households with older heads tend to have more capital items than households headed by younger men and possibly women. This reflects differences in access to employment, and in the case of women, differences in inheritance patterns. However, comparing Tables 5.4 and 5.5 shows that households with no members in past employment have at least some of these items, suggesting that gifts or *bubuti* do lead to a redistribution of wealth.

Table 5.3

Babai pit ownership and usage, sample households, Tamana

Household	Householder	Pits listed in *babai* register								Pits used but not listed in *babai* register						Total pits used		Total plants
		Listed in register		Used by household		Used by others		Empty or abandoned		Inherited		Dug by self		Belonging to others				
		Rua[a]	*Niba*[a]	*Rua*	*Niba*	*Rua*	*Niba*	*Rua*	*Niba*	*Rua*	*Niba*	*Rua*	*Niba*	*Rua*	*Niba*	*Rua*	*Niba*	
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	-	-	3	36	470
	Household	-	26	-	26	-	-	-	-	1	-	2	10	-	-	3	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	-	-	3	41	177
	Household	2	17	2	15	-	2	-	-	-	-	1	26	-	-	3	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	1	-	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	0.07	-	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	0.26	-	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.

Table 5.4

Ownership of selected capital items by sample households

Household	Canoe	Timber for canoe	Sewing machine	Bicycle	Clothing 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
Per cent of households owning item	75.00	43.75	75.00	93.75	100.00	62.50	81.25

Source: Fieldwork

Table 5.5 shows the employment histories of household members and some indication of the goods they brought back with them. It underlines the importance of employment in getting capital goods.

In comparing ages and employment experience of household members, some important differences become apparent. People under 30 are poorly represented, and relatively few of these have been to work at Ocean Island or Nauru. Tarawa and ships are more important employment locales for this age group, and here education is likely to be more important in recruitment than it was in the past at Ocean Island and Nauru. Very few of the young men from Tamana gaining employment in Tarawa went to specified jobs; rather they went to visit friends and then got jobs carpentering, labouring and the like, through contacts in Tarawa. Table 5.6 points up this difference in employment more strongly.

A very high proportion of those over 30 have been in employment and most of these were employed at Ocean Island or Nauru. Fewer than half under 30 have been in employment and only 1 of those at Nauru. Most of the remainder got employment in Tarawa.

This suggests a considerable change in out-migration and employment patterns. In the past it was considered a normal part of a young man's experience to work at Ocean Island or Nauru soon after leaving the Mission School, to travel and see new sights, to get capital goods and on returning set up household and play an active part in Tamana Affairs. From the data in Table 5.6 this appears less common now.

Employment at Ocean Island and Nauru is an essential part of the present Tamana life-style. It is less certain that employment in Tarawa stands in the same relationship. Past experience has shown that few of the Tamana-born people gaining high school education and employment in Tarawa have returned to Tamana. Their experience is lost to the community and Chapter 8 suggests that they remit smaller amounts of money. There is no certainty that young men going to Tarawa now will return and take an active part in Tamana life; those who have to date complain of the dullness of outer island life and want to return to the bright lights of Tarawa. Nor are they likely to return with the stock of capital goods like canoe timber, heavy fishing gear and sewing machines necessary to replenish the inevitable depreciation of Tamana capital stocks. Such goods are not available in Tarawa, and even if they were it is probable that the higher cost of living on Tarawa and other calls on wages would make saving and the purchase of these items more difficult.

The inevitable outcome of the running down of activities on Ocean Island and Nauru will be restricted access to some of the capital items important to life on Tamana. As access becomes restricted, redistribution will probably become less common and greater disparities between households could develop with some households being less able to participate in important productive activities. Two recommendations come out of this. If it is government's desire to maintain current levels of satisfaction with outer island life, it is necessary to look at the impact of employment patterns on outer island life. The current contract system in operation at Ocean Island and Nauru has the advantage that the people see it as such: something to be taken up when the need or desire arises and relinquished when the need or wish to return home develops. The employee is relatively free to move between the two systems. The choice between the two is not a testing or mutually exclusive one. Employment on Tarawa is probably more 'success'-oriented; length of service, promotion and monetary reward become important considerations. The employee is less free to move between the two systems, and his ability to fulfil expectations of kin on his home island is probably curtailed by higher costs of living on Tarawa. The implication to be drawn from this is that contract-type work is integrated into current Tamana custom and if the government wants to maintain the present relationship between employment and outer island life-style it should consider promoting contract-oriented employment patterns rather than a system where an employee is required to spend his working life

Table 5.5

Employment histories and goods acquired by members of sample households, Tamana

Householder	Age 1972	Schooling	Employment: Place	Employment: Duration	Employment: Reasons for termination	Capital accumulation: Capital goods acquired	Other close kin in employment
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	1934-42	War	Timber for canoe, cloth	Son, Ocean Island
			Nauru	1952-54	Contract ended	Cooking utensils, timber for canoe, bicycle, clothes, cash Salary £8 per month	
His son	31	Mission School, Mokongai Fiji	Tamana Island Council School	1958-60	Went to Nauru	Unpaid	
		Mission School Tamana	Nauru	1960-66	Wanted to return	Timber, food, clothes, cooking utensils, bicycle	
			Tamana Cooperative store	1971-72	Dismissed	Salary $23 per month	
			Nauru	1974-			
Aam	53	Mission School	Ocean Island	1935-37	Wanted to return	Timber, clothes, small savings	Son-in-law, Nauru
			Ocean Island	1938-40	Family request	Clothes, knives, pens £5	
			Ocean Island	1941-42	War		
			Nauru	1943-45	Japanese prisoner		
Kamantoa	52	Mission School	Ocean Island	1938-42	War		Son-in-law, Nauru
			Ocean/Kusai	1942-45	Japanese prisoner		Son, overseas ships
			Ocean Island	1958-59	Contract ended	Cooking utenisls, bicycle, £30 cash	
			Ocean Island	1961-65	Sickness	Timber for canoe, bicycle, clothes Remitted money during period	
His son	18	Island Council School	Tarawa	1972-73	Father's sickness	Bicycle, clothes, $30 cash	
His daughter	24	Island Council School	Nurse Tamana	1970			
			EBS High School				
			Colony hospital				
Timea	52	Mission School Rongorongo	Ocean Island	1937-39	Wanted to return	Could not remember	Son-in-law, Tarawa
			Nonouti Island pastor	1951-54	Contracted TB	Loath to discuss — said got more money as missionary	Daughter, Tarawa
			Nauru	1956-58	Requested to be pastor	Timber for canoe, bicycle, sewing machine, clothing box, small amount cash	Brother-in-law, policeman, Solomon Islands
			Nikunau Island pastor	1958-64	Sickness	Loath to discuss	

Tembeti	51	Mission School Rongorongo (3 years only)	Ocean Island	1940-42	War	Clothes, fishing gear, cooking utensils, timber for canoe, £3 cash. Salary £1 12s + 8s bonus per month	Daughter, house-girl, Tarawa
			Ocean Island	1947-48	Contract ended	Bicycle, fishing gear, cooking utensils, sewing machine, clothes, £11 cash. Salary £3 3s per month	
Bakanoka	51	Mission School	-	-	-	-	Son, Nauru
Temakai	48	Mission School	Ocean Island	1938-42	War		
			Washington Island	1945-50	Wanted to return	Cooking utensils	
			Ocean Island	1951-55	Wanted to return	Bicycle, timber for 2 canoes, cooking utensils	
			Ocean Island	1959-70	-	Clothes, cooking utensils, sewing machine, savings	
Kaiea	46	Mission School	Wartime Labour corps	1944-45	End of war		Son, colony ships
			Ocean Island	1948-49	Contract ended	Fishing gear, timber for canoe, sewing machine, cooking equipment, £25	Brother, dresser, Tamana
			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	Brother, Ocean Island
						Salary £25/month	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

away from his home island and is disadvantaged if he periodically leaves employment to return to outer island life. A situation where workers are free to move between the two systems could also benefit outer island life by introducing new skills and experience. Being realistic, it would be necessary to stress the value of community and outer island life in the education program. The second recommendation is that the Cooperative Federation look at the possibility of stocking hand sewing machines, timber suitable for canoes and heavy fishing gear on Tarawa, in the hope that some of these will find their way to the outer islands.

Table 5.6

Employment by age group, male members and male offspring over 18 (resident and non-resident), sample households, Tamana

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 section has brought together data on the resource bases of the sample households; particularly land, coconut, *babai* and livestock resources, but also the human resources in looking at such factors as personnel structure, labour/consumption ratios, employment histories and the possession of capital goods. In the following chapters the households' activity, income expenditure and diet patterns will be studied and the relevance of these resources in the livelihood of the households will be brought out.

Chapter 6

Households in action

To an outsider brought up in a work-oriented society regularized around a 40-hour week, the initial impression of Tamana daily life is one of variability both from day to day and from week to week. (A Tamanan would claim the converse is true and point to the relatively few basic activities that he or she might carry out in their humdrum island life.) The variability, apparent or otherwise, results from the interplay between the need to satisfy particular wants with the available work force on the one hand, and more variable factors like the weather, social events and personal preferences on the other. The underlying theme, as one informant aptly put it, is 'work', 'because work is the household and the household is food; without work there is no household and without the household there is no food'. The association between work and food is particularly important in conceptualizing activities. Because most social obligations are thought of in terms of supplying specified food levies to the organizing household or body, or in the case of village feasts, to be able to attend and eat your own fish, rice or *babai*, there is no clear division between work and social activities; they are all part of the same system. To get food one must work; to shoulder one's social responsibilities one must have food and so social activities as an expression of these responsibilities are thus 'work'. By discharging social obligations one's household is 'complete' and holds its place in the community.

TIME AND THE INDIVIDUAL

Division of labour

The regularities of the situation became more apparent as fieldwork progressed. Age and sex are important factors in the division of labour. In Tamana society a man's role is seen as being somewhat circumscribed. 'Men have to be lazy' as an informant told me, 'because men's work is only fishing and cutting toddy and women have to do most of the work'. My own data suggest that reality does not agree with the theory, but the structuring of the situation in these terms does point to a potential for inflexibility

in the system which could lead to problems in introducing new cash-earning activities.

Boys cease being boys at the age of 18 and are expected to take an increasingly active part in men's activities. As well as toddy cutting and net fishing, they are now expected to participate increasingly in deep sea canoe fishing, housebuilding, community work and the like.

Once married, community and family affairs become increasingly time-consuming. The range of activities engaged in increases steadily with age, but tapers off sharply at 'retirement'. Girls are introduced into the work force more gradually and at a younger age. Young girls begin sweeping, cleaning, drawing water and feeding pigs at a very young age. Through assisting older women they learn weaving, cooking and similar crafts. Although much of a woman's early married life is taken up in child tending it does not prevent her taking an active part in general domestic duties, handicraft preparation, copra making and church, club and community affairs. The affairs of the home, particularly domestic and commercial handicraft production, take up more of older women's time. Contrary to the pattern with men, there appears to be no great increase in time devoted to family and community affairs with increasing age. Women and men may work together collecting nuts, making copra, clearing lands and tending *babai*. Men rarely make handicrafts (except swords for sale) and women rarely cut toddy or fish, and when they do it is with nets or rod and line on the reef.

The age at which individuals cease being active depends to a large extent on household composition. If there are no younger males in the household a man may continue cutting toddy and fishing until well into his fifties. If younger men are present he may well 'retire' long before this and spend more time in community affairs, family gatherings and church administration.

Daily activity patterns

To add some reality to data given in the following sections Table 6.1 suggests typical activity sequences for persons in particular age groups in a household. Taken as a whole it gives some indication of the activity pattern and division of labour within a household, but actual activity sequences will of course differ with the personnel available. As noted above men remain active longer where there are no younger men to replace them, and young married adults follow different pursuits, when part of the parental household, than they would if living in an independent household. Women's work patterns seem less structured than men's. If a man does not go out deep sea fishing in the early part of the morning he is not likely to go deep sea fishing at any other time during the day. This is partly custom but probably also relates to difficulties in getting canoes over the reef edge at

Table 6.1

Typical daily activity sequences by age and sex

Time	Man over 60	Woman over 60	Married man owning canoe	Married woman	Married woman with infant	Young unmarried male	Young unmarried female	Schoolboy	Schoolgirl
DAWN			Toddy cutting	Cooking	Feeding baby	Toddy cutting Singing and playing	Drawing water Feeding pigs	Toddy cutting	Sweeping Drawing water
	Meal - Usually katokaben, a drink of grated coconut mixed with toddy or tea								
8 A.M.	Work in *babai* pits Old Men's meeting	Watching copra drying Boiling toddy Preparing food	Deep-sea fishing	Mat-weaving Work for women's cooperative work group	Washing baby Feeding baby	Meal often taken later Fishing on reef flat	Visiting store Washing	School	School
NOON				Cooking			Cooking		
	Meal - Left-over fish, coconut or prepared dish of breadfruit, rice or flour								
6 P.M.	Playing cards Talking	Boiling toddy Making string	Meal often taken later Resting Toddy cutting	Women's meeting Talking Mat weaving Cooking	Feeding baby	Choir practice Toddy cutting	Choir practice Collecting *bero*, coconuts, pig food Feeding pigs	Playing Collecting coconuts, pig food etc.	Playing Collecting *bero*, pig food etc.
	Meal - Fish, coconut and toddy or katokaben								
SUNSET	Talking Sleeping	Talking Sleeping	*Kababa* – fishing for flying fish Deep sea fishing	Mat weaving Talking Sleeping	Feeding baby Talking Sleeping	'Playing'	Handicrafts Talking Sleeping	Playing Sleeping	Playing Sleeping
8 P.M.									
10 P.M.			Sleeping	Cooking Sleeping		Sleeping			
MIDNIGHT									

certain levels of the tide. On the other hand, women seem to take up a variety of tasks at any time during the day. The important implication of this for planning purposes is that if new cash-earning activities are introduced they could be more readily accommodated within women's daily work patterns than men's. Additional or alternative calls on men's time could lead to a reduction in the time spent in fishing, and this could have important dietary consequences.

Looking more specifically at the time allocation data for members of the sample households, Figure 6.1 presents this in a manner which stresses not only the time devoted to each activity by the members of each age group, but also the regularity with which the activity occurs. This is simply arrived at by calculating the mean hours per week devoted to each activity (for all members of the age category) and the standard deviation. The standard deviation is a measure of the spread of individual scores around the mean and thus of variability. To enable comparison of variability around means of different values the coefficient of variation was used and this was calculated by dividing the standard deviation by the mean. Together, the mean and the coefficient of variation provide generalizations about the amount of time spent in particular activities and their relative variability over the period for which the data was collected. Next, mean hours per week were plotted against the coefficient of variation for each activity on a scattergram in Figure 6.1. The scatter of points obtained was divided into four segments defined by the mean time allocated to all recorded activities and the mean of the coefficients of variation. Thus the activities falling into segment A are tasks performed regularly by most people in the age group and for above average lengths of time per week. Segment A would obviously distinguish the most important tasks performed by each age group. Similarly, segment B covers tasks performed regularly and by most people, but for less than the mean length of time per week; i.e. regular but not necessarily time-consuming tasks. Segments D and C relate to the tasks done fairly infrequently and not by all members of the age group. The fact that few activities fall into segment D (irregularly performed, but for above average periods of time) could indicate weaknesses in the data-collecting approach, insofar as the sampling framework is perhaps too coarse to pick up such events. However, the activities isolated (visiting kin, commercial cooking and commercial handicrafts) seem consistent with the interpretation.

The differences in activity patterns with age and sex are delineated most clearly by comparing the activities which fall into segment A.

The pattern revealed in Figure 6.1 and Table 6.2 underlines many of the points relating to the division of labour made earlier. Figure 6.1 emphasizes the change in the number and range of activities with age. For both sexes this peaks in the 31-59 age

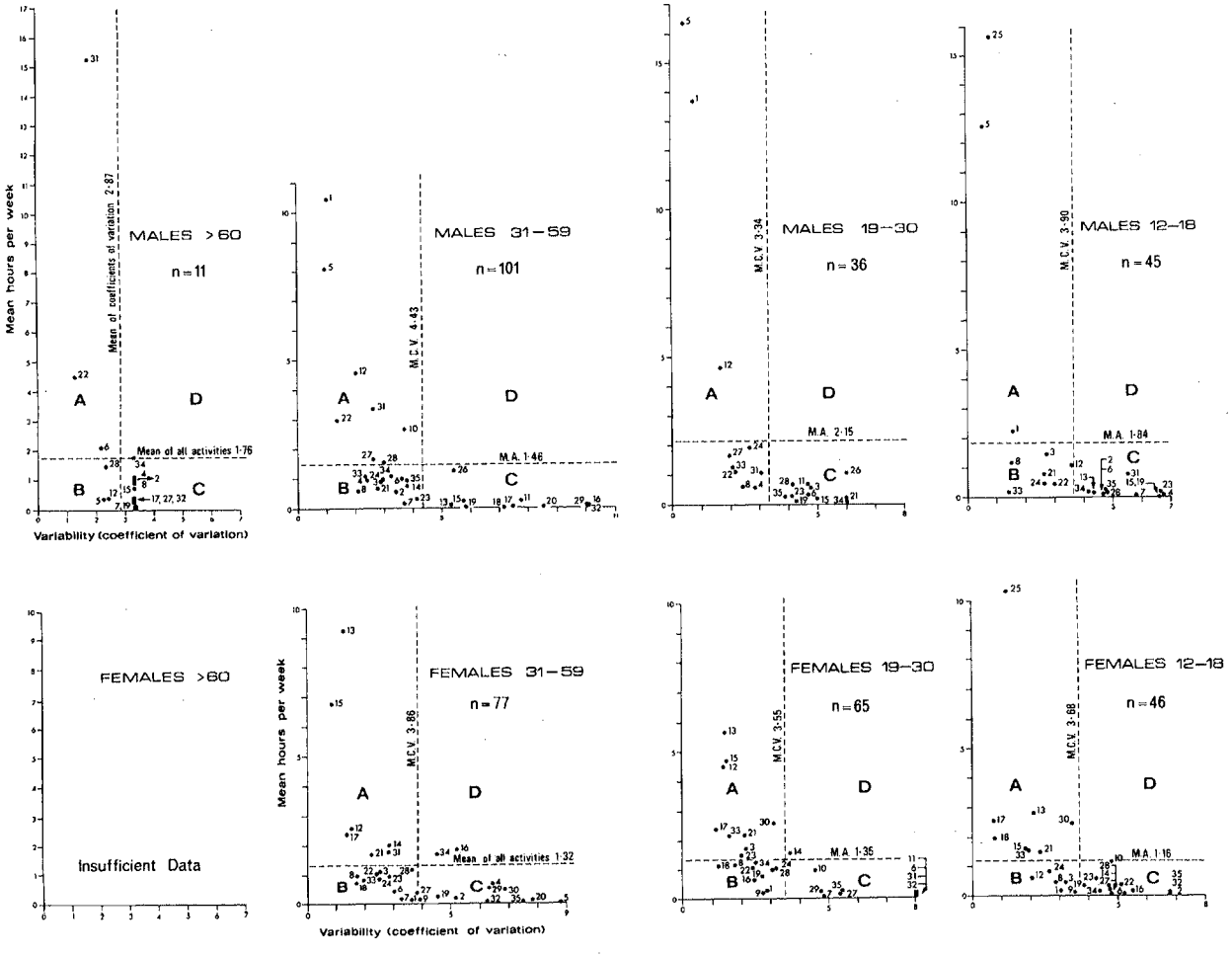
Table 6.2

Segment A activities by age and sex
(ranked in order of diminishing mean hours per week)

Sex	Age				
	>60	31-59	19-30	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.


MALES >60
n=11
Mean of coefficients of variation 2·87
Mean of all activities 1·76
MALES 31–59
n=101
M.C.V. 4·43
M.A. 1·46
MALES 19–30
n=36
M.C.V. 3·34
M.A. 2·15
MALES 12–18
n=45
M.C.V. 3·90
M.A. 1·84
FEMALES >60
Insufficient Data
FEMALES 31–59
n=77
M.C.V. 3·86
Mean of all activities 1·32
FEMALES 19–30
n=65
M.C.V. 3·55
M.A. 1·36
FEMALES 12–18
n=46
M.C.V. 3·68
M.A. 1·16
A
B
C
D
Mean hours per week
Variability (coefficient of variation)

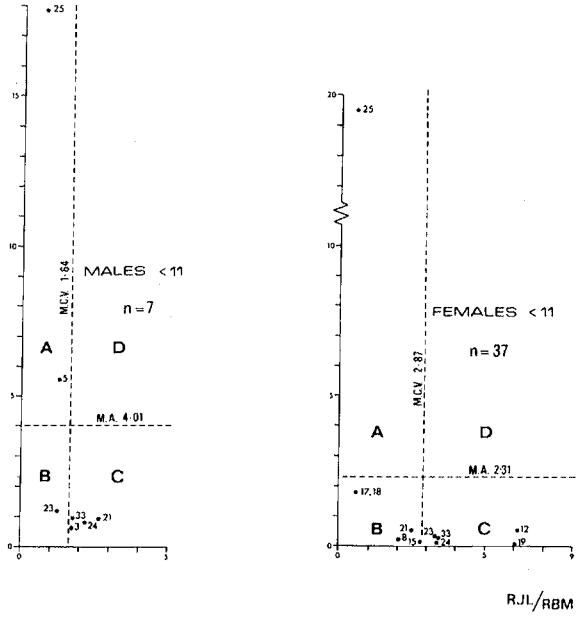


Fig. 6.1 Tamana: recorded activities, time allocation by age and sex

ACTIVITIES

1. Fishing
2. Tending lands
3. Preparing copra
4. Agricultural schemes
5. Toddy cutting
6. Babai work
7. Babai harvest
8. Collecting food
9. Collecting firewood
10. Paid work, permanent
11. Paid work, casual
12. Housebuilding and capital repairs
13. Household handicrafts
14. Commercial handicrafts
15. Household cooking
16. Commercial cooking
17. Homesite tending
18. Animal tending
19. Private buying and selling
20. Business visiting
21. All-island meetings and feasts
22. Court, council, village meetings and feasts
23. Group and club
24. Church
25. School
26. Gaol
27. Community work
28. Family feasts and help
29. Help to other households
30. Care of others
31. Sickness
32. Hospital
33. Leisure outside household
34. Visiting kin
35. Visiting others

n = the number of person weeks on which the means are based. All weeks surveyed consist of 6 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.

group; younger and older age groups engage in fewer activities and these changes reflect the changing responsibilities of individuals over time. The pattern of change is very different between the sexes. The number of activities recorded for men falls from 32 in the 31-59 age group to 21 in the 19-30 age group. Over the same age range the number of recorded activities for women changes from 31 to 27. This illustrates the differences in introduction into the work force of males and females, and since there is no parallel decrease in mean allocated time per week (see Table 6.3) younger men must spend longer time in fewer activities and this might suggest they play a role in the division of labour different from that of either older men or women.

A word of caution in the interpretation of these data is necessary. While the patterns isolated by this method of analysis conform with my subjectivity based appraisal of the situation and are in keeping with what is socially expected of each age group, differences in ranking of particular tasks does not imply that there are significant differences in the amount of time allocated to these tasks by different age groups. To illustrate this point the mean time allocated to each activity by the 31-59 and 19-30 age groups was compared and tested for significant differences using the Student t Test. For males the only activities for which the mean time allocated per week differed significantly (at the 95 per cent confidence level) were toddy cutting and court and council activities. Younger men spent significantly more time toddy cutting while older men spent more time in community activities. Older women spent significantly more time in *babai* work, household handicrafts and in sickness. Understandably, women in the 19-30 age group spent more time in the care of others (child care), going to the store and organized leisure activities outside the household (choir practice and the like). These differences are obvious and expected. However, the fact that there are so few activities on which the 2 age groups spend significantly differing amount of time comes back to the earlier point that the labour situation and the personnel available in each household are the most important factors in determining who does what. The limited range of essential tasks may also contribute to an apparent lack of specialization with age.

Figure 6.2 gives a visual presentation of a regrouping and simplification of the above data. The activity categories have been arranged in such an order that categories a-c are cash-earning activities, categories d-i subsistence, j and k social, and l-o miscellaneous. The patterns for individual activities are much as already described and the activities isolated in Figure 6.1 stand out quite clearly and need little further comment. (Full activity data and details of the basis of regrouping are available in Appendix 2.

The data presented in Figure 6.2 are further condensed in Table 6.3 where activities are assigned to the broad categories:

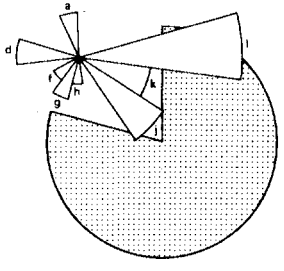
Table 6.3

Time allocation, age and sex, by broad sectors

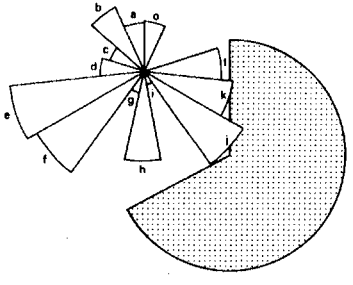
Males

	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

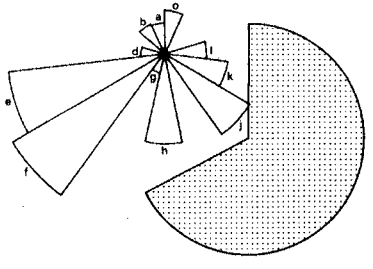
MALES > 60
n = 11

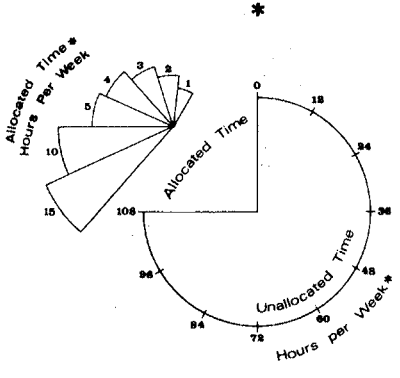


MALES 31-59
n = 101

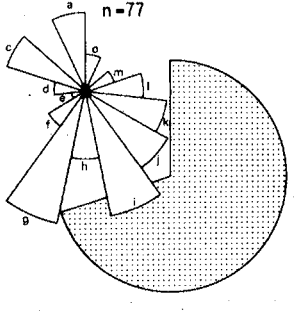


MALES 19-30
n = 36

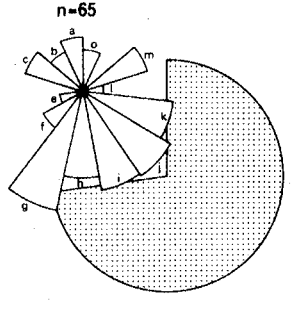


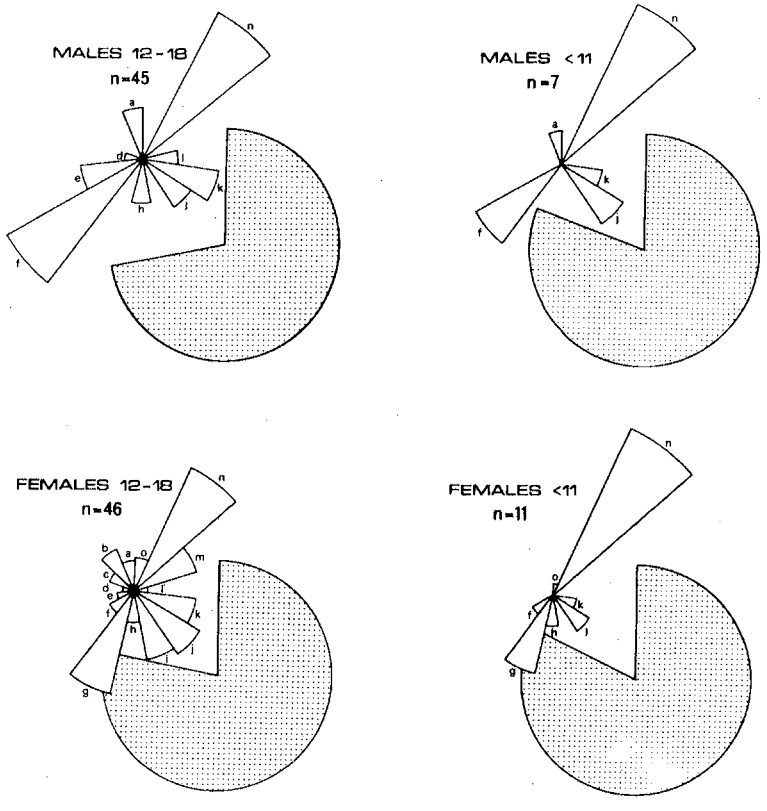


FEMALES 31-59
n = 77



FEMALES 19-30
n = 65





*Activity sectors and allocated/unallocated sectors are not to the same scale.

n = number of persons weeks on which the means are based. All weeks surveyed consist of 6 24-hour days, Sundays excluded.

* FEMALES >60
insufficient data

ACTIVITIES:

a Copra
b Wage
c Other cash
d Babaj
e Fishing
f Other subsistence
g Domestic
h Capital
i Household handicrafts
j Church, Club, Community
k Social recreational
l Sickness
m Care of others
n School
o Other

Unallocated time includes sleeping, eating, personal washing, resting and non-organized leisure.

RJL/RBM

Fig. 6.2 Tamana: time allocation grouped activities by age and sex

cash, subsistence, social and other. This should give some indication of the part played in different sectors of the economy by different age groups.

Let us look first at the total time allocated. Men are active for a longer time than women, and again the pattern of total time allocated differs between women and men. For men, the data on those over 60 suggest a considerable tapering off in activities and a comparison of those under 11 and the 12-18 age group suggests a marked change in activity patterns. Again, the pattern for women is more regular and shows a more uniform increase in time allocated with age. No data are available for women over 60 years old.

The data show the strong emphasis on subsistence activities. For the fully active age groups, subsistence activities account for at least 50 per cent of total time allocated. Social activities are the next most important. For men, social activities become increasingly important with age; for women they absorb more time in the 19-30 age group. Cash earnings appear to be much less important and women spend considerably more time in cash-earning activities than men. The male 19-30 age group appears sufficiently different to warrant special comment. Of the fully active age groups, this group spends the greatest amount of time (36 hours per week) on subsistence activities and relatively less time in social and cash-earning activities. It is tempting to suggest that this reflects the greater responsibilities of younger household heads to their larger number of dependants. However, this is not a justifiable conclusion since males under 30 who are household heads account for only half of the data weeks on which the totals are based. The greater time given over to subsistence tasks by this age group probably reflects social rather than economic reasons and give a perverse sort of credence to the Tamana adage that 'men have to be lazy'. At this age men are expected to be active fishermen and toddy cutters; they are not expected to take an active part in a full range of community affairs which tend to be the preserve of older men. The activities open to this age group are thus limited. Often they tend to be the doers rather than the initiators, the co-opted rather than the co-opters.

It is very difficult to get adequate data on the factors which influence individual decisions to end one activity and begin another: whether men come in from fishing when they have caught sufficient fish for their immediate needs, or whether fishing is the task and a man stays out fishing for a socially acceptable length of time. My subjective impression, for deep sea fishing at least, is that the latter is the case. It would appear from this that the range of activities open to the 19-30 male age group is limited and more time is spent on fewer tasks, most of which are in the subsistence sector. In extended families this may in turn enable older men to spend more time in community activities. In any case, the fact that young men's time gets channelled into

subsistence production, rather than cash earning, suggests three possible situations: (1) that cash-earning opportunities are not available (probably not so); (2) that economic factors, such as need for or utility of money, are such that little pressure exists to entice these people into cash-earning activities; or (3) that social norms and expected work patterns for people in particular age groups are more important in regulating labour inputs. Data presented in the later section, on the relationship between household size and labour input, suggest that such norms are important in determining labour inputs to subsistence and social activities. In cash earning they appear to be less important but Table 6.4 shows that no household for which more than 5 weeks' data were available spent more than 18 per cent of its allocated time in cash earning and such high percentages reflect regular wage work where permanent employment restricts the individual's choice.

TIME ALLOCATION AT THE HOUSEHOLD LEVEL

Looking at time allocation at the household level raises some very important questions relating assumptions and interpretation of data. In previous sections the fluidity and instability of households were stressed and the question was raised whether the household was an enduring social and economic unit or an aggregation of convenience given too great a concreteness by the approach adopted in the survey. It must be admitted that the study began with the assumption that the household was a significant economic unit and its activities were regulated by decisions which coordinated the activities of individuals for the benefit of the household as a unit. This raises the problem of decision making within the household and whether the household should be analysed as a rational economic unit capable of making and implementing decisions to economize time or other resources. In the case of cash, which was in most households pooled rather than held individually, such analysis might be possible, but the extent to which a household functions as a rational economic unit in the allocation of time is not so clear cut.

My impression, gained from the few households with which I had most lengthy contact, was that no individual directed other adults' activities and I was not aware of morning or evening conferences being held to map out the day's activities and allot activities to individuals. Instead, for men in particular, the day's tasks were more or less predetermined; active men were expected to cut toddy and this had to be done morning and evening; if weather and tides were right and no other more pressing task needed attending to, fishing was the next task. For women, many of the day's activities were decided by corporate groups beyond the household; by *airiri* groups (cooperative work groups), by the decisions of the *mronron* committee to cut copra, make bread or sell cups of tea; or by the decision of the village women's club to hold a

mat-making meeting on that particular day. Immediate household commitments tended to be fitted in around these levies on labour.

It is also wrong to approach the question of household labour inputs in the framework of the allocation of means to satisfy immediate ends. In the example of *airiri* work for thatching or general house maintenance, a woman may be preparing materials which will be stored and not used for several years. Thus we cannot assume that a household approaches labour inputs in an economizing framework aimed at getting the highest return per unit of labour applied. The Tamana situation is better explained in terms of social conditioning which sets an acceptable level of labour input for individuals of particular age groups. Economizing and efficiency are not important questions as far as Tamana people are concerned. Quantitative data on efficiency are notoriously hard to collect, but generally, the data presented below point to the importance of social norms rather than economic theory in determining household labour inputs.

Figure 6.3 and Table 6.4 present data on mean weekly time allocation by the sample households. Figure 6.3 gives a more detailed breakdown of activities and shows that total time allocated increases with household size although the ratio of allocated to unallocated time shows no regular pattern of change. The tasks isolated as important in the age and sex analysis show equal predominance in the household activity patterns. The number of active males in a household has an obvious influence on the time spent in fishing and toddy cutting (under 'other subsistence'), and the few households with members in wage employment stand out clearly. However, these small differences aside, the overall impression is one of uniformity; no household types make themsleves immediately apparent.

Table 6.4 shows that the average household allocates 50.44 per cent of its time to subsistence activities, 21.12 per cent to social and 7.29 per cent to cash-earning activities. The remaining 21.15 per cent was allocated to miscellaneous activities including school, sickness and care of children. 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 is understandably the most variable and depends on the household having babies, school children or ailing older people in it.

Allocation of time and household types

The data do not suggest distinctive household types reflecting different economic strategies where, for example, a household might concentrate on cash earning at the expense of time normally devoted to subsistence or social activities. Bakanoka's household has the most distinctive time allocation pattern. She allocated

Table 6.4

Time allocation by sector, sample households

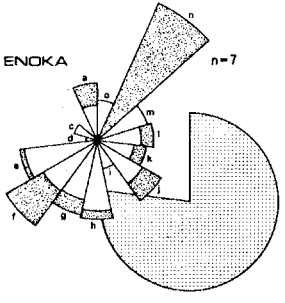
Household	Number survey weeks on which mean is based	Cash		Subsistence		Social		Other		Total	
		Mean hours per week	Percentage	Mean hours per week	Percentage	Mean hours per week	Percentage	Mean hours per week	Percentage	Mean hours per week	Percentage
Enoka	7	14.93	5.48	112.39	41.24	30.08	11.03	115.14	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
Aam	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.

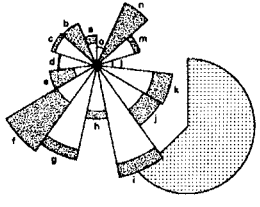
[b] Had individuals in regular wage work during all or part of the survey period.

HOUSEHOLDS WHERE INCOME CHANGES INFLUENCED MAINLY BY CHANGES IN INCOME FROM LOCAL SALES

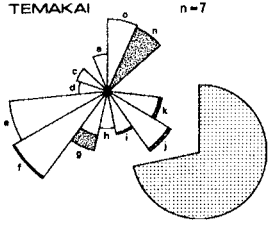
ENOKA n=7



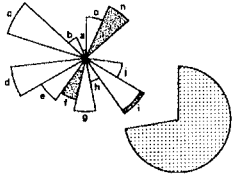
MERI n=7



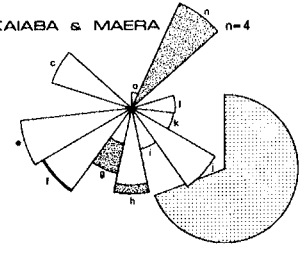
TEMAKAI n=7



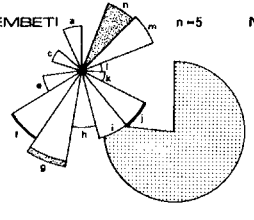
KAIABA n=2



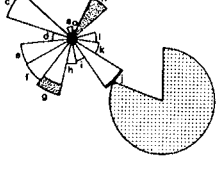
KAIABA & MAERA n=4



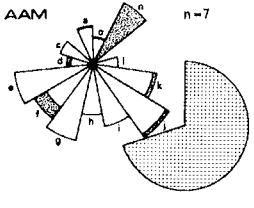
TEMBETI n=5



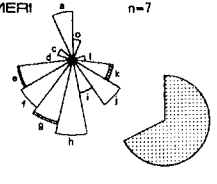
MAERA n=3



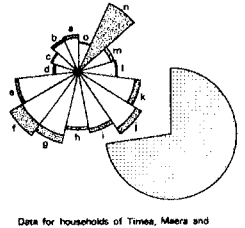
AAM n=7



KOMERI n=7

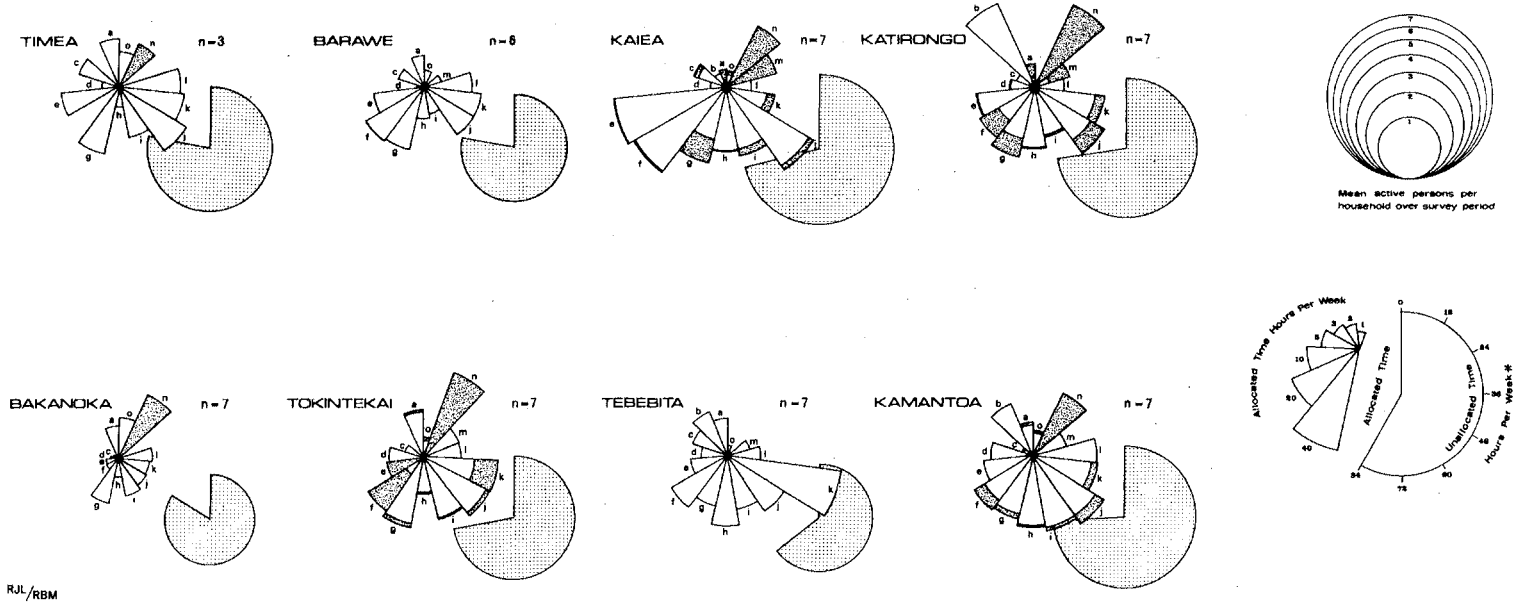


MEAN OF ALL HOUSEHOLDS



Data for households of Timea, Maera and Kaiaba excluded from calculation of the mean

HOUSEHOLDS WHERE INCOME CHANGES INFLUENCED MAINLY BY CHANGES IN OTHER SOURCES OF INCOME



* Activity sectors and allocated/unallocated sectors are not to the same scale. Unallocated time circles proportional in area to the mean number of active persons per household over the survey period.

▨ Denotes hours per week contributed by under 19-year-olds.

n = Number of weeks over which household data were collected. All weeks consist of 6 24-hour days. Sundays excluded.

a Copra
b Wage
c Other cash
d Babai
e Fishing
f Other subsistence
g Domestic
h Capital
i Household handicrafts
j Church, Club, Community
k Social recreational
l Sickness
m Care of others
n School
o Other

Fig. 6.3 Tamana: time allocation by sample households

a lower proportion of time to cash earning, subsistence and social activities than any other household, and sickness and her grandchild's school attendance accounted for 58 per cent of time allocated by the household. Little general significance should be drawn from this; Bakanoka is 51, thrice widowed and *rangirang* (mad). Her only son works at Nauru and the only other inhabitant of the household is her 12-year-old grandson.[1] Bakanoka's household is typical of a small number of households of neglected people with no close kin ties. It is impossible to say whether these are more numerous now than in the past and whether they constitute a growing social problem. The common factor in most of them seems to be personality difficulties which either make the individual choose to live apart or make his or her integration into another household difficult.

Earlier in this section the distinction was drawn between households where income changes reflect changes in local sources of income (copra, handicrafts and the like) and households where variations in wage earning or remittances are most important in explaining income changes. Using the data in Figure 6.3 and Table 6.4 it is possible to test whether the time allocation patterns of these household types differ significantly. Broadly, the two types cannot be distinguished on the amounts of time allocated by the households to subsistence, social or cash-earning activities. Nor could they be distinguished on the individual categories of wage work, or other cash earning (commercial handicrafts and cooking). However, local-dominated households spent significantly more time in copra production.[2]

These findings do not suggest radically differing household approaches to the allocation of time on Tamana. They indicate that time allocation patterns are highly situational. Opportunities for wage work on the island are few and far between. Access to remittance income is similarly uneven. As a group, local-dominated households appear to react to the lack of wage or remittance incomes by spending more time cutting copra, but the same does not apply to other sources of island cash income open to them.

Relationship between labour input and household size

The relationship between labour input and household size is crucial to the question of whether labour input is economized at the household level and whether surplus labour exists in the economy. This question was approached by correlating mean hours

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[1]When the household was selected it also contained the son's divorced wife and several of his children by his deceased second wife. The son returned from Nauru, remarried his first wife and took her and all but 1 child back to Nauru.

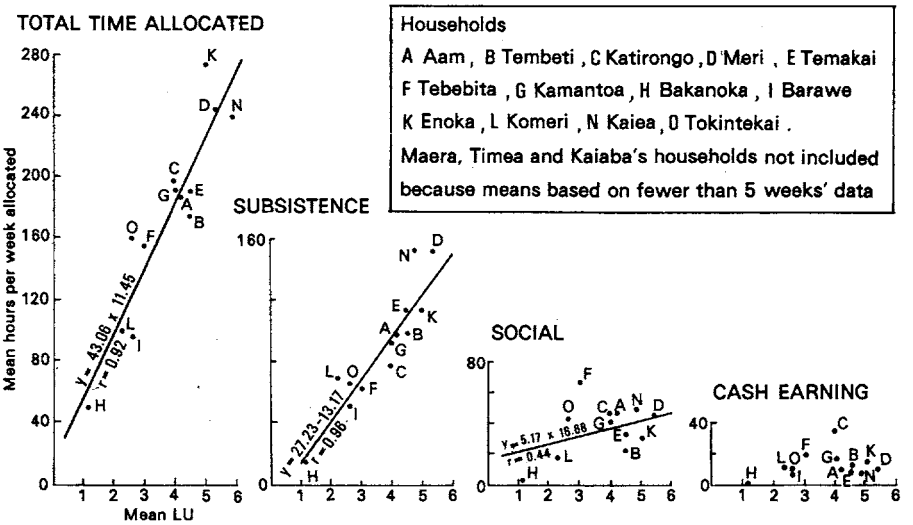
[2]Households with means based on 5 or more survey weeks only.

allocated to the various sectors with, firstly, the size of the labour force (number of labour units per household) and secondly, with an arbitrary measure of the need of a household to work (the ratio of consumers to labourers, the CU/LU ratio).

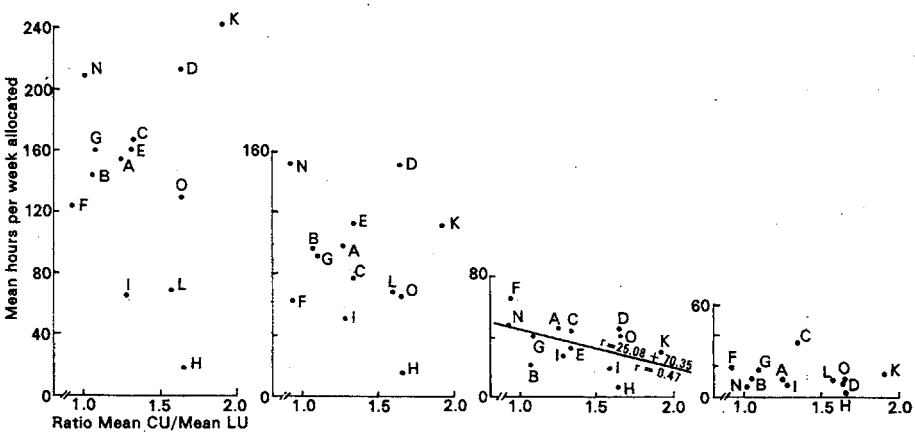
Figure 6.4 shows a strong linear correlation between total mean hours per week allocated by a household and the number of labour units per household. Because the relationship is strongly linear, it suggests there is little variation in per labour unit inputs between the households. As the work force increases in size so does the total mean hours per week allocated by the household increase, and for each labour unit added it rises by a constant amount. As far as the sample households are concerned the point is not reached where the addition of more labour units result in a smaller increment in hours allocated per week, where more people do less work. A similar pattern exists in the time allocated to subsistence and less strongly for social activities. No significant correlation exists between mean time per household per week allocated to cash earning and the size of the labour force. The obvious corollary of the strong linear relationship between time allocated and the size of the household labour force is that no relationship can exist between mean hours allocated per labour unit and the number of labour units per household; which was the case with total time allocated, as well as time allocated to subsistence, social and cash-earning activities separately.

The conclusion I would draw from this is that subsistence and social activities are conditioned by social norms which impinge on the activities of individuals rather than households. Time allocated to cash earning does not appear to be controlled in the same way. This is in part due to the fact that cash-getting possibilities, and wage earning in particular, are not uniformly available. Differential access to remittances means that households' needs for money differ, and time devoted to cash earning reflects household needs rather than norms. Need for cash does not necessarily bear any relation to the size of the household labour force.

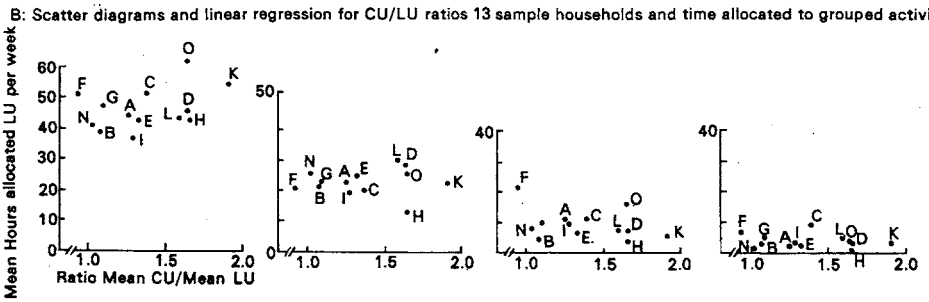
Addressing the question of household size, age composition and the need to work: if the ratio of the number of consumer units to labour units in the household is an adequate index of the need of a household to work, one would expect the households with high consumer/labour unit ratios to work harder to support themselves. Figure 6.4 shows no significant correlation between the consumer/labour unit ratio and the time allocated by the household. This applies to total time allocated per week, and to time allocated to cash and subsistence activities. There is a significant negative relationship for social activities which suggests that as the ratio of consumers to labourers rises, the amount of time per week allocated to social activities falls. Need might be responsible for the relationship, but most households with high consumer/



A: Scatter diagrams and lineart regression for labour units 13 sample households and time allocated to grouped activities



B: Scatter diagrams and linear regression for CU/LU ratios 13 sample households and time allocated to grouped activities



C: Scatter diagrams for CU/LU ratios 13 sample households and time allocated to grouped activities

Fig. 6.4 Tamana: household size, structure and time allocation

labourer ratios tend to have younger heads and these men are not expected to participate as fully in most social and community affairs to the same extent as older men. The per labour unit refinement to this data provides further support for the argument that time allocation is governed by norms rather than needs. There is no significant relationship between the CU/LU ratio and the mean hours per week allocated per labour unit. The distribution is narrow with no trend readily apparent. Workers tend to allocate much the same amount of time to activities, regardless of the number of workers in the household or the ratio of dependants to workers.

It appears that norms rather than needs control the amount of time devoted to subsistence and, to a lesser degree, social activities. Cash-earning activities do not appear to come under the same social control and do not figure prominently in most households' time allocation strategy. This is not surprising when it is realized that locally generated income accounts for only 25 per cent of the mean household's income (see Chapter 8).

Time as a scarce resource and relationship between sectors of the economy

The preceding data suggest there is little tendency to economize time. With the exception of cash earning, time gets utilized in much the same way regardless of the structure of the household labour force. This is further emphasized 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 activities, 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 were retrieved and tested for the weekly pattern of time allocation between cash, social and subsistence activities. The sample of 7 weeks is inadequate for statistically sound conclusions, but the data such as they are suggest 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 recognized subsistence and social activities. It appears that extra time is accommodated out of unallocated time (principally non-organized 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-organized leisure. The decision will involve a weighing up of the need for money and the value of the leisure forgone. Data presented above suggest that this is an individual rather than socially regulated choice.

SUMMARY AND SOME THOUGHTS ON THE INTRODUCTION OF NEW CASH-ORIENTED ACTIVITIES

From a planner's point of view several important factors come out of the discussion so far. Members of the sample households aged between 19 and 59 spent between 6.5 and 8 hours a day in activities they regarded as distinct and worthy of recording. (Eating, washing and resting are not included.) Men were active for a slightly longer time each day but engaged in a smaller range of activities. At the household level subsistence and social activities accounted for 70 per cent of time allocated. Cash earning accounted for some 7 per cent of time. This is a baseline against which any planning proposals aimed at changing the emphasis of the economy must be measured.

Time allocated to social and subsistence activities appears to be governed by social norms rather than economic needs; for cash earning, needs seem more important than norms and at present households spending more time in cash earning meet the extra time commitments from unallocated time. Since the average individual already spends between 6.5 and 8 hours a day in cash earning and expected subsistence and social activities, this leaves little room for expanding time spent in cash earning without impinging on the value systems which regulate the time spent by individuals in subsistence and social activities. In terms of western economics this socially regulated system might contain surplus labour which could be freed and diverted into cash-earning activities, but it is hard to predict what the impact of such changes would be. They would probably imply social changes; possibly a reduction in the mobility of people between households, a reduction in the flow of surplus food (particularly fish) to households without active males and a reduction in the amount of cooperative and community work. All of these provide the basic social services and social insurance system of the Tamana community.

For several reasons new cash-earning activities might be more easily accommodated within the activity patterns of women, and with more predictable results. Women engage in a wider range of tasks which tend to be intermittent in nature, easily taken up and put down without interfering with the overall activity pattern for the day. In contrast, men's work strategies are arranged around fewer tasks followed for a greater length of time. I got the impression that a man's day consisted of a set number of tasks. If he had to attend a village meeting in the morning he

would not go fishing in the remaining daytime; he might attend to more open-ended tasks like *babai* cultivation or bush clearing. It is not clear to what extent this reflects social conditioning or environmental regulation (tide levels, wind or sun conditions), but when faced with the choice between several activities, the response is to opt for one or another rather than shorten the time given to one so that both can be accommodated within the day's work. With this in mind it is not easy to predict what the impact of a new time-consuming cash-earning activity might be. If it were sufficiently attractive, economically, to produce a switch away from fishing, it could have important dietary consequences.

These comments apply to individuals considered in isolation. When put in their social context where value systems and social pressures impinge more heavily on an individual, planners could well look to the possibility of using the many small corporate groups like *mronron* as vehicles for implementing new cash-earning activities. These are more flexible, and in some cases even more enduring, than households, and possess an anonymity behind which individuals can hide and escape criticisms which would automatically be aimed at an individual attempting to raise his cash income above the level of the general community.

Past experience has shown that in the long run it is the Tamana people working through their own value system and appraisal of the economic system who determine whether new opportunities will be capitalized on. The fostering of changes and the introduction of new activities will imply less time for subsistence, social or present cash earning activities. Acceptance or rejection involves a weighing up of the need for money on the one hand against the loss of satisfaction derived from the activities and the fulfilment of social obligations forgone.

Chapter 7

Subsistence in the economy

The aim of this section is to provide descriptive material filling out the bare bones of the data presented on time allocation. The preceding section established that subsistence activities accounted for nearly 50 per cent of a household's time allocation. Certain activities stand out clearly as being most time consuming. Men's activities are focused strongly on the sea and women's on the home and the land.

THE SEA AND ITS EXPLOITATION

Aspect gives rise to a basic environmental division between *tanrake* (facing east) and *tanimainiku* (facing west). The distinction reflects the shift between easterly and westerly seasons. Now that mission influence has concentrated settlement on the western (lee) coast most fishing activities emanate from here, although in westerly weather some fishermen launch canoes from the northern end of the island where the reef is broken up and deep water is closer to the beach.

Each aspect is further divided into 5 main zones reflecting the structure of the reef: *te riburibu*, the beach zone where sand is visible under the water; *te waiwai*, the reef flat and pools exposed at low tide; *te kawarawara*, literally 'full of holes', the fluted and grooved zone at the seaward edge of the reef flat; *te kamai*, 'verandah' or 'eyelid', where the bottom can be seen through the water, a gently sloping zone some 4-10 m below sea level; and finally *te karo*, 'the dark' or the deep sea. The *karo* is further subdivided into *aontari*, 'on the sea' which includes the surface 55 m, while below this is the *karaiti* (to rewind a fishing line) or *katakitoki* (to try to reach the bottom). Each zone presents different opportunities for fishing and the fishing technologies used with each differ. The range of fishing techniques used, the place it is used and the fish caught are summarized in Table 7.1. The decision to use one method rather than another is made with reference to the sort of fish known or expected to be prevalent under the prevailing conditions, the known feeding rhythm of that fish and the equipment available. The phases of

the moon, wind and current conditions seem to be important in determining the prevalence of fish.

Deep sea fishing

While the range and variety of fishing methods presented in Table 7.1 are impressive, in practice very few of these methods are frequently or regularly used. This is readily evident in Table 7.3. Deep sea fish like tuna bonito and shark are obviously the preferred fish and there is certain status in being seen in pursuit of them and having one's family eat them. The limiting factor then becomes the possession of a canoe or being fishing partner with someone owning a canoe. Fishing partnerships appear to be enduring relationships and reflect friendships or kin connections. The catch is usually shared equally with no special share going to the owner of the canoe, although either man might take the whole catch if he has particular commitments to meet. There are no sailing canoes on Tamana. The likelihood of being swept away from the very small island by winds or currents is very real and constantly in the minds of Tamana fishermen; with sailing canoes the problems would be magnified. All canoes are either single or 2-man outrigger canoes constructed of butt-jointed redwood planks caulked with coconut leaf and tied together with sennit. If one does not own a canoe or is considered too young and inexperienced to be entrusted with the family canoe, one is left to fish with a float and line or spear over the reef edge, or join the old men, women and children fishing on the reef flat.

Deep sea fishing for tuna and similar fish requires interrelating several different fishing activities. The cycle begins with *kababa* fishing in the evening when the flying fish school near the island. As the sun sets the canoes draw up in a line just outside the reef. One man stands looking for surfacing fish; the other sits ready to paddle. Once a school is sighted, the sighter plus the 2 nearest canoes are permitted to break the line and chase the fish with long-handled scoop nets. It is an offence against custom, and now local by-laws, for other boats to break the line. If a large number of fish are caught they may be eaten, but flying fish are prized bait for *kabara*, *beibeti* and *tauri* fishing. Without bait no deep sea fishing can be done. On calm moonless nights flying fish are also caught with scoop nets after being attracted towards the canoes by coconut leaf flares.[1] On some nights as many as 60 canoes would be out *tatae* fishing, visible only by their bright orange flares. Pressure lanterns have been shown on other islands to be more efficient than coconut

[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 never done on Tamana around full moon.

Table 7.1

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. Karaun i marawa where net set in kamai and beaters drive fish out of kawarawara.	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 kawarawara. Beaters drive fish off waiwai.	Kawarawara	Reiati, 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 waiwai.	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 (rabono).	Waiwai, Kawarawara	Aua, Kuaua, Inunikai, Rereba, Make, Mataboua, Bari, Rabono, Bawe, Ku, Ikanarina, Arinai, Barere, Reiati, Bureinawa, Mon.
	Kainkibukibu	Rod.		
	Kainkibukibu	Rod, line, hook and sinker.	Kamai	Reiati, 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.	Karo (Aontari)	Onauti, Ana, Te Ati, Ingimea, Bara, Nunua, Ikabauea, Tawatawa, Anaroro, Ikakoa, Barere (with iaia - a fine line)
	Katiki	Trolling with baited hook or feather lure behind canoe. By-laws forbid this form of fishing.		
	Roa	Rod and bait or feather lure.	Karo (Aontari)	Te Ati, Ingimea, Anaroro.
	Kabeibeti	Baited hook and line drifting on surface. Also called kabarabara i aontari, 'kabara on surface'.	Karo (Aontari)	Nunua, Ikabauea, Ingo, Atiati, Bakoa, Ingimea, Tauri, Kama, Rokea, Bara.
	Kaieko	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)	Onatitimea, 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, Baru, Rokea, Tababa, Anoi, Bauteira, Kauato.
	Baobao	Similar to tauri but with more hooks. Usually used during daytime.	Karo (Karaiti)	Ingo, Ikaraura, Kama, Kika.
Nooses	Matamea	Baited stick fitted with wire slip noose. Rabono 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.	Kawarawa	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 tebotebo	Diving for crayfish at night with underwater torches. Crayfish picked up with hands.	Kawarawara	Ura.
Fish poisons	Kereboki	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.
	Nautonga	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.	Kawarawara	Nimatamin.
		Small fish caught with hands in shallow water near beach. Often blown ashore during storms.	Riburibu	Baiku, Baibai, Tewe.

[a]As far as is possible, these fish are identified and scientific names given in Appendix 3.

leaf flares, but on Tamana a local by-law specifically forbids their use in fishing for flying fish, the reason being that the fish stocks are alleged to be in danger of depletion. The rigorous control of flying fish taking, both in reference to the regulations relating to the breaking of the line, and to the outlawing of the use of pressure lamps, underlines the importance of flying fish as a basic resource and indicates real fears about its husbanding. The fact that these regulations exist suggests that the resource is limited, which has very important implications for any government plans to set up a fishing industry on Tamana. Since it is a reef island no ready source of easily nettable lagoon bait fish exists. Some research on the possible depletion of flying fish stocks in the vicinity of Tamana is obviously necessary before any attempt is made to establish a large-scale fishing industry on the island, unless bait is brought in from elsewhere.

Coming back to the deep sea fishing cycle, once bait has been obtained fishing can begin in earnest. The canoes may put back to sea soon after *kababa* fishing has finished and stay out for a large part of the night. Night fishing has an almost desultory character. The fisherman makes for a favoured fishing spot, the lines are lowered and often tied to the toe and the long wait begins. A watchful eye is kept on the drift of the canoe and after a time a new fishing spot might be sought. In contrast, during daylight fishing much more attention is given to signs of fish. Watch is kept on the movements of sea-birds feeding on sprat and attempts are made to anticipate the direction of movement of the birds so that the birds, the sprat and the large fish also feeding on the sprat will pass close to the lines. Even so, daylight deep sea fishing means sitting for hours in the fierce sun with up to 200 m of line down tied to one's toe waiting for an *ingimea*, larger than an arm's length, to find the hook. Fishing magic was (and probably still is, though few people are willing to admit to it) used. Several examples were recorded.

Because of the chance factor involved, time spent in fishing bears no relation to the size of catch. Mobility is restricted by motive power and the venture is not so much a case of chasing schools of fish as trying to get into a position where a school of fish is likely to pass close by. This is done either by fishing over known feeding grounds with a little magic thrown in, or by watching for signs of fish schools. The decision to quit a fishing expedition does not seem to be related to the number of fish caught, but to an acceptable length of time spent in fishing. The surplus fish caught might be given to relatives or neighbours and in this way the fisherman becomes known as a skilled and generous fisherman, *te Akawa*. Surplus fish are rarely sold fresh; only 2 families sold during the survey weeks, and both families chose the anonymity of selling on a commission basis through the cooperative store.

Because fieldwork did not cover a full yearly cycle, it is not possible to describe with any certainty the seasonal patterns

of fishing. However, fieldwork did cover the changeover period between the two main seasons, *Aumaiaki* and *Aumeang*. Wind direction and storminess are the major considerations and these influence the number of days suitable for fishing, rather than encouraging the use of different techniques to meet the new conditions. During *Aumaiaki*, the winds blow constantly from the east and there are no problems launching canoes from the village coast. In *Aumeang*, the bad season, westerlies blow and in stormy periods large waves beat onto the village coast. During such times it is difficult to launch canoes from the village, and if a fisherman does go out it is on a full tide and he must stay out until the next high tide. Added to these problems, the canoes work more in the heavy chop, which loosens or weakens the sennit ties, allows the butt joints between the planks to open and the canoes to leak. During periods of heavy weather no fishing is done and the fishermen sit the bad weather out. After a few days a real protein hunger develops, particularly among smaller children, and this usually results in resorting to other fishing methods; fishing with a float over the reef or with a rod on the reef edge.

Reef fishing

For most of the time the reef flat is relatively deserted. It is largely the preserve of women without fishermen husbands, old men and children. The *kamai* below is fished by young men, not employed in deep sea fishing, with lines from floats, spears and hooked wires. However, the reef flat claims many more people's attention at *oratakakoro*, low-water spring tide when the reef flat is exposed for a longer time and large numbers of people fish and collect shellfish in the pools and crevices exposed on the reef, using rods, nooses, knives and fish poisons. Similarly, high-water spring tide seems to be a more favourable time to use throwing and gill nets on the reef flat.

Fishing quantified

Table 7.1 provides a summary of all fishing techniques known to my informants. Tables 7.2 and 7.3 show, among other things, the number and type of fishing expeditions mounted by 13 of the sample households during weeks 3-7 of the household survey. The data presented in Table 7.2 show that the number of fishing expeditions mounted by individual households over the survey period differed greatly; the most active household made nearly 10 trips per week; 1 household never fished.

Deep sea fishing figures pre-eminently, and accounts for 72 per cent of all expeditions. Households which fished infrequently tended to use onshore, rather than deep sea fishing methods. This only partially reflects canoe ownership or the lack of active males in the households. Generally, where households had canoes and 1 or 2 active males, deep sea fishing was followed exclusively with

Table 7.2

Fishing expeditions by sample households over 5 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

little attempt being made to exploit the resources of the inshore zones. This reflects the basic preference for deep sea fish and the status associated with deep sea fishing. Where households had more active males, the older, more experienced ones usually went deep sea fishing while the younger ones went fishing with floats, spears and nets. (This explains the lower percentage score for Kaiea's household for deep sea fishing.) That this might produce an unstorable surplus did not seem to be an important consideration; the surplus (and usually the preferred fish) was distributed to kin and neighbours which cemented at the same time one's kin and neighbourhood ties and one's reputation as a successful fisherman. Households fishing only the inshore zones tended to fish less frequently and those owning canoes were somewhat ridiculed for being lazy or lacking in skill. Both these households and those without canoes or active males were the main recipients of the surplus catch from other households.

On occasions, older active fishermen were forced to fish with floats or nets when their canoes were out of action. During the survey period 1 household's canoe was smashed on the reef and had to be rebuilt, only to be broken again by a shark. Another household's canoe was out of commission for a few days, being painted. Two households built new canoes during the survey period; 1 as a second single canoe, the other as a first canoe with timber brought back from Nauru.

A comparison of Table 7.1 and Table 7.3 shows that relatively few of the known fishing techniques were regularly used. The importance of deep sea fishing in the number of households going fishing, the average length of the expeditions and the number of fish caught are clearly demonstrated. The methods used in exploiting the inshore zones are more variable, done by fewer households less frequently and for shorter periods of time. Indeed, these activities often appear to be incidental. No household made more than 18 expeditions of this type during the 5 week survey period. In particular instances, when canoes cannot be used, or when time-consuming tasks like housebuilding are in progress, the inshore zone might become an important food source for the household.

Two fishing activities warrant special comment. It appears from the survey that shellfish are not an important source of food on the island. This contrasts with some of the other islands studied where shellfish provided a small but frequent part of the diet, and presumably reflects the limited environment and lack of large lagoon mudflats of the reef island. Fishing for crayfish at night with underwater torches *(toti n tebotebo)* has appeared only recently with the introduction of cheap underwater torches from Tarawa. The large number of crayfish caught each expedition and the high number of successful expeditions suggest that some control of this method is needed if over-fishing is to be avoided.

Table 7.3

Fishing expeditions and fish caught over 5 survey weeks by 13 of sample households

Fishing method	No. households using method	No. of expeditions	Total hours spent	Mean hours per expedition	Successful [a] expeditions	Percentage of expeditions successful	Fish caught	Mean fish per expedition	Mean fish per hour
Methods using canoes over *karo* and *kamai*									
Teao n akawa	8	89	459.75	5.17	62	69.66	633[b] 191[b]	7.11 2.14	1.38 0.42
Kababa	9	84	55.75	0.66	31	36.90	177	2.11	3.17
Tatae	8	22	65.00	2.95	16	72.73	258	11.73	3.97
Other methods used in *kamai, kawarawara* and *waiwai*									
Kainikare	7	28	65.75	2.35	18	64.29	332	11.86	5.05
Kainikatebe	3	12	26.50	2.21	10	83.33	95	7.92	3.58
Kainroaroa	4	10	13.75	1.38	6	60.00	53	5.30	3.85
Taumata	3	8	25.50	3.19	8	100.00	83	10.38	3.25
Toti n tebotebo	3	8	11.00	1.38	8	100.00	97	12.13	8.82
Kainikareke	4	5	13.00	2.60	4	80.00	11	2.20	0.84
Kibe riena	1	3	6.50	2.17	3	100.00	19	6.33	2.92
Koroba	1	1	1.50	1.50	0	0.00	0	0.00	0.00
Rikonimatamin	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 *kamai* 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 *kamai* fish.

Data problems hamper attempts to quantify the returns for various fishing methods. Short of tracking down and weighing every fish caught it is impossible to obtain the sort of quantification which would give some measure of the food or cash return for the time spent in fishing. Tables 7.3 and 7.4 provide what data are available and must be interpreted with care since they relate to fish numbers and not weights. The data suggest that fishing

Table 7.4

Species composition and meals provided by deep sea fishing methods for sample households over 5-week survey period

Breakdown of deep sea catch by species[a]	No. caught	Percentage of catch	No. meals	Percentage of meals
Onauti	435	40.73	34	22.22
Burewa	176	16.48	6	3.91
Bubu	126	11.80	3	1.96
Mon	120	11.24	7	4.58
Ikaraura	47	4.40	21	13.73
Ingimea	32	3.00	52	33.99
Barebu	22	2.06	12	7.84
Tauri	22	2.06	3	1.96
Nunua	16	1.50	2	1.31
Koinawa	10	0.94	-	-
Kama	7	0.66	5	3.28
Ikakoa	2	0.19	1	0.65
Te Ati	1	0.09	3	1.96
Baru	1	0.09	1	0.65
Ingo	1	0.09	-	-
Ikabauea	1	0.09	2	1.31
Tanin	1	0.09	1	0.65
Unclassified	48	4.49		
Total	1,068	100.00	153	100.00
Total fish catch				
Fish caught by deep sea methods	1,068	60.75	153	73.91
Fish caught by inshore methods	690	39.25	54	26.09
Total	1,758	100.00	207	100.00

[a]For scientific names of fish see Appendix 3.

expeditions were generally about 60 per cent successful (defined here as catching any fish at all); 3 out of every 5 expeditions returned with fish. *Kababa* fishing with only 37 per cent of the trips successful was obviously the least successful method used, despite its being the second most commonly used method. This underlines its importance as a bait, as well as food, source. Generally inshore methods tended to have higher success rates and returned more fish per expedition and per hour but the fish were smaller and less valued. Preference then probably explains the emphasis given to deep sea fishing, even though returns from it are less predictable. Given the limited extent of the inshore

reef zones on Tamana and the isolation of its reef fish population, it is possible that reef fish resources could be rapidly depleted if fished more intensively.

Table 7.4 gives a better indication of the importance of various fish and fishing methods in the diet by comparing the number of fish caught and the number of fish meals eaten. A total of 1,758 fish were caught during the survey period and during the same period the households ate 207 fish meals (giving an average of 3 fish meals per household per week). Considering numbers of fish only, the inshore areas provided nearly 40 per cent of the catch. This breakdown overestimates the importance of inshore fishing since the fish caught account for only 54 (26.09 per cent) of the 207 fish meals eaten. Thus deep sea fishing is clearly the most important protein source for a majority of households. The breakdown of the catch for deep sea fishing demonstrates the difference between the number and size of the catch. *Ingimea* (tuna) and *onauti* (flying fish) stand out clearly as being the most important fish in the diet. Reef fish *(burewa* and *bubu)*, which were caught in large numbers when no larger fish could be caught, account for relatively large proportions of the fish caught but only small proportions of the meals eaten. Of the larger fish caught *ingimea* is clearly the most important, accounting for 3 per cent of the catch and 34 per cent of the meals; most of the fish caught were in the 20-40 inch size range. Few other big fish were caught in large numbers. Only 1 *te ati* (bonito) was caught during the period. This could indicate the effectiveness of the ban on trolling or alternatively the scarcity of the fish in the area. On only one occasion was the fish's presence in waters around the island specifically commented on and consternation was expressed because the school arrived on a Sunday when the church forbids fishing.

Fishing is clearly very important in the lives of Tamana people. The inshore zone provides a relatively sure source of protein in small quantities. At present this area is not heavily exploited and in the long term its potential for heavier exploitation is probably limited. More attention is given to the offshore zone. Here the risks are higher, but so are the stakes. The chances of catching 1 large *ingimea* providing several meals and a surplus is infinitely more attractive than many small bony fish. These preferences are built into the value system. It is right for a man to be seen in pursuit of large fish. Floats, spears and nets are the playthings of boys and those not owning canoes, and used widely only when conditions limit the use of canoes.

Conservation of marine resources

The importance of fishing in the livelihood of Tamana people is reflected in their continued and largely successful efforts to regulate fishing activities on the island. These are not new or

recent efforts but stem, according to my informants, from pre-missionary times. Since 1954 the regulations have become incorporated into local government and were, in part, codified in the Tamana Island Council (Fishing) Bye-Laws 1970 at the insistence of the Island Council and despite the District Commissioner's obvious misgivings (GEIC 113/2/16). The present by-laws do not cover all the regulations enforced and situations dealt with by the Council. The main concern of the Council is to prohibit certain fishing activities considered to be detrimental. Behind the by-law prohibiting the use of lamps other than coconut flares is the belief that pressure lamps are too efficient and fish stocks would soon be exhausted. The regulation spelling out the number of canoes from a line permitted to go after a school of flying fish is obviously in the interests of orderly fishing. The restrictions on *katiki* fishing (trolling) and punishment for allowing *te ati* (bonito) to escape are less clear and the explanations appear somewhat fanciful. It is argued that wire fish hooks can, if the fish is not caught securely, break the fish's jaw and allow it to escape. The injured fish is then alleged to return to the school where it tells the other fish to go away. While this explanation probably has little to do with reality, the regulation's existence and the rigour with which it is enforced suggests a basic concern for the husbanding of resources and some deeper importance. The traditional wooden fish gorges, used before the introduction of wire hooks, were alleged to either catch the fish securely or allow it to escape unharmed. Punishment for breaking these regulations is stipulated as being $20 fine and up to 6 weeks' imprisonment. Under the old regulations, the offender was barred from fishing for a set number of days. Since the new by-laws have been in operation, no fines have been levied but individuals have been barred from fishing. The choice of punishment again indicates the importance of fishing to the people.

Prospects for a fishing industry

Several aspects of fishing on Tamana discussed here have important implications for the development of any large-scale fishing industry on the island. Firstly, any such activities must come into direct conflict with the fishing regulations enforced at present and with the concern they show for the conservation and management of the island's fish resources. Fishing is far too important in the everyday life of Tamana people for the rightness of these regulations to be questioned. Even the visiting colony ships are directed not to troll within 3 miles of Tamana.

Secondly, in the absence of lagoon areas, bait resources for such an industry are limited. There is no lagoon in which fish can be netted; the reef areas are relatively small, removed from possible sources of recolonization and probably very prone to overfishing. They are productive at present because they are only lightly fished. Thus flying fish would be the main bait source

for such an industry. The data gathered on *kababa* fishing suggest that the presence of flying fish is irregular and unpredictable.

Thirdly, under the present system the surplus produced has no cash value and there appears to be little incentive to preserve it. It is very important because it is redistributed among kin and neighbours who do not or cannot catch fish of their own. This ensures that most families get some protein in their diets. If a cash-earning outlet was provided for surplus fish this redistribution might not take place, thus reducing the protein content of many households' diets.

EXPLOITATION OF LAND RESOURCES

Land means different things to different societies, even within the Gilbert Islands. In Butaritari dependence on fish and coconut is equated with poverty, laziness and inadequate land resources (B.R.: ch.4, Fishing in the economy); on Tamana this is the norm and no shame is attached to it. The epitome of life on Tamana is *tore*, to eat fish and drink toddy. Land is more important as a symbol of belonging and security for the future than as a resource to be manipulated to get a particular level of return in the short term. Even so, land is an important source of food and raw materials.

Land is held in small, often widely dispersed plots. Of the 147 plots vested in or looked after by the sample households, 104 (71 per cent) measured less than half a hectare in area (see Table 7.5). The smallest bush land measured was 0.0318 ha (63 sq. yd); the largest was 2.492 ha (just over 1 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 7 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 regularized 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 recognized 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 doesn't 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 7.5

Size frequencies of land plots held by sample households

Area in hectares	No. plots	Percentage 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

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 Lands 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 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 2 coconuts were planted in the 1 hole dug on the boundary.

Nor does title give the owner the right to deny others movement across his land. He 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 2 areas sanctioned by custom, other people's activities can impinge on a title holder'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 his 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 1 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 his nuts are being stolen or finds a tree being used for toddy without permission he indicates his displeasure 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 5 weeks of the household survey tallies were kept of the lands visited and the purpose for which they were visited. Table 7.6 shows that very few of the households visited all the lands or *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.

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 5 or 10 minute intervals and gave estimates of travel time up to 60 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 7.6

Landholdings and *babai* pits visited by sample households during 5-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

Table 7.7 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 dominates; trips to collect pandanus, *bero* and *babai* are relatively unimportant.

Working the land

In looking at the way in which Tamana lands are husbanded, several factors must be kept in mind. Coconuts 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 can be put. For many it may be only the rare use of leaves or flowers for medicinal purposes, but among the larger shrubs and trees quite a range of timber characteristics are recognized and valued for particular uses. Thus even the scrub is a resource. This was clearly illustrated when the Barebuka village work force was mobilized to clear land for the first

Table 7.7

Trips to lands by sample households over 5 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
Kaiaba[b]	1	-	-	-	-	-	1	-	2

[a]Collecting of dead pandanus leaves excluded since this was regular and organized by women's work groups not as a response to household needs.

[b]Underestimate since this household was combined with Maera's for 3 of the 5 weeks and used Maera's lands.

Coconut Replanting Scheme on the island. The Agricultural Officer despaired at the slowness of progress. Work was not slowed by a lack of enthusiasm on the workers' parts, but because all useful stems of *te uri (Guettarda speciosa)* and similar shrubs were being salvaged and set aside as clearing progressed.

Secondly, there has been a long history of planting on the island, both of coconuts and fruiting pandanus. A major burst of planting appears to have followed a severe drought in the mid 1930s when many coconut and pandanus trees on the higher, drier lands died. Sporadic planting by individuals wishing to increase palm holdings has continued since then. In recent years much more attention has been given to coconuts than pandanus and as a result there has probably been a steady rise in the areas under coconuts at the expense of pandanus and scrub. This trend has been encouraged by government policy; most recently by the Coconut Improvement and Coconut Replanting Schemes. Despite this history of planting and encouragement, total palm densities (bearing and yet to bear palms) on a majority of lands are still well below the target densities of 215 bearing palms per ha aimed at by the Agriculture Department (see Tables 5.2 and 7.8). While most individuals have willingly attempted to increase their palm holdings, older men have expressed concern at the trend. They point out that all the time the government is telling them to cut down the scrub and plant more coconuts, even though copra prices are seen as being mainly low and static or falling, while the prices of goods which can be bought with the money earned (especially rice and sugar) are always rising. Two of the household heads of the sample households expressed their intention of planting more pandanus for food on their bushlands in the future, but so far this has not been carried out.

This raises the whole question of what resources are and what factors determine the usefulness or otherwise of particular plants. The Agriculture Department's approach is obviously slanted towards coconut production for cash and food and considers relatively few other plants to be of economic importance. This reflects their interests in ensuring adequate food nuts in the future and in raising the export income of the island group as a whole. The Tamana viewpoint is somewhat different. Land means more than coconuts, or even coconuts, fruiting pandanus and *te bero*. One needs stands of non-fruiting pandanus for house timbers and leaves for handicrafts; one needs *te uri* and similar hard wooded shrubs for house, implement and canoe construction. These are resources in Tamana people's eyes; they are loath to cut them down and risk the shame of having to *bubuti* from others in the future; land must continue to supply these needs for this generation and for generations in the future.

Table 7.8

Palm densities on bushland used by sample households

Palm densities per ha	No. of lands	Percentage	Area of lands in ha	Percentage of area	No. of lands belonging to absentee owners	Percentage of lands belonging to absentee owners
0-50	6	4.55	3.12	5.27	4	66.67
51-100	22	16.67	11.13	18.79	5	22.73
101-150	47	35.60	25.93	43.78	9	19.15
151-200	31	23.48	11.80	19.93	3	9.68
201-250	16	12.12	4.53	7.65	1	6.25
251-300	9	6.82	2.62	4.42	-	-
301-350	1	0.76	0.10	0.16	-	-
Total	132	100.00	59.23	100.00	22	16.67

Clearing and planting

The attention given to clearing and planting lands on Tamana is very variable. Some individuals are recognized as being industrious and are respected; others are lazy and ridiculed. Generally households with smaller per capita land resources tend lands more carefully and plant to higher densities (see Figure 5.1), although this is not uniformly so. Most lands are kept relatively free of scrub by periodic cutting. Neglected lands tend to be on the higher edges of the island, particularly in the south-east and north which are the more exposed coastal areas. Here palm densities are often lower unless planting has taken place and the higher light conditions favour the growth of scrub, especially saltbush *(Scaevola sericea)*. Where palms are more dense the low light conditions suppress scrub growth. Charred stumps and trunks indicate that lands were burned in the past but fire is not used now as a land clearing method. Felled scrub is left to lie or is windrowed with other rubbish often along the boundary of the land. Several landholders appreciate the importance of windrowing and composting of rubbish but most see it simply as another government regulation. Little or no attempt is made to remove and replace senile and non-bearing palms.

Planting of coconuts and fruiting pandanus has long been part of general agricultural practice on Tamana. Indeed it was probably necessary every 20 or so years to replace palms killed by drought. Evidence of the importance of planting can be seen in the lack of relationship between perceived differences in land types and palm densities and in the frequent straight sudden boundaries between palms and scrub or palms and bare ground on the higher land around the periphery of the island. In the past planting was simply done by digging a hole about 50 cm diameter and depth and planting a sprouted nut in the hole. Planting seems to have been concentrated on treeless lands or gaps within treed lands. Under-planting does not appear to have been common practice. Treed lands regenerate through volunteer seedlings. Underplanting will soon be necessary on the lands planted after the mid 1930s drought.

Given this history of planting, very few lands approach or exceed the densities of 215 bearing palms per ha aimed at in the Coconut Improvement and Replanting Schemes (see Table 7.8). Even taking total palm densities (bearing and yet to bear palms), only 20 per cent of the lands or 12 per cent of the area had palm densities over 200 palms per ha. Very low palm densities are common on lands belonging to absentee owners and on lands where inheritance is not settled; caretakers or potential owners would be censured if they planted these lands.

Recent efforts to stress the importance of planting techniques have produced some rather unexpected results. The demonstration effects of the Agriculture Department's 1966 Coconut

Campaign have been worthwhile. Most landholders are impressed with how well the plants have grown and some have sought to emulate the method. However, much of the new planting has been done in sandy areas where the task of digging down to the water table is less onerous. In some areas this even resulted in under-planting. Little attempt has been made so far to plant the more difficult gravel areas using the approved method.

Fruiting pandanus are planted occasionally nowadays, usually from suckers or short side shoots. Many different varieties, often said to come from other islands, are recognized and supposed to have distinctive characteristics. These characteristics do not come true from seed. Indeed, seedling pandanus *Riki ni beti* are alleged not to bear fruit on Tamana, so it is argued that all fruiting trees must have been planted. Remnants of rows of pandanus trees in the bush suggest that planting was more extensive in the past. Again, much of this planting was said to follow the drought in the 1930s.

Breadfruit is the other important tree crop which is actively planted. The trees are grown only in the village precincts where they are regularly mulched with yard sweepings, old thatch batons and the like. Breadfruit appears to be a particularly marginal crop in the dry climate of the southern Gilberts and even after relatively short dry spells moisture stress is evident. Three varieties are present. *Mai Tarika* and *Mai Keang* are grown from seed. *Mai Uea* is seedless and is propagated from root cuttings. Young plants are planted in holes filled with compost and sheltered by frames covered with matting screens. Despite this care, the success rate is low and most attempts fail. Since many of the *Mai Uea* trees in the village are old and weakened, the Agricultural Department could look at the possibility of making well-rooted, established plants available in the hope that these might have a higher success rate. Other trees planted in the village area include pawpaws, *te non (Morinda citrifolia)*, frangipani and other flowering plants, mainly for the beautification of the house site and as source of flowers for garlands.

Coconuts in subsistence

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. The main varieties distinguished on Tamana are *te bunia* and *te ni*; *te bunia* being the variety with an edible mesocarp. Nuts are most important for food and 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. Custom frowns on people using *moimoto* for general consumption. Such people 'live like rats because they are too lazy to cut toddy'. As the flesh hardens

and the husk begins to turn yellow the nut is *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. In the past *ben* nuts were stored in special storehouses *(okai)* as food reserves for drought periods. The last of these *okai* was allegedly broken open in 1961 and had enough nuts for 30 bags of copra. 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.

The uses of other parts of the coconut 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, cook-houses 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 1 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.

Table 7.9 attempts to quantify the subsistence use of nuts by sample households. The estimates are based on the mean of nuts used in the 7 survey weeks scaled up to figures for consumption

Table 7.9

Estimated yearly production and subsistence utilization of coconuts by sample households on Tamana 1972-73

Household	Mean CU per household over study period	Estimated annual nut use: Consumed food	Per CU consumption	Fed to livestock	Given prestation	Total	Estimated annual nut production: 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

Household	Projected production and population: 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 5.2) 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 MP1442/1914.

[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 5.2).

over 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 CU per day) to 558 nuts (1.5 nuts per day) and a mean for all households of 287 nuts per CU per year (0.77 per day). This is considerably below the official estimate of more than 4 nuts per day (Catala, 1957:43) and is in keeping with figures of 0.9 nuts per capita per day on Nanumea and 0.8 on Butaritari. The differences between households are hard to explain. The use of consumption units rather than straight per capita figures should go some way to excluding the influence of differences in age structure. Local-dominated households use more nuts in subsistence than other-dominated households (see Table 8.4), but there appears to be no relationship between consumption and land or palm resources, or consumption and income. There is a suggestion that households actively engaged in fishing eat fewer coconuts per consumption unit, but there are obvious exceptions to this.

A comparison of estimates of nut production and subsistence nut use shows that most households have sufficient nuts for current subsistence needs (copra making will be discussed in Chapter 8) and could, at present levels of nut use and present palm holdings, support at least three times the number of people. If the householders' lands were planted up to the Agriculture Department's recommended densities of 215 bearing palms per ha, the figure would be very much larger (see Table 7.9). Too great a significance should not be placed on these projections since they look at one side of the picture only. Coconuts do not supply all the household's subsistence needs; they are supplemented with store foods purchased with copra and handicraft earnings and with remittance money. The purchase of these goods could be expected to reduce the need for coconuts in subsistence. Chapter 8 shows that a large proportion of store expenditure is on food goods and that the income from local goods sales is always substantially less than total store expenditure. Thus copra making, other local cash earning and remittances supplement the basic subsistence of households. When nut use at 1973 levels of copra production is considered (see Table 8.4), only 8 of the 15 households would still have surplus nuts at bearing rates of 23.1 nuts per tree per year. If remittance incomes were to fall and encourage either a switch from store foods to coconuts for subsistence, or an intensitification of copra production, coconut resources could in some cases be inadequate. Flour and rice appear in fewer than 15 per cent of household meals and appear as a supplement to, rather than a substitute for, traditional foods (see Table 9.2).

The data on Nei Meri's household warrant special comment. Hers is the only household surveyed which used more nuts than the estimated production from lands to which it claimed usage. The strategy used by Nei Meri was to use other lands as they became available. She used her sister's husband's lands while he was in hospital and *bubutie*d from neighbouring households when larger

numbers of nuts were needed for feasts to which they were invited. She also supplemented her nut supply by making and selling candies for nuts. The fact that Nei Meri can operate successfully in this framework, despite limited resources, illuminates one of the basic tenets of the Tamana value system: that no one born on Tamana and living there should be denied a reasonable living there.

Coming back to the projections of nut production, two other problems confront projections of this type. The first relates to variations in production with drought. Table 7.9 shows that even if production dropped to 13 nuts per tree per year, most households would still have sufficient nuts to meet current needs, although ability to support additional people would be curtailed. In serious droughts it is probable that even current levels of consumption could not be maintained. The second problem relates to the maintenance of productivity. It is assumed that it is possible with present low palm densities to maintain, in the long term, the levels of output recorded here. This would require under-planting or the continuing natural replacement of ageing palms. This differs from the situation fostered by the Agriculture Department's Coconut Replanting Scheme which envisages more dense stands of uniform age palms. In the short term this may give more favourable growth rates of palms and possibly higher production per unit area, but it appears to give little thought to production in the long term and the realities of the landholding patterns on Tamana. If all lands were planted up at densities of 215 palms per hectare in the foreseeable future, in 10-15 years there would be a dramatic increase in production lasting for the bearing life of the palms. Then, presumably, palms would approach senility at about the same time and replanting would again be necessary. The replanted lands would be unproductive for up to 10 years. Most Tamana landholders' resources are too small for this type of strategy. Table 5.2 suggests that many individuals have insufficient land and palm resources for any land to be unproductive for such a time span. The problem will be compounded in the long term as lands are divided and distributed among offspring. Given the reality of small, dispersed landholdings and a culturally entrenched inheritance system, a reappraisal of planting strategies is called for. It seems unwise to try to introduce a system aimed at getting the maximum return from a piece of land in the short term. I would like to see research into optimum palm densities of bearing and immature palms, which would ensure a satisfactory level of continuous production. This would obviously not be as high as from well-spaced, uniform age stands, but it would ensure continuous production and also ensure that each land remains a viable productive unit when passed on to another generation.

Toddy production

Toddy or *te karewe* provides the other part of *tore*, the habitual 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. Traditionally new trees were sought on *kareao te bong ina i mwin te itibong*, the eighth day after the first and third quarters of the moon, when the sap supposedly begins to flow more freely; when the water begins to flow towards the island as the tides build up from neap to spring tides (and also incidentally, when women become more fluid, soft and amenable to requests or suggestions). 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 is removed to expose the ends of flower branches. Other spathes and fruiting branches are sometimes removed. Up to 3 spathes on the 1 tree might be tapped for toddy, but this is unusual. After 2 or 3 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. 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. 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 individual trees but also very much on the skill of the operator. A skilled toddy cutter cuts only a very thin slice across the inflorescence each time he cuts toddy thus reducing the rate at which the spathe is shortened. Most spathes seem to last about 2 months, although some were said to last for 3 months or more, by the end of which time a new inflorescence may have appeared or a new toddy tree is 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 ago 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 had rather masculine characteristics 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 work force 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 fewer than 4 spathes; most cut between 8 and 10 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 the number of people in the household increased. 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*, the daily gift of toddy presented to his wife's kin for 3 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 can be brought to the boil each day to prevent fermentation (after such treatment it becomes *katete*) and when sufficient is accumulated it is boiled slowly over a long period to form *kamaimai*. Most households regard the handling of small quantities of toddy in this way as unnecessarily time consuming. To their minds it is more worthwhile to handle larger quantities at irregular intervals. This does not result in a strategy to produce large surpluses at any one point in time, but rather several households aggregate into an *aiai* group. Each member of an *aiai* group cuts 1 or 2 shells extra each day and pledges these 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 1 share in the 1 group. Eight of the sample households belonged to *aiai* groups. Those not belonging either had a large toddy-cutting work force and continually produced a worthwhile surplus or were large households with relatively few toddy cutters and where all production was consumed 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 household got drunk during the survey period. Two were severely thrashed by their fathers. Only 1 adult was known to be an habitual *kamanging* drinker and was gaoled twice during fieldwork. All of his toddy production went into making *kamanging*.

Pandanus in subsistence

Pandanus is important in two main areas; the fruit is important as a source of food, the leaves and stems as a source of raw materials for handicrafts and building. The two different sets of uses are closely associated with aspects of the botany of the pandanus. Pandanus are dioecious (i.e. male and female flowers on separate plants) and apparently wind pollinated. This means that only female plants bear fruit and the offspring do not breed true to the parent. Many different varieties of fruiting pandanus are recognized and valued for different food preparations made from pandanus fruit. Such varieties can only be maintained by vegetative propagation and hence all fruiting trees were probably intentionally planted. Several informants pointed to characteristics of fruiting pandanus trees which limit their usefulness as timber sources. Firstly, being planted, they are usually grown in the open and away from other trees. Secondly, my informants maintained that the pandanus branches after fruiting. The combined effect of these two factors is to produce a low-growing, many branched tree unsuitable for timber. The *riki ni beti* pandanus which grows from seed usually grow in dense stands and rarely bear fruit. (Some informants claim they never bear fruit.) Correspondingly the *riki ni beti* pandanus on favourable sites produce tall straight trunks very suitable for house-building. The leaves of *riki ni beti* pandanus are also supposed to be better for handicrafts, giving whiter, more flexible mats. Clearly both fruiting and *riki ni beti* pandanus are necessary to maintain present subsistence activities.

As a source of food pandanus is not a regular part of the diet but is important because of its nutrient value, having a high vitamin C content (Catala, 1957:58), and also because it is capable of being processed in various ways and stored. The fruit is eaten raw, mainly by children and people working in the bush, or finely sliced across the fibres and mixed with *ranniben (kiriwaka)*. Two commonly used storage techniques involve the production of *te tuae* and *te kabubu*. Both commence with the roasting of the juicy section of the drupe in an earth oven. For *te tuae*, the fruit is scraped, producing a somewhat fibrous pulp, which is then thinly spread on *te uri* leaves and dried in the sun. The dried sheets are then stored until needed. When required for consumption the *te tuae* is soaked in *ranniben* after which it is known as *te beo*. For *kabubu* the roasted drupes are pounded and the fibry pulp sun dried in much thicker cakes which are then further dried on hot stones or metal sheets and then punded to a coarse flour.

On Tamana it is mainly mixed with toddy and drunk.

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 makes the mind boggle. 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 for most of the year, the total figure must be enormous. After collection the leaves are soaked in a pit for 1 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 3 *airiri* groups (a *bobanikaina* group for the collecting of the leaves, *te tororau* for the cleaning and rolling of the leaves and *wairau* 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 every 7 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 recognized as producing better cigarette paper 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 often 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 being 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 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 recognized 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.

Babai in subsistence

The real importance of *babai* is difficult to establish. 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.' Despite the stated preference for *babai* it was not eaten particularly frequently by the sample households (see Chapter 9). It has a much more important 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 is expressed 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[2] basin from the east'. A lesser feast might call for a *bora ni banaba maeo* or *inaomata*, a 'basin from the west' or a 'free basin'. The symbolism of east and west is clear cut on Tamana. The east is traditional and the west is associated with contact, the new order and the store. A '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. An interesting sidelight in comparison with Butaritari and Tabiteuea customs is that on Tamana *babai* levies are expressed in terms of bowls of grated *babai* or prepared puddings, not in roots of the specially cultivated *ikaraoi babai* which suggests that *babai* might not have quite the same symbolic importance on Tamana as on other islands.

Babai cultivation has already been described in some depth for Butaritari and Tabiteuea (B.R.: ch.4, *Babai*; TN.R.: ch.4, *Babai*). Cultivation methods on Tamana are broadly similar. The pits on Tamana are probably smaller and deeper because of the greater height of reef islands above sea level and this creates problems of excavation and maintenance not experienced in the lower atolls. As far as comparison is possible Tamana people do not seem to spend a markedly different proportion of their time on *babai* cultivation and the mean household's holdings of all plants *(ikaraoi* and *katutu)* is higher than a similar figure for *ikaraoi* plants only on Butaritari. Even so, *babai* does not seem

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[2]Basin 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.

to have the same place in day to day life. It seems more important as a resource, the maintenance of which ensures one's social commitments can be met. In this, needs are fairly predictable in the long term and require a small continuing effort rather than a strategy involving sporadic intensive activity.

Breadfruit, *te 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. Since the fruit is eaten in an immature state picking goes on over a long period and the rate of picking could 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 1 tree. The fruit is picked with a knife fixed to a long pole. The fruit is usually dry roasted over coals, baked in an oven or boiled and eaten straight. Cooked fruit is sometimes covered with *ranniben* or pounded and mixed with *ranniben* to form the soupy *tubu ni mai*.

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 organized. 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 are inadequate to test this. *Te bero* fruits can be dried and stored. The fresh fruit is usually minced 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 (incidentally designated female by the Gilbertese) 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 hungrier, members of the Government Station.

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.

SUMMARY

The descriptive material presented here shows that a wide range of resources are utilized on Tamana but obviously their relative importance differs considerably. Fish, toddy and coconuts are pre-eminent in food; coconut and pandanus in raw materials for housing and domestic needs. Access to resources in terms of land, the capital equipment and manpower to exploit them varies considerably between households. Only 1 household could be considered to be living beyond its subsistence means and the fact that it could do this points to the flexibility of the system. An individual can operate various strategies to get more land for the household's needs. Redistribution of surpluses and responsibilities towards kin give validity to the Tamana belief that no person born of Tamana kin should be denied a living there. While this may be true of the current situation it does not automatically indicate similar security in the future. Observations made now bear little relevance to conditions during droughts of the magnitude suffered in the 1870s and in the early 1900s. Any changes in the economic value of coconuts or fish could radically change the meaning of these resources in the Tamana economy and radically alter the existing patterns of reallocation and lead to greater disparities between the poor and the rich on Tamana. Similarly population growth and the return of people from Ocean Island and Nauru can only reduce the flexibility of the present subsistence economy. The aspirations of people in the cash sector also impinge on the problem and result in a diversion of resources away from the subsistence sector with somewhat questionable results.

Chapter 8

The cash sector

The aim of this chapter is to explore and attempt to quantify the cash sector in the Tamana economy, The first aspect considered is the attitudes of Tamana people towards cash and cash earning and the role cash plays in society. This is of critical importance to the understanding of individual household's behaviour; to their summing up of the present economic conditions and their likely response to changes induced or stimulated from outside. An analysis of current household income and expenditure enables some assessment to be made of the two major contributors to the cash sector: income derived from sales of local goods and the remittances from Nauru, Ocean Island and Tarawa. This provides a baseline to measure the potential for increasing the former, given the household resources of land and labour discussed previously, and secondly, the likely implications of a fall in remittance incomes. Expenditure analysis comes back to the problem of the utility of money.

ATTITUDES TOWARDS CASH AND CASH EARNING

Money and monetary transactions have long been part of Tamana life. Contemporary reports from LMS missionaries show that considerable amounts of cash must have been coming into the island with labourers returning from Fiji even in the 1870s. Evidently the money had little utility and much of it appears to have ended up in church collections. The potential for cash earning and the utility of money expanded greatly with the development of the copra trade. The first agent buying coconut oil was placed on Tamana in 1855 (Maude, 1968:265). Since then the use and usefulness of money have expanded steadily. At present money is the main means of exchange for getting store goods, paying taxes, receiving payment for sales of copra and handicrafts, and receiving remittance gifts from relatives in employment overseas. Cash is not yet a medium for exchange at the inter-household level. Indeed, such transactions would be considered an offence against Tamana morality. Surpluses are given as gifts which, it is generally expected, will be reciprocated at some future date when the recipient has a surplus. Only 3 individuals on Tamana were known

at the time of fieldwork to be trading in goods for cash or coconuts. The potential for this trade is widely recognized, but the fear of moral censure is evidently strong enough to prevent individual attempts to capitalize on it. The same restrictions do not prevent corporate groups like *mronron* trading with individuals, and a *mronron* leader stated that one of the main aims of the *mronron* was to 'make the money go around', to sell goods and services to the people in the community with cash from wage work on the island or overseas or remittances.

Some people on Tamana distinguished two types of money, *karinimane* and *kabirongorongo*. Many more recognized the terms but did not attribute much importance to the distinction drawn. Its importance probably reflects the money-earning experience and potential of the individual. The distinction stems from the manner and quantities in which money can be raised and the uses to which it can be put. *Kabirongorongo* 'money that you spend' denotes small quantities of money which can be raised at any time from the sale of copra or handicrafts. This is money to be spent on everyday needs. *Karinimane* is 'money that you keep' and relates to larger sums of money which are banked or held in safe keeping for such purposes as paying taxes and school fees or large expenses like large food purchases to feed workers building a canoe or house. The fact that many do not see the distinction as important suggests that these households operate entirely within a *kabirongorongo* context and have no *karinimane* or prospects of obtaining it. Remittances do not necessarily constitute *karinimane* because they get fed into everyday expenditure and may not be banked and used over many years. *Karinimane* seems to be closely associated with work off the island where the returning worker brings back a nestegg which is banked and seen as a means of ensuring that school fees and taxes can be paid in the future if no *kabirongorongo* is available. Informants were unanimous in the opinion that *karinimane* is not be be had on Tamana; one must work off the island to obtain it. This point is particularly important in the question of attempts to raise earnings from local activities on Tamana. In a sense it becomes a self-fulfilling prophecy; if the money can't be raised there is no point in attempting it; if the money is raised it is the sort of money that is used in everyday expenditure. Several of the *mronron* have moved into the field of encouraging members to accumulate *karinimane* by paying *mronron* divisions into members' bank accounts which are then publicly checked each week.

Karinimane is more a form of capital than cash, but it is clearly not productive capital. It is simply money in the bank to be kept for future needs. It is really dead money. The most striking illustration of this relates to the activities of one of the individuals engaged in inter-household trade. He had worked for many years in a skilled job at Nauru and was rumoured to have over $900 in his bank account. On returning to Tamana he decided that his infant daughter should have milk to drink and to get this he set up a store selling imported 'Irish Cake' tobacco.

Stocks were financed from sales on Nauru of mats made first by his wife and later bought from neighbours. Milk was bought with the proceeds and none of the money in his bank account was invested in the business; that was reserved for his daughter's school fees and future tax payments.

Another form of exchange became important during 1973. This was *tarau*, 'to be in debt' and it only became important after the rise in copra prices had a stimulating effect on *mronron* activities. It enabled people to buy goods from the *mronron* on credit (no credit is available through the cooperative store). The indebtedness of the household is assessed each week and the debt paid in money or coconuts. This appears to have increased the level of purchasing considerably.

The attitudes towards money discussed here are particularly relevant to thinking on development. There is obviously some scope for redistribution of money through the Tamana economy by intra-village trade, and while this is recognized by individuals, it is not capitalized on, presumably because it conflicts with the value system. Groups, rather than individuals, are outside this morality and operate successfully. However, the level of activity in this and other sectors of the cash economy will be limited by the people's views of the utility of money. Money is seen as useful in two areas: in satisfying 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. People are convinced that they cannot get enough income on Tamana for major items of expenditure like houses and bicycles, so little incentive comes from this source either. Capital is not seen as a means of expanding production and raising consumption to new levels. This is in part a reflection of people's attitudes towards money and the uses to which it is put, but also of the value system which stresses equality and redistribution.

INCOME

Data sources and problems

The data presented in this chapter differ somewhat from those presented in the other reports because of the longer time span over which fieldwork was carried out and certain distinctive features of marketing on Tamana. Tamana is a small isolated economy and a large proportion of monetary transactions are channelled through the island's one selling point, the Tamana Cooperative Society's store. This provides a chance for checking data not possible where contacts with Tarawa are easier and where goods can be sold through different outlets.

The main sources of data on cash income and expenditure are summarized below.

(1) The survey of income and expenditure of the selected households over the 7 survey weeks.

The value of these data depends firstly on the willingness of the respondents to divulge accurate information and the degree to which the surveyed weeks are representative of the household's activities through the year. The data has the added problem that it is mean, based on observations spread over the period from February 1972 to December 1973. Important changes in cash-earning and expenditure patterns occurred during this time. The mean figures tend to mask this while the raw data covering the changes are inadequate for making meaningful generalizations.

(2) A composite picture of monthly income over the period from February 1970 to January 1974 was built up from the Tamana Cooperative Society's books, the Telegraphic Money Order (Telmo) Journals from the radio station, and the cash books of Nei Teroa, Nei Toromi, Nei Bakati and Nei Autu *mronron*. In detail this material included:

(a) Tamana Cooperative Society Daily Copra Record which gave daily sales of grade I and II copra by member's number. Time was available to cover grade I sales only and these account for between 96 and 98 per cent of all sales.

(b) Tamana Cooperative Society Handicraft Journal and the earlier Local Produce Purchases Record which covers daily sales of handicrafts, saltfish, sharkfin, string and *kamaimai* to the society by member's number.

(c) Tamana Cooperative Society Empty Sales Book which covers the sale of members' goods by the society on a commission basis and includes sales of a wide range of goods from fresh fish, tobacco, coconut oil, mats, *kamaimai*, bread, scones and doughnuts to bread tins, needles, marbles, grass skirts and brassieres. Sales are recorded by members' names.

(d) Tamana Cooperative Society Payment Vouchers which detail payments of wages, committee members' honorariums, copra handicraft and cargo-handling payments, store and shed maintenance payments.

(e) Tamana Cooperative Society Deposit Books cover deposits and withdrawals from savings accounts with the society. These were consulted with members' approval. Details of transactions through the Bank of New South Wales agency were not available; in most cases informants quite readily made their bank books available.

(f) Tamana Cooperative Society Interest and Bonus Paid Book gives details of bonuses paid on store purchases, copra and handicraft sales on a yearly basis.

The value of these 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. An individual prefers to seek the anonymity of selling through the store than chance being talked about for selling rather than giving surplus fish away which is the moral thing to do.

(g) The Telmo Journals of the Post Office provide information on incoming and outgoing remittances. The data for the period are unfortunately incomplete. The records for the period from June 1972 to July 1973 could not be found. It is small comfort to know that no remittances were received from the end of October 1972 to the end of January 1973 because the radio was off the air. This data source can give no measure of remittances posted or brought into the island as cash. Nor can it cover subsequent redistribution of remittances on Tamana.

(h) *Mronron* Cash Books were used to get dividends paid to members.

Most of these sources have obvious shortcomings but used together they provide the means of getting closer approximations of household income levels and also a means of evaluating different data sources.

The sources of data on expenditure other than the survey are much harder to control. It would be a mammoth task to scan the Tamana Cooperative Society's Daily Cargo Register for these data. The Interest and Bonus Paid Book gives data on annual store expenditure on goods, beer, liquor and film shows. When the monthly income is known to be very variable to calculate a mean monthly expenditure from these totals would be of dubious value. However if one works on the assumption that you can't spend what you haven't got, the annual store expenditure, tax payments and

Table 8.1

Estimates of annual income and expenditure for sample households on Tamana from different sources

Household	Estimated mean annual income 1971-73			Estimates of mean annual expenditure 1971-73		
				Store expenditure		*Mronron* expenditure
	Estimated from mean weekly income of 7 survey weeks	Calculated from all recorded sources	Index income estimated from store expenditure tax and fee payments and savings	Estimated from mean weekly expenditure for 7-week survey	At cooperative only Based on Interest and Bonus Paid Book figures	Estimated from mean weekly expenditure for 7 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[e,f]	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[e,f]	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[e,f]	91.52	557.26	29.19
Total	1,899.11	2,339.44	2,667.00	951.26	2,414.23	241.68
Mean	146.09	146.22	166.69	73.17	150.89	18.59
SD	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 6 weeks and included in total.

[c] Based on 5 weeks and included in total.

[d] Based on 3 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. See Table 8.2.

additions to savings provide a further check to income data. The figure derived in this way will be referred to as 'index income'. Again the figure gained would be an underestimate because it does not include *mronron* expenditure and it would underestimate the income of those households whose income from all recorded sources exceeded expenditure. Table 8.1 provides a comparison of mean annual income 1971-73 estimated from these different sources.

Comparison of the data provided suggests that the survey data provide the least useful estimate of income and expenditure and this is understandable. Income earning, and to a lesser degree expenditure, are irregular occurrences and the chances of a sale occurring during a survey week are fairly remote. The discrepancy between income estimates from all recorded sources and the index income based on known expenditure is a good deal smaller, although still substantial at higher income levels. The discrepancies probably result from remittances received during periods not covered by the records. Smaller differences relate to problems reconciling annual totals from daily sales of copra and handicrafts with the annual totals from the Interest and Bonus Paid Book. Errors could arise in either my or the cooperative staff's summing up of the daily totals. It is impossible to say which figures are correct. The discrepancies are indicated in Figure 8.2. The index income is still an underestimate because it does not include purchases from *mronron*. An estimate of the sum involved is included in the last column of Table 8.1. On the average, index incomes could be scaled up by at least 10 per cent to allow for *mronron* expenditure, and probably by a much higher proportion when copra prices are high. The index income also underestimates the income of households where income from all recorded sources exceeded expenditure at the cooperative store. These households are indicated in Table 8.1.

Income variation over time

Before going on to discuss the general characteristics of income levels and sources on Tamana, it is important to stress that income variability from year to year is a striking feature of the Tamana economy. This facet of the economy would be cloaked completely if mean data only were presented.

Table 8.2 shows that over the 3-year period 1971-73 incomes fluctuated considerably. While no distinct pattern of variation is readily discernible, the changes in both income and expenditure are of sufficient size to warrant further analysis in the hope of gaining further insight into the nature of the Tamana economy and the response of the households to the economic conditions surrounding them. To this end the data on income are presented graphically in Figure 8.1. It is assumed for the purposes of the analysis that household income is made up of two main parts: locally generated income from the sale of copra, handicrafts,

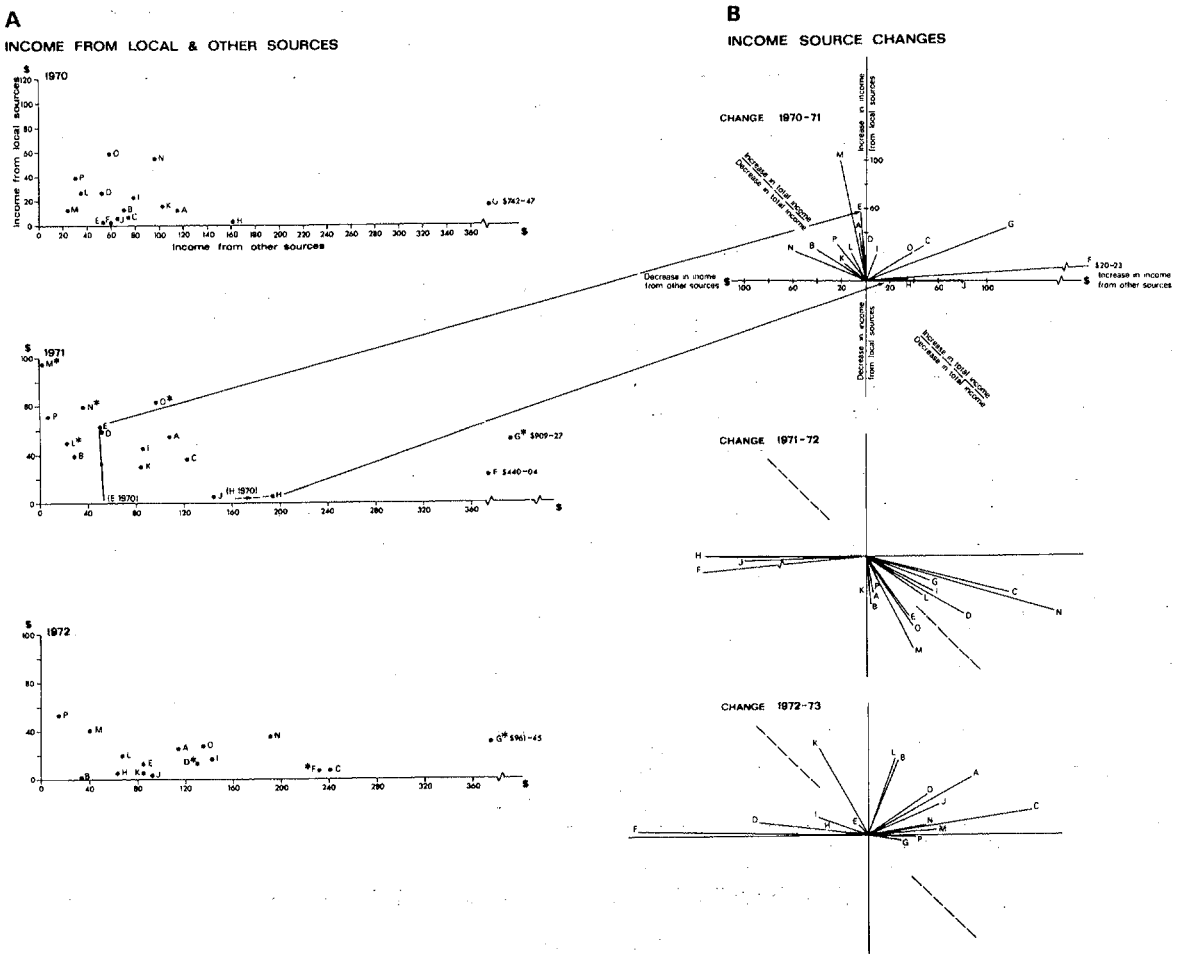
Table 8.2

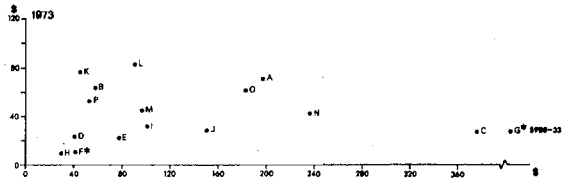
Index income and cooperative expenditure for sample households 1971-73

Household	Index income						Expenditure at cooperative store				
	1971	1972	1973	Mean 1971-73	Coefficient of variation %	Mean annual income per CU	1971	1972	1973	Mean 1971-73	Coefficient of variation %
Maera	76.53[a]	68.61	105.42	83.52	23.19	21.42	40.16	60.75	97.56	66.16	43.95
Tembeti	68.86	35.08	121.43	75.12	57.92	16.33	59.74	26.46	108.81	65.00	63.72
Meri	111.75	143.02[a]	63.44	106.07	37.79	11.53	95.44	66.08	54.11	71.88	29.58
Komeri	64.14[a]	87.97	173.59	107.90	53.01	33.72	30.16	76.38	162.00	89.51	74.73
Bakanoka	199.17	67.99	35.28	100.75	86.13	67.17	192.39	62.01	29.50	94.63	91.09
Kaiaba	117.47[a]	81.26	144.22	114.36	27.64	22.34	72.18	73.25	136.06	93.83	38.98
Temakai	111.62	97.30	99.68	102.87	7.45	16.86	100.48	86.16	90.04	92.33	8.03
Enoka	114.40	90.10	121.49	108.66	15.15	12.50	92.00	67.70	105.59	89.76	23.43
Timea	149.38	95.60	178.45	141.14	29.78	32.82	138.38	65.00	146.95	116.78	38.57
Barawe	133.13	158.38	133.18	141.56	10.82	42.90	120.20	144.35	113.50	126.02	12.87
Tokintekai	181.06[a]	162.54	245.47	196.37	22.16	75.53	74.43	152.01	234.94	153.79	52.19
Aam	163.05	139.91	268.88	190.61	36.07	38.12	153.39	132.75	254.22	180.12	36.08
Kaiea	115.53[a]	231.42	280.09	209.01	40.44	34.84	76.40	218.03	254.70	183.04	51.44
Tebebita	462.92	238.39[a]	52.00[a]	251.10	81.94	89.79	424.18	207.88	41.83	224.63	85.35
Katirongo	159.87	247.79	392.94	266.87	44.10	60.65	140.38	184.64	303.76	209.59	40.31
Kamantoa	961.01[a]	991.49[a]	1014.92[a]	989.14	2.73	179.84	316.45	613.49	741.84	557.26	39.15
Total	3189.89	2936.65	3430.48	3185.05	575.72	757.36	2126.36	2236.94	2879.05	2414.05	729.47
Mean	199.37	183.54	214.41	199.06	35.99	47.34	132.90	138.81	179.36	150.89	45.59
SD	223.07	224.94	233.67	218.83	24.44	42.44	103.82	139.06	170.37	119.96	23.65

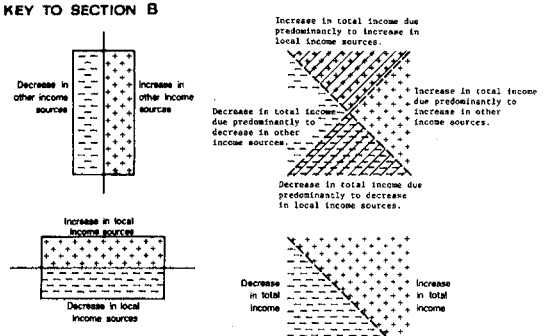
Source: Tamana Co-operative Society Annual and Bonus Paid Book.

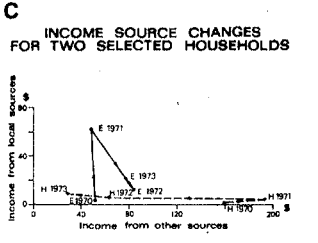
a Income from all recorded sources greater than index income based on expenditure and so income from all recorded sources used.


A
INCOME FROM LOCAL & OTHER SOURCES
1970
1971
1972
Income from local sources
Income from other sources
B
INCOME SOURCE CHANGES
CHANGE 1970-71
CHANGE 1971-72
CHANGE 1972-73
Increase in income from local sources
Decrease in income from local sources
Decrease in income from other sources
Increase in income from other sources
Increase in total income
Decrease in total income



* Indicates income from all recorded sources used because it is larger than estimated index income based on expenditure.





E a locally-dominated household, H an other-dominated household

RJL/RBM

A	Aam	E	Temakai	I	Barawe	M	Kaiba
B	Tembeti	F	Tebebita	J	Timea	N	Kaiea
C	Katirongo	G	Kamantoa	K	Enoka	O	Tokintekai
D	Meri	H	Bakanoka	L	Komeri	P	Maera

Fig. 8.1 Tamana: changes in income from local and other sources for sample households 1970-73

fish and such like, and income derived from outside sources, mainly remittances, gifts and wages, and that the two main sources of income are influenced by different forces. The analysis begins with the plotting of income from local sources and the index income less the income from local sources for each household on a graph for the years 1970 to 1973 inclusive (Part A, Figure 8.1). The length of the line (not drawn in for the sake of clarity) joining the position of each household in the graph in succeeding years gives an indication of the size of a change in income and its direction indicates whether the change results from a change in local or other sources of income. By transferring these lines for all households to a new set of axes denoting increases and decreases in local and other sources of income (Part B, Figure 8.1), a general picture of the changes experienced by all households over each year can be presented.

These graphs show very clearly the response of the households to prevailing economic conditions. In the local sector the responses of the households are surprisingly uniform and predictable. Almost without exception household incomes from local sources increased in 1971, fell in 1972 and rose again in 1973. This pattern shows the response of the household to price changes and outside stimulus. The rise in locally derived incomes in 1971 reflects the coinciding of a church campaign to raise funds for a generator with a government sponsored campaign to stimulate handicraft production. By early 1972 this aim has been achieved, the store was more selective in purchasing handicrafts and the copra price dropped — hence the fall in local incomes. With the rise in copra prices in 1973 copra production resumed and locally derived incomes increased.

The pattern of change in other income sources is not so clear cut. In 1971 and 1973 the households were fairly evenly divided between increases and decreases in other sources of income. In 1972 all except 3 households had increases in other sources of income. This might suggest that when copra incomes fall, people *bubuti* to relatives overseas for money to supplement local incomes. The evidence for this is not particularly strong and Figure 8.1 shows that the increase in other sources of income was not large enough to prevent 7 households experiencing a decline in total income. This suggests that the other sources of income are not responsive to the same forces as local income sources and are a situational factor depending basically on whether a member of the household gets employment on the island or whether relatives in employment overseas remit money to the household.

The conclusions suggested by Figure 8.1 are firstly that household economies are responsive to price and demand changes; when the copra price fell to a very low level households responded by lowering production, when the church initiated a drive to raise funds for a generator households responded to the government sponsored drive to increase handicraft production. This suggests

that household commitment to the cash economy is somewhat tenuous. Households do not aspire to a particular level of cash income; when opportunities arise people participate in cash earning, when prices fall or needs diminish households withdraw from cash earning. If by chance one gets access to wages or remittances dependence on local sources of income diminishes, locally derived incomes tend to be lower, but the residual local income responds in much the same way. An important corollary of this participation in and withdrawal from the cash sector is that the subsistence sector must still be sufficiently strong to support people at times when cash-earning opportunities are relatively unattractive.

Household types

Figure 8.1 also provides a means of distinguishing types of household economies, the 'local-dominated' and 'other-dominated' households referred to in Chapter 4. Part B of Figure 8.1 shows that some households move predominantly within the vertical rather than horizontal quadrants and vice versa. Part C of Figure 8.1 shows the contrasting paths produced by examples of each type over the period. The distinction simply means that the changes (not the total amount) in the local-dominated households' incomes result predominantly from changes in locally derived income, whereas other-dominated households' income changes result from changes in other sources of incomes. Because the data cover 3 points of assessment only the households can be classified as local or other without any great problems.[1] However, 4 or more data points might produce a grey area in the middle and question the value of the distinction. Subjectively the distinction seems useful and consistent with other socio-economic differences. Local-dominated households have younger household heads, larger households, more consumers to labourers, fewer offspring or offspring's spouses in employment off the island and lower mean annual incomes (see Table 4.5). Table 8.3 shows that these households also have larger locally derived incomes and that locally derived income makes up a larger proportion of total income. However, it should be noted that some other-dominated households have locally derived incomes as large as any local-dominated household and that the lower mean value for the group as a whole stems from a greater range of values rather than from consistently lower incomes. This raises the question of the possible relationship between the two income sources and their effect on behaviour patterns and economic strategies.

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[1]Meri's household is the only possible exception. Although it should be classified as an other-dominated household it has characteristics more in common with local-dominated households. The fact that the household has a relatively low income from local sources and that a daughter was employed in a lowly paid job tends to exaggerate the importance of changes in other income sources. For this reason the household was reclassified as a local-dominated household.

Table 8.3

Mean annual income from various sources for sample households 1971-73

Household	Local sources									
	Copra		Handicrafts		Other goods		*Mronron* divisions		Wage and casual work	
	$	%	$	%	$	%	$	%	$	%
Local-dominated households										
Tembeti	15.53	20.67	5.26	7.00	4.52	6.02	9.67	12.87	0.33	0.44
Maera	7.06	8.45	47.88	57.33	1.55	1.86	2.33	2.78	1.36	1.63
Temakai	3.87	3.76	16.03	15.58	2.40	2.33	9.67	9.40	4.33	4.21
Meri	11.39	10.74	6.95	6.55	0.47	0.44	12.98	12.24	50.00	47.14
Komeri	22.94	21.26	8.44	7.82	0.31	0.29	19.31	17.89	-	-
Enoka	14.37	13.22	16.96	15.61	5.74	5.28	-	-	-	-
Kaiaba	3.71	3.24	52.48	45.89	8.87	7.76	2.33	2.04	5.83	5.10
Aam	21.78	11.43	16.29	8.54	2.44	1.28	10.00	5.24	-	-
Subtotal Local dominated households	100.65		170.29		26.30		66.29		61.85	
Mean	12.58	11.32	21.29	19.15	3.29	2.96	8.29	7.46	7.73	6.96
SD	7.47		18.44		2.93		6.44		17.22	
Other dominated households										
Bakanoka	4.47	4.44	1.77	1.75	0.25	0.25	-	-	-	-
Timea	4.23	3.00	1.67	1.18	-	-	6.33	4.48	8.00	5.67
Barawe	5.23	3.69	6.18	4.37	0.58	0.41	19.31	13.64	-	-
Tokintekai	31.66	16.12	6.77	3.45	-	-	19.31	9.83	-	-
Kaiea	2.89	1.38	24.25	11.60	6.57	3.14	19.31	9.24	8.67	4.15
Tebebita	1.66	0.67	5.43	2.16	0.10	0.04	6.00	2.39	135.00	53.76
Katirongo	4.23	1.59	5.00	1.87	0.79	0.29	9.67	3.62	106.67	39.97
Kamantoa	1.44	0.15	8.17	0.83	1.20	0.12	25.31	2.55	859.33	86.88
Subtotal other-[c] dominated households	54.37		51.07		8.29		79.93		258.34	
Mean	7.77	4.16	7.30	3.91	1.18	0.64	11.42	6.12	36.91	19.77
SD	10.60		7.74		2.39		7.91		58.04	
Total all households[c]	155.02		221.36		34.59		146.22		320.19	
Mean	10.33	7.06	14.76	10.08	2.31	1.57	9.75	6.66	21.35	14.58
SD	9.07		15.74		2.81		7.08		42.65	
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%	

Sources: Tamana Cooperative Society Books, Telmo Journals and *mronron* 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.

Table 8.3 (cont.)

Other sources								Total		
Remittances[a]		Withdrawals from savings		Cooperative dividends		Shortfall of all[a] known income of known expenditure		Mean annual income[b] from all sources	Mean annual income from local sources	% of mean annual income from local sources
$	%	$	%	$	%	$	%			
6.67	8.88	-	-	13.88	18.48	19.26	25.64	75.12	34.98	45.56
-	-	-	-	7.63	9.13	15.71	18.81	83.52	58.82	70.42
8.67	8.42	n.d.	-	15.79	15.35	42.11	40.93	102.87	31.97	31.07
1.67	1.57	-	-	19.25	18.15	3.36	3.17	106.07	31.79	29.97
10.00	9.27	-	-	23.37	21.66	25.53	21.81	109.90	51.00	47.26
10.00	9.20	-	-	6.26	5.76	55.33	50.92	108.66	37.07	34.11
-	-	-	-	8.22	7.18	32.92	28.79	114.36	67.39	58.92
46.67	24.48	0.02	0.01	20.16	10.58	73.25	38.43	190.61	50.51	26.49
83.68		0.02		114.56		267.47		891.11	363.53	
10.46	9.41	-	-	14.32	12.88	33.43	30.02	111.39	45.44	40.89
15.24		0.01		6.43		22.75		34.82	13.44	
43.67	43.34	-	-	9.54	9.47	41.05	40.74	100.75	6.49	6.44
28.33	20.07	1.67	1.18	13.50	9.56	77.41	54.85	141.14	12.23	8.66
41.00	28.96	-	-	28.23	19.94	41.03	28.98	141.56	31.30	22.11
63.33	44.74	n.d.	-	30.77	21.74	44.53	22.68	196.37	57.74	29.40
8.67	4.15	3.08	1.47	34.59	16.55	100.98	48.31	209.01	53.02	25.36
17.00	6.77	8.33	3.32	23.41	9.32	54.16	21.57	251.09	13.19	5.25
40.33	15.11	8.00	3.00	17.44	6.54	74.74	28.01	266.87	19.69	7.37
68.33	6.91	N.D.	_	50.66	5.12	25.30	surplus	989.14	36.12	3.65
242.33		21.08		157.48		433.90		1306.79	193.66	
34.62	18.54	3.51	1.61	22.50	12.05	61.99	33.20	186.69	27.67	14.82
18.27		3.78		9.33		22.97		61.46	20.50	
326.01		21.10		272.04		701.37		2197.90	557.19	
21.73	14.85	1.62	0.96	18.14	12.39	46.76	31.91	146.52	37.15	25.37
20.37		3.05		8.71		26.50		61.13	18.83	
		95.00%		90.00%		95.00%		98.00%	90.00%	

[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.

The major differences derive from differences in other income sources. The household types could not be differentiated on the basis of income from (the household with the $900 salary excluded), or time devoted to, wage earning. The difference derives mainly from remittance incomes. Other-dominated households have significantly higher incomes from remittances (and also in their shortfall of income in relation to known expenditure, which is probably mainly remittance and gift income). The contribution of these sources is large enough in total income to give the other-dominated households significantly higher mean annual incomes. Thus the major determinant of income levels and the major distinguishing characteristic between households is probably outside the control of the household and not a reflection of the strategies or activities of the household itself. Only 2 of the 16 households got more than 50 per cent of their income from the sale of local goods.

There is also no evidence to suggest that the size of the income from outside sources has a predictable effect on activities and income derived from the local sector. There is no relationship showing that as incomes from outside sources rise incomes from the local sector fall. The reaction to income from outside sources seems to be governed by individual energies, wants and the available work force. Some other-dominated households have large incomes from local sources as well.

In summary there appear to be no distinctively different economic strategies which suggest broad household types arising from different behaviour patterns. The main factor determining income differences is whether the household has a source of remittance income or not and in the short term this is beyond the household's control. It is largely a function of the age of the inhabitants and whether the household has individuals or their spouses of employable age and, literally, the luck of the ballot. Access to remittance income is not necessarily associated with a decline in activity in the local cash-earning sector. Both household types are responsive to changes in price and cash-earning opportunities in the local sector and both respond in the same way. A fall in prices leads to a decline in effort, rather than an increase to maintain the same level of income. Price changes are obviously more important in determining total income levels of households with only limited access to external sources of income. There is little evidence to suggest that the two income sources are complementary; a fall in local income does not lead to a rise in incomes from other sources and vice versa. The two are independent and determined by different factors. The households which experienced a decline in external sources of income did not attempt to expand local production to reduce the decline in income. This suggests a situation where the commitment to the cash sector is not strongly developed; households choose whether they participate in the cash economy or not. If conditions are favourable they earn money by

cutting copra or making handicrafts; if prospects are unattractive they do not; some households rely on subsistence production, others on remittances from outside. There is no evidence to suggest a level of income or participation in the cash economy which is aspired to, regardless of economic conditions. An important corollary of the retreat into subsistence by some households is that the subsistence economy must still be able to support the households at some level of satisfaction.

Mean annual income levels

Given the variability in incomes described above, mean annual income figures and the main sources of income over the 1971-73 period are presented in Table 8.3. It must be stressed that these figures have limitations and give only a general indication of the participation of Tamana households in the cash economy and the sources from which they derive their income. The mean annual incomes of the sample households ranged from $75 to nearly $1,000. The latter is exceptional and reflects the income of a Tarawa trained nurse in the household. The mean household (excluding the one just mentioned) earned $146.52 per year. Table 8.2 shows that per consumption unit, annual income ranged from $11.53 to $179.84 with a mean (excluding the high-earning household) of $38.50 per consumption unit per year.

Sources of income

For the households as a group, local sales (copra, handicrafts, toddy, fish etc. to the cooperative) and *mronron* divisions accounted for 25.37 per cent of income. However, when the local-dominated and other-dominated households are considered separately, local sales accounted for 40.89 per cent of local-dominated households' incomes as opposed to 14.82 per cent for other-dominated households. One local-dominated household derived 70 per cent of its income from local sales. At the other extreme, local sales accounted for as little as 5 per cent of some other-dominated households. Remittances and untraced sources of income (probably gifts and redistributed remittances) stand out as the major source of income and could account for as much as 45 per cent of mean household income. Other major sources of income in descending order of importance are wages and casual work, cooperative society dividends, handicrafts, copra and *mronron* divisions. The ranking of income sources in order of importance underlines the differences between local-dominated and other-dominated households.

Local-dominated	Other-dominated
Remittances	Remittances
Handicrafts	Wages
Cooperative society dividends	Cooperative society dividends
Copra	*Mronron* divisions

Mronron divisions	Copra
Wages	Handicrafts
Other goods	Withdrawals from savings

A few items in Table 8.3 warrant special comment. Over the 3 years from 1971 to 1973 only 2 households were dependent on local sales for more than 50 per cent of their income.[2] Already a large majority of the households are dependent on outside sources of income, and this underlines the importance of the remittance economy to Tamana. The second, rather incidental, point is the rather surprising importance of cooperative society dividends as a source of income. This explains why the people were pleased to have the dividend declared in February when taxes and school fees fell due and why these needs did not stimulate economic activity in that month.

LOCAL INCOME SOURCES

Table 8.3 gives a generalized picture of the importance of various income sources for the period 1971-73. Figure 8.2 fills out the detail by depicting the monthly income from sales of copra, handicrafts, salt fish, sharkfin and members' goods and *kamaimai* through the cooperative society store over the period from February 1971 to January 1974. Again, the fluctuations in income are very marked and tend to question the value of mean data. There is very little suggestion of a level of income to which households aspire. Income-earning from local sales is episodic. As an extension of this, little relationship between the different sources of income is evident. There is slight evidence to suggest that a fall in copra income might stimulate cash earning in other sectors to compensate for the loss of income, however there is no evidence to suggest that windfalls in the form of remittances depress local production. Income tends to be earned intermittently, in relatively large units and from relatively few sources. Few households had incomes from more than one source in most months. 1972 stands out as a year when most households experienced low incomes from local sales and when most households retreated from the cash sector of the economy.

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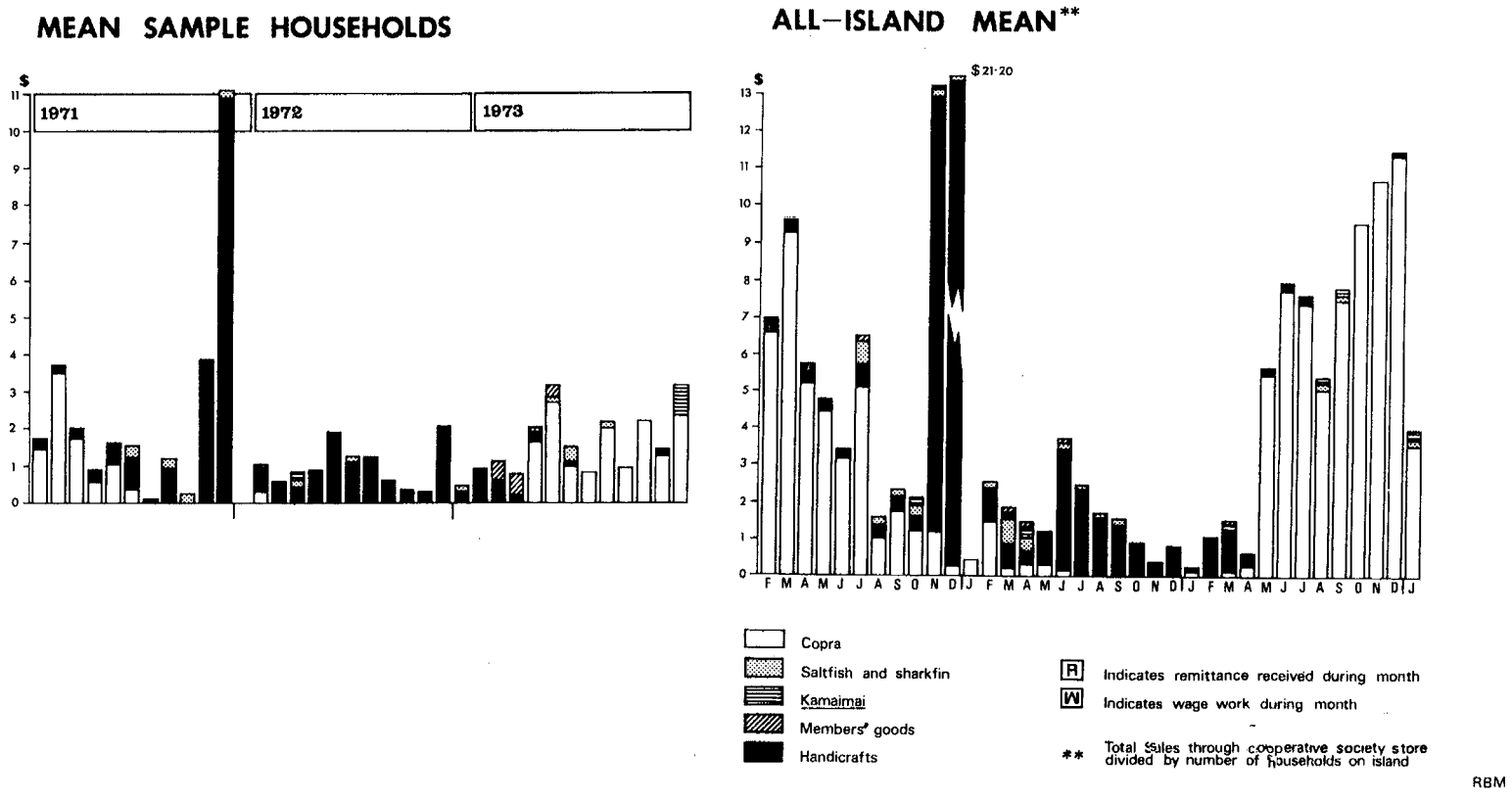
[2]Again it must be stressed that the terms local-dominated and other-dominated relate to the causes of changes in total income, not to the relative importance of each income source in total income.



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 Cooperative Society's Interest and Bonus Paid Book.
C = Copra H = Handicrafts + indicates writer's total greater than Interest and Bonus Paid Book total.

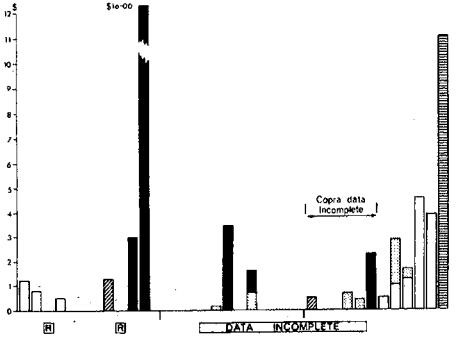
Fig. 8.2 Tamana: income from sales of grade I copra, handicrafts, salt fish and sharkfin, *kamaimai* and members' goods to Tamana Cooperative Society by sample households. Figure continued on next 4 pages.

Table 8.2 (cont.)

HOUSEHOLDS WHERE CHANGES IN INCOME DOMINANTLY FROM LOCAL INCOME SOURCES

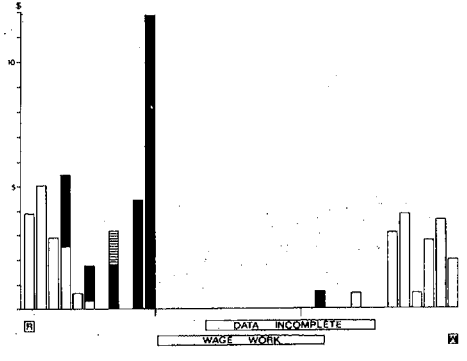
ENOKA

1971	Discrep	C +$0-19 H −$7-14	1972	Discrep	C Nil H +$0-09	1973	Discrep	C −$29-34 H −$18-11



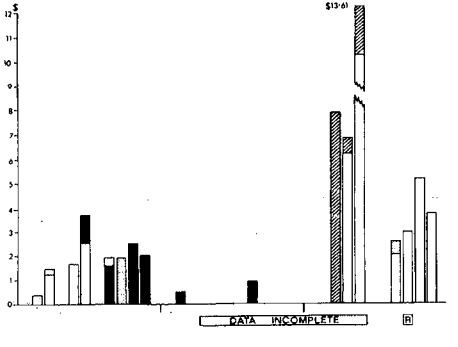
MERI

1971	Discrep	C +$2-56 H +$3-30	1972	Discrep	C −$0-64 H Nil	1973	Discrep	C −$5-88 H Nil



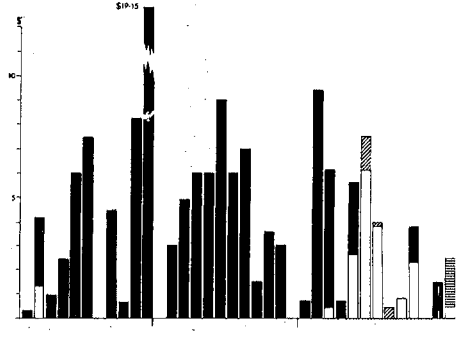
TEMBETI

1971	Discrep	C −$1-33 H −$6-28	1972	Discrep	C Nil H Nil	1973	Discrep	C −$8-04 H −$0-90



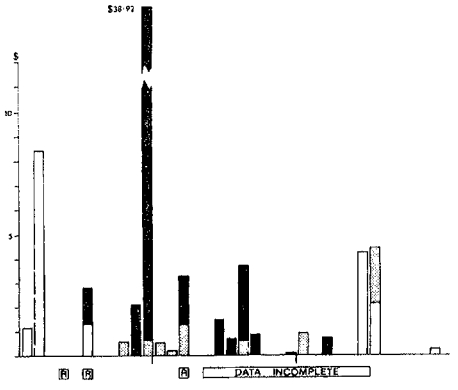
MAERA

1971	Discrep	C −$1-69 H −$14-86	1972	Discrep	C Nil H −$2-85	1973	Discrep	C −$1-60 H −$1-18



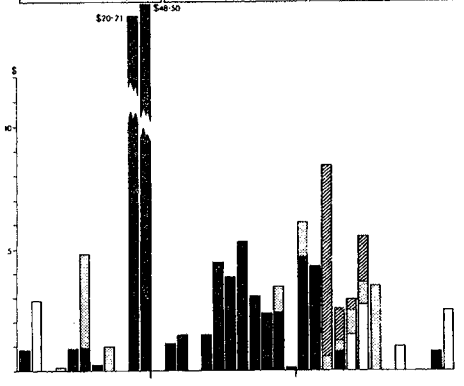
TEMAKAI

1971	Discrep	C +$3-58 H +$6-15	1972	Discrep	C Nil H -$0-98	1973	Discrep	C +$8-59 H -$8-54



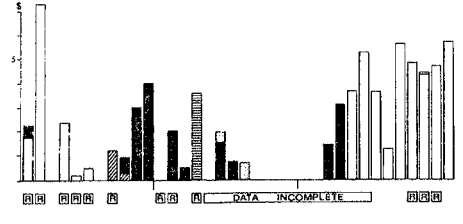
KAIABA

1971	Discrep	C +$0-16 H -$39-00	1972	Discrep	C Nil H -$8-45	1973	Discrep	C -$0-43 H -$7-27



AAM

1971	Discrep	C -$1-03 H -$18-42	1972	Discrep	C Nil H -$18-44	1973	Discrep	C -$13-24 H -$8-01



KOMERI

1971	Discrep	C +$1-01 H -$3-80	1972	Discrep	C Nil H Nil	1973	Discrep	C -$8-84 H -$0-91

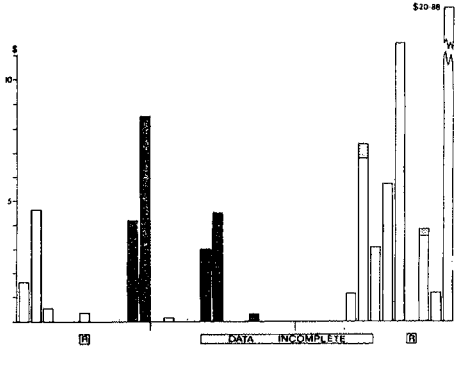
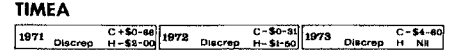
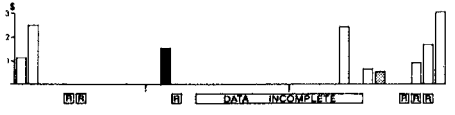


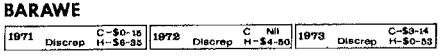
Table 8.2 (cont.) **HOUSEHOLDS WHERE CHANGES IN INCOME DOMINANTLY FROM EXTERNAL INCOME SOURCES**

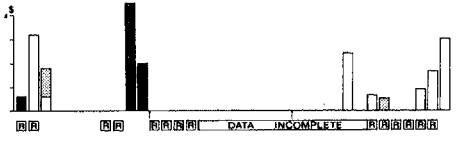
TIMEA



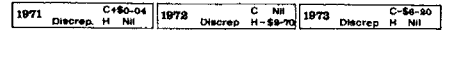


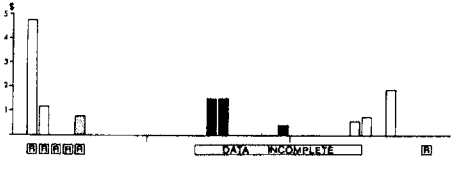
BARAWE



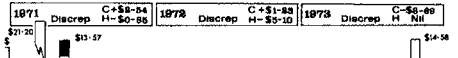


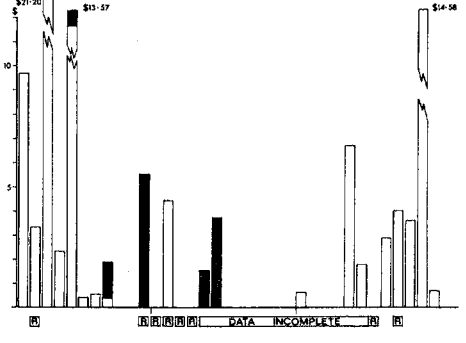
BAKANOKA





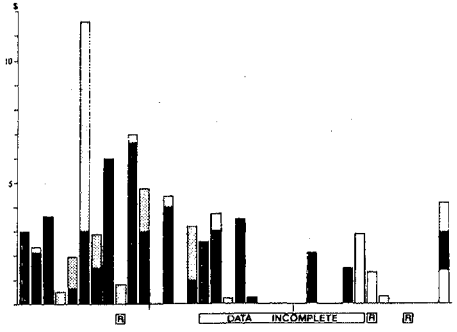
TOKINTEKAI





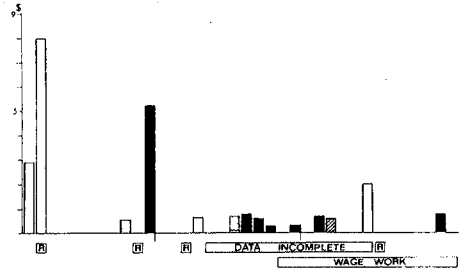
KAIEA

1971	1972	1973
Discrep C Nil H −$7-56	Discrep C −$0-12 H −$7-80	Discrep C −$0-54 H −$8-37



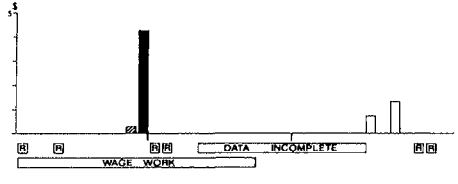
KATIRONGO

1971	1972	1973
Discrep C +$0-26 H −$1-87	Discrep C +$0-12 H −$3-66	Discrep C Nil H Nil



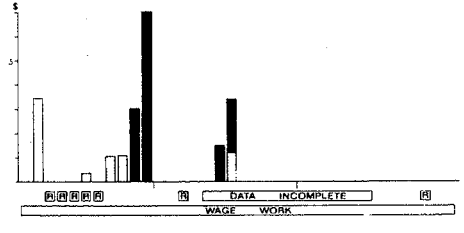
TEBEBITA

1971	1972	1973
Discrep C −$0-09 H −$11-53	Discrep C Nil H −$0-51	Discrep C −$2-16 H Nil



KAMANTOA

1971	1972	1973
Discrep C Nil H −$2-87	Discrep C Nil H −$7-20	Discrep C −$0-87 H −$0-27



RJL/RBM

Handicrafts

The production of a wide range of handicrafts (mats, baskets, panama hats and shark-tooth swords) has been going on intermittently for many years, being first organized by travelling District Officers and later through the cooperative society. In 1971 and early 1972 the Cooperative Federation sought to stimulate handicraft production and the effect of this is readily seen in Figure 8.2. It is difficult to assess how much of this increase resulted from the Federation's campaign and how much represented a response to the church's fund-raising campaign for a generator which began at about the same time. The significant fact is that incomes rose dramatically to levels of up to $48 per month and in most households tapered off almost as dramatically. (Spending at the store rose as well, so the church must only have got what was left.) The fall-off could be attributed in part to Federation discouragement and tightening up on quality control, but the achievement of a particular target probably also had some effect. Over the remainder of 1972 and 1973 handicrafts were relatively unimportant as a source of income for all except 3 households, despite low copra prices. This suggests that Tamana people do not regard handicraft production as a particularly attractive means of raising money. Estimated returns for mat making are in the order of $0.04/hour (swords return a higher rate of $0.07/hour but these require scarce raw materials) which obviously compares unfavourably with estimated hourly returns from copra making, of $0.26/hour, at 3¢/lb, and $0.22/hour, at 2.5¢, and from $0.05 to $0.30/hour from employment with the cooperative society.

Comparison of the rates of return for handicrafts and copra point up some very interesting problems. Table 8.3 shows that over the 1971-73 period handicraft production accounted for 10.08 per cent of total income compared with 7.06 per cent for copra. Figure 8.2 shows that most handicraft production occurred during the period when the grade I copra price fell to 2.5¢/lb. Copra production fell away to almost nothing after the price fall. This implies that the households ceased an operation which would have yielded $0.22/hour, even at the lower price, and concentrated on an activity which yielded only $0.04/hour. I can only offer *ex post* explanations of this since I was not aware of the situation in the field. I think the answer lies partly in data problems. The relative importance of handicrafts in the mean data in Table 8.3 comes from the very high production in December 1971 and January 1972 which probably resulted from church fund-raising activities. In this, the ends rather than the means are probably more important, and since most households produced handicrafts during these months, even if they did not before or after, and the same pattern is evident in the all-island mean. Social pressures were probably important. This leaves a much smaller income from handicrafts to explain and for most households handicraft income after January 1972 is irregular and could result from the selling off of surplus handicrafts when cash is needed, rather than a

conscious effort to organize handicraft production in order to maintain a particular level of income. The households of Maera, Kaiaba and Kaiea are obvious exceptions. No obvious common characteristics link the households. Maera and Kaiea would not have sufficient coconut resources to gain the equivalent income from copra production. Each situation is probably unique and of little general significance.

The findings here have particular interest for the planners. They show:

(a) That under present labour resources, handicraft production is capable of dramatic expansion.

(b) Prevailing prices are too low to sustain interest in production. Returns to handicraft production compare very unfavourably with those for copra cutting (which women also do).

(c) Low returns to effort are not the only factors involved. Mat making for domestic purposes is an intermittent and largely social activity whereas women see commercial mat making, where the object is to finish a mat quickly and sell it to the store, as a dull, tedious and lonely pursuit which restricts one's abilities to fulfil communal work obligations.[3]

(d) Price may not be the only stimulus, as the church fund raising shows, but it is questionable for how long this interest could be maintained.

Copra production

Copra production on Tamana varies considerably from year to year. One of the most often appealed to reasons for these fluctuations is the influence of drought on nut production. Catala (1957: 30-31) considers that the production capacity of the coconut palm may be retained for a period of 18 months after the onset of a drought (although nut size may be reduced) after which time the palm becomes less productive and the flowers cease to set or produce abortive nuts. This, it should be stressed, relates to the productivity of the tree, not to copra production. For copra production to be clearly related to coconut productivity, certain conditions must obviously apply; the entire nut production would have to be utilized in subsistence and commercial use and price changes would

[3]It is interesting to note here that while Kaiaba's and Maera's households formed one unit, both wives worked together on mat making and their incomes from handicrafts were very high (see Figure 8.2). They separated in June 1973 and neither woman concentrated so heavily on mat making afterwards.

have to be infrequent and have little effect on the grower's decision to sell copra. Figure 8.1 and Table 8.4 suggest that this is not the case and that human factors are probably much more important in determining levels of copra production in the short term.

Over the 1971-73 period prices fell from 4¢/lb, to 2.5¢ in July 1971, to 2¢ in March 1972 and rose again to 3¢/lb in May 1973. The effect on household production was swift and dramatic. Most households ceased production when the price fell to 2.5¢ and did not resume again until the price rose. The mean data for the sample households reflect this pattern and the mean of all households on the island suggests that most households behaved in a similar manner. The low level of production from August 1971 to June 1972 in the all-island mean probably reflects *mronron* sales. The sales patterns of the sample households show the pattern even more clearly. In the period before the price fall (February-July 1971), 83 sales were made by the sample households giving a mean of 0.86 sales per household per month. Between August 1971 and April 1973 only 10 sales were recorded (0.10 per household per month). One hundred and fifty-seven sales (1.64 per household per month) were recorded in the 9 months following the price rise. These figures underline the importance of price as a determinant of production in the short term. Unfortunately, data do not cover the period when prices rose even further. There is some evidence to suggest that further price rises would not necessarily result in further increases in production. Copra prices had remained at 4¢/lb since January 1970 and the mean weight of copra per sale of the 83 sales made between February and July 1971 was 39.77 lb. The 10 sales between August 1971 and April 1973 give a mean weight of 27.70 lb per sale, while the 157 sales after the price rise had a mean weight of 51.65 lb. It is highly probable that sales after the price rise utilized the accumulation of nuts over the period when copra production was suspended. Table 8.4 indicates that palm production could become a limiting factor to further increases in production.

Indeed, by January 1973 many of the nuts being brought to the *mronron* in payment for goods had been picked from the trees rather than gathered after falling, which shows that utilization was starting to outstrip nut fall and possibly production.

Price and production are not related in a direct and simple manner. Table 8.4 shows that the average household used 370 nuts per month in copra making when the price was 4¢/lb in 1971. After the price fall, it fell to a negligible amount (5 nuts per household per month), but rose again to 535 nuts per month after the price rose again to 3¢/lb. Thus production proceeded at a higher rate, despite lower price levels (Table 8.4 shows also that in 1971 most households had surpluses and could have expanded production). Little general significance can be drawn from this. Most

households would have had very large surpluses when the price rose in 1973, but probably more importantly people were feeling deprived of income and income-earning opportunities while the price remained at 2¢/lb. They were equally convinced that copra making was not worthwhile while prices remained below 2.5¢. When the price rise was announced most people thought copra making was again worthwhile although it was some time before production really got underway.

Rates of return. Some indication of the hourly rate of return to copra making can be given. The estimate is based on time taken by 1 household to collect, prepare and sell copra made from 1,000 nuts in December 1973. It took 31.5 hours to prepare and sell the copra. The yield was 274 lb of grade I copra. At 2¢/lb, this gives a return of 17¢/hour; at 3¢, 26¢/hour and 4, 35¢/hour. These figures relate to one large-scale operation. Returns from smaller-scale operations, collecting nuts in smaller numbers from several lands, might involve more time and hence give slightly lower returns to labour.

Strategies of production. Since the data on sales frequencies quoted above show that, even in periods of high copra prices, copra production for the average household was still a rather intermittent affair averaging only 1.64 sales per month, and seeing that copra constituted a regular part of only 4 households' income, it is rather difficult to talk meaningfully about strategies of production. For most households copra was made when income was needed and to this end a special visit would be made to a particular land or lands to collect nuts for copra. Some households reserve larger and more distant lands for copra production and use closer smaller lands for food needs but this is by no means universal. Nuts are usually collected in lots of 45-50 nuts which is the maximum number which can be strung together and transported (with the rider) on the bicycle. Copra is made on the house site in batches of 150-300 nuts. Several reasons were cited in favour of making copra on the house site. Drying can be more carefully supervised and this is often the difference between grade I and grade II copra. Bush-dried copra invariably got wet and went mouldy. Drying at the house site reduces the chance of theft, and since the husks are the main source of fuel bringing nuts in to be husked provides a sure source of firewood. When copra production fell in 1971 and 1972 many hours were spent collecting firewood in the bush. Dried copra is prised from the shell and cut into small pieces. The extra labour is justified on the grounds that it reduces bulk and allows more copra per bag. Some households used to keep a basket of copra pieces in the house in case cash was needed in a hurry. The development of the *mronron* and their acceptance of coconuts as cash has largely reduced the need for this.

Only one example of large-scale copra production was seen during fieldwork. Here Komeri and his wife scoured a 1.76 ha land

Table 8.4

Estimated production and utilization of coconuts in cash earning and subsistence, sample households 1971-73

Household	Estimated mean annual nut use 1971-73					
	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
Local-dominated households						
Tembeti[a]	1817	1175	2600	5592	5021	10050
Maera[b]	828	1023	1318	3169	2886	5211
Temakai	378	698	1426	2502	3392	2772
Meri	1274	958	3348	5580	6364	7795
Komeri	2730	891	4007	7628	3282	12288
Enoka	1724	2853	2702	7279	5987	12148
Kaiaba[b]	421	849	1300	2570	2681	3476
Aam	2517	275	1601	4393	4284	10316
Total	11689.00	6850.00	15684.00	32974.00	33897.00	64056.00
Mean	1461.13	1141.67	2614.00	5495.67	4237.13	8007.00
SD	895.35	891.55	992.44	1893.22	1418.04	3794.32
Other-dominated households						
Bakanoka	501	267	524	1292	1565	2242
Barawed	597	2513	1075	4185	4308	5489
Tokintekai	3394	1969	1749	7112	12514	10658
Kaiea	352	1114	1545	3011	2659	4041
Tebebita	195	869	1296	2360	2311	2845
Katirongo	406	1315	1103	2824	4364	2744
Kamantoa	140	1426	2752	4318	4806	4319
Total	5585.00	9473.00	10044.00	25102.00	32527.00	3238.00
Mean	797.86	1353.29	1434.86	3586.00	4646.71	4619.71
SD	1155.93	730.59	699.32	1871.01	3674.64	2885.69
Total all households	17274.00	16323.00	27028.00	58076.00	66424.00	96394.00
Mean	1151.60	1255.62	1930.57	4467.38	4428.27	6426.27
SD	1044.40	781.11	991.47	2055.63	2614.79	3718.45
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%

[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.

Table 8.4 (cont.)

Estimated annual production		Estimated annual surplus of nuts					
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
6260	3523	668	1239	-3790	5.49	22980	188.87
5844	3289	2675	2958	633	21.99	25334	208.22
4620	2600	2118	1228	1848	17.41	17788	146.20
1548	871	-4032	-4816	-6247	-33.14	-1577	-12.96
10326	5811	2698	7044	-1962	22.17	38542	316.78
7531	4238	252	1544	-4617	2.07	13771	113.18
8177	4602	5607	5496	4701	46.08	33594	276.11
4551	2561	158	267	-5765	1.30	18658	153.35
48857.00	27495.00	10144.00	14960.00	-15199.00	83.37	169090.00	1389.75
6107.13	3436.88	1268.00	1870.00	-1899.88	10.42	21136.25	173.72
2662.49	1498.39	2784.87	3571.53	3942.98	22.89	12344.27	101.46
1224	689	-68	-341	-1018	-0.66	3884	31.92
10418	5863	6233	6110	4929	51.23	49991	410.88
6699	3770	-413	-5815	-3959	-3.39	28707	235.94
3904	2197	893	1245	-137	7.34	19626	161.31
4967	2795	2607	2656	2122	21.43	32839	269.90
2749	1547	-75	-1615	5	-0.62	1662	13.66
7369	4147	3051	2563	3050	25.08	31156	256.07
37330.00	21008.00	12228.00	19663.00	4992.00	100.41	167865.00	1379.68
5332.83	3001.14	1746.86	2809.00	713.14	14.34	23980.71	197.10
3098.53	1743.75	2400.45	2373.84	2923.16	19.74	17077.24	140.36
86187.00	48503.00	22372.00	34623.00	1323.00	183.78	336955	2769.43
5745.80	3233.53	1491.47	2308.20	88.20	12.25	22463.67	184.63
2796.24	1573.65	2531.48	3004.68	3707.31	20.81	14259.50	117.20
below 90.00%	below 90.00%	below 90.00%	below 90.00%	below 90.00%		below 90.00%	

[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.

(which had been neglected for over a year) and collected nearly 1,000 nuts. These were carried to the shore, tied into long strings and floated on the high tide to another land more suited to drying. The nuts were split without being husked, the water was not saved for the pigs and the split nuts were dried unattended in the sun for several days. The copra, much of it discoloured and mouldy, was bagged and sold. Komeri had no immediate need for the income and, as far as could be ascertained, the money was not spent for some time. This approach to copra production is evidently uncommon and restricted to landholders with abundant lands and usually large blocks in remote places. Tokintekai was another householder in the survey with large land resources though his strategy differed. He made copra continuously and visited some of his lands more frequently. The reason for this was probably that his lands were closer to the village and the theft of nuts more common.

Levels of copra production and resources. Price is one factor which has an obvious influence on levels of production in the short term. For prospects in the longer term it is important to assess the size of the present surplus and the role of access to land and palm resources in determining levels of production. Using the mean data for 1971-73 for copra income (Table 8.3) and data on land and palm resources (Table 5.2), Table 8.4 shows that with present palm resources and levels of usage and assuming 23.1 nuts per tree per year,[4] all but 4 households would have had, over the 1971-73 period, a surplus of production over utilization. Only 1 household used greatly more nuts than its estimated production. If, because of drought, palm production fell to 13.0 nuts per tree per year and assuming the same levels of nut use, 8 households would have a nut deficit and would have to curtail copra making or subsistence use of nuts. Totals for all households show that under these conditions there would be an overall deficit.

These estimates are somewhat misleading because they are based on the means of 1971 to 1973 copra incomes and it is known that copra production varies greatly from year to year in response to price changes. Some refinement is obviously necessary and this is achieved by estimating annual levels of nut use from the months prior to the price fall in 1971 and after the price rise in 1973. The 1971 pre price fall figures (Column B) related to a period when prices had been stable for the preceding 19 months and so are not likely to be influenced by price changes. At these levels of utilization, 12 households could maintain or expand copra production. If there was no increase in subsistence use and all the surplus was diverted into copra production, output could be doubled. The situation in 1973 is very different. It followed a period of depressed prices when little copra was made. During the latter part of 1973 8 households made copra at rates exceeding

[4]See note f to Table 7.9.

the assumed production rates of the trees. This was probably achieved by utilizing the surplus which accumulated during 1972. These levels of copra production probably could not be maintained and further price rises, for most of the households at least, would not lead to a further increase in production. If total estimated surplus of 1973 levels of production was diverted into copra production, it would only increase the 1971-73 mean level of production by 7.6 per cent. Thus at 1973 levels of utilization total nut use is getting very close to assumed levels of production.

Several factors are pointed up by these findings. Under 'normal' conditions most households are likely to have nut surpluses[5] which explains why there is no apparent relationship between mean income from copra and palm resources per household. For most households at present, access to resources is not a limiting factor to copra incomes. Price and particular wants are probably much more important. If prices rise further, and remain high, or if drought causes a dramatic fall off in nut production, access to resources will become more important as a limiting factor in production. If Catala's estimate of 23.1 nuts per tree per year has any validity and the 16 sample households are representative of the island as a whole, there is limited scope for raising copra production unless resources are directed away from the subsistence sector or palm planting is stepped up. The final columns in Table 8.4 show that if all households' bushlands were planted up to densities of 215 palms per ha and all the increased nut production were diverted into copra making, copra production could be increased by 1950 per cent.

Sales of other goods

Income earned from sales of *kamaimai*, fresh and salt fish is at present of very minor importance. Sales are infrequent and do not form a regular part of household income. Fresh fish sales commonly follow an unusually large fish catch where the surplus is taken down to the cooperative society store and sold. Salt fish and *kamaimai* sales appear to be equally irregular and depend on the ability of the household to produce, process and store a surplus. The surplus is then sold when the household needs cash quickly and other sources of cash are unavailable. The few

[5]Surpluses are not necessarily wasted. It is not common on Tamana to see large numbers of fallen nuts on any lands and this suggests that the surplus is utilized by others either with or without permission. Utilization data for Nei Meri and Tokintekai's households show that some households use many more nuts than their lands produce. In most instances this is done legitimately by using relatives' lands as caretaking lands during short-term absences of relatives or by *bubuti* and gifts of nuts. Nei Meri's copra use is expanded by the selling of candies for nuts.

households getting incomes over $5 a year from this source had several active males in them would could produce a surplus of toddy for boiling down or boost the fishing effort of the household. One household got income from selling crayfish through the store on several occasions because a member had an underwater torch. At present income is earned from this source only by selling what is surplus to the household's needs. No attempt is made to create a surplus specifically for sale. Most of the goods sold are repurchased on the island by government personnel or people in employment. Small quantities are exported to Tarawa.

The scope for increasing income from these sources was not seriously considered by individual households and the reasons for this are varied. *Aiai* groups ensure that most households have enough toddy and *kamaimai* for their needs, with the least possible effort; the small surplus produced by each was pooled and redistributed. The effort involved in producing a large, and by nature of the process continuous, surplus was not considered worthwhile. Problems relating to bottle supplies, transport costs and pilfering discourage individuals from seeking to sell *kamaimai* in Tarawa. Several *mronron* are considering producing *kamaimai* for sale in Tarawa. The larger labour unit could produce a continuous surplus with less effort; the problems of bottling, transport costs and pilfering remain. Prospects for expanding the salt fish trade are limited in a slightly different way. Fish surpluses are produced only occasionally, and the size of the surplus is in no way proportional to the effort expended. Chance is a much more important factor. In the local economy the surplus produced plays an important part in kinship and friendship bonds. Again, it is the *mronron* rather than the individuals, which are considering ways of expanding the salt fish trade. Individuals fish for some *mronron* on specified days. Thus production is not dependent on a surplus; the entire catch is salted and sold through agents in Tarawa. Both lines of action circumvent the possibility of moral censure of the individual for seeking to raise himself above the rest of the island.

Mronron divisions

Divisions of *mronron* profits provide a surprisingly large part of household incomes. Access to this source of income is institutionally limited. It is restricted basically by place of residence; one cannot become a member of a *mronron* of a *kainga* in which one does not live (although it is possible to keep an absent relative's membership active and so participate in profit distributions). If the *kainga* in which one lives does not have an active *mronron* there is little one can do about it. Some individuals who were not foundation members of a *mronron* cannot afford the share capital necessary to buy into a functioning *mronron*. The income differences evident in the *mronron* divisions column of Table 8.3 represent institutional differences rather than differences in motivation.

Labour and income from local sources

Before going on to discuss other sources of household income, it is worthwhile considering the question of whether labour supply has any effect on levels of production and cash earning from local sources of income. If labour were to be an important factor, income would be expected to rise as the number of labour units in the household rises. The data collected for the sample households suggest that this is not the case. No significant relationship between household income from local sources and the size of household labour force was found, either for the households in total, or the local-dominated and other-dominated households separately. This suggests that under present conditions labour is not a limiting factor in income earning from the sale of local goods.

OTHER INCOME SOURCES

Wage earning

Very few households have access to regular wage incomes. Employment opportunities on Tamana are limited to government postings in local administration, health and education (often occupied by people coming from other islands). A few employment opportunities at low wage levels are available for clerical jobs, messengers, school monitors, nurse aides and carpenters. Members of the Lands Court and Island Councils are paid for attendance at sittings and meetings. The cooperative society provides some employment opportunities. It is mandatory that an equal number of places be made available to each village. Some casual work is available for copra loading and cargo handling as well as work in copra shed and building maintenance. Committee members are paid for meetings attended and some men claim they only stand for the committee in order to get better access to casual work. Returns to wage work are low considering the hours worked. School monitors receive $10/month, store attendants $26/month. Cargo handling returns about 30¢/hour, maintenance work 8¢/hour. The possession of a regular income tends to reduce the activity of the household in the local sector. Casual work is regarded as incidental and is not a conscious part of a household's economic strategy.

Gifts and remittances

Gifts and remittances form a major part of household income on Tamana. Even the incomplete data in Table 8.3 show that they account for nearly 15 per cent of the mean household's income. This figure is based on incomplete data and does not include remittances received between June 1972 and July 1973 (the Telmo Journals for this period could not be found). It is probable that the shortfall of income from all recorded sources from known

expenditure is largely from remittances or redistributed remittances, and if this is the case, this income source could account for 46 per cent of the mean household's income. Not all households have equal access to remittance incomes. Two households received no remittances direct over the period for which records were available; 2 households averaged over $60 a year from remittances. Generally, the local-dominated households have lower incomes from remittances and changes in this source of income tend to be less important than changes in local sources of income in determining total incomes. On the other hand, remittances contribute substantially to the higher total incomes of the other-dominated households, and together with changes in employment are largely responsible for the changes in income of these households. Only 3 households had anything approaching a regular remittance income over the survey period. Remittance incomes are irregular and largely dependent on the whim of the sender. Some households rather shamefacedly admitted to *bubutiing* to relatives overseas when money was needed. The Island Council Minute Books show several appeals by parents to the Council asking them to force erring sons to remit money. The most important point to be made about remittance incomes is that they do not necessarily lead to a scaling down of activity in the local cash-earning section. Table 8.3 shows (given the small sample size) that the other-dominated households had signficantly higher incomes from remittances and unrecorded sources but did not have significantly lower incomes from local sources. It is probably that wants, short-term needs and personalities are more important in determining particular households' cash-earning activities on Tamana.

Sources of remittances. Table 8.5 summarizes data available on all incoming personal (non-wage) telmos for the 12-month period from August 1970.

Personal remittances to Tamana amounted to nearly $14,000 in the year concerned or on the average $1,166 per month. Slight variations are evident from month to month, but no general pattern is evident, suggesting peaks at Christmas or when school fees or taxes fall due. Comparisons between different sources is difficult since data on the number of people in employment are not readily available. Nauru and Ocean Island stand out clearly as the most important sources of remittances. The fact that remittances from Nauru are fewer in number but greater in size could reflect higher wage levels, but could be simply a response to differences in commission charges. Several households received large remittances from Nauru which were automatically redistributed among other relatives. The smaller remittances from Tarawa and other islands within the group probably reflect lower wage levels and higher living costs.

Overseas remittances are of special interest because they should show the influence of remittances from seamen trained under

the 'Teraka' Marine Training Scheme. At least some of the overseas remittances come from seamen remitted through the Bank of New South Wales. In 1971, at least 6 seamen from Tamana were employed on overseas ships and possibly more had graduated and joined ships. If all money remitted from overseas had come from seamen, it would only amount to $140 per seaman per year. This is less than the amount remitted by most workers on Ocean Island and Nauru and nowhere near the level hoped for by the planners. Their estimates suggest that the remittance rates greater than $200 per seaman per year are necessary to make the scheme worthwhile (F185/12/3 Courses and Training Seamen, Merchant Marine Training School — Likely future economic return from the 'Teraka' Sea Training School). The evidence tends to suggest that very few of the seamen remit money through the regular channels; either from overseas through the Bank of New South Wales or through the Post Office when in Tarawa. One seaman remitted $20 a month and another $15 in 1971. Both had ceased remitting money in 1973.

In order to get a more complete picture of the remittance economy it is necessary to look at the other end of the system and gain some insight into who sends the money, to whom and what proportion of the employee's income gets remitted. During the year under discussion, 22 different individuals remitted money to the sample households, a number larger than the 13 children or their spouses known to be in employment. However, only 7 of these remitted money on 4 or more occasions. Table 8.5 gives the place of employment and the number, amounts and destination of the remittances sent by these 7 individuals.

A very large proportion of the remittances go to the parents of the worker or his wife (53 per cent). Smaller proportions go to wives remaining on Tamana (16 per cent), siblings (13 per cent) and parents' siblings (9 per cent). Friends and more distant relatives received only 8 per cent of the remittances. Again, remitters from Nauru sent fewer but larger remittances.

Estimates of the proportion of income remitted can be based only on mean data. In December 1970, there were 42 Tamana men in the labour force at Nauru. The average monthly earnings at that time, including overtime allowances and rations ($34 per month) were $115.03 (F14/1/1: Employment Overseas Nauru Phosphate Corporation, Nauru). This gives a disposable income of $81.03 per month. Compared with figures for personal remittances from Nauru in December 1970 which totalled $705, remittances amounted to 20.72 per cent of the mean income. If the mean monthly remittance levels for the whole year (see Table 8.4) are used the figure drops to 15.62 per cent. Unfortunately, no comparable data are available for Ocean Island or Tarawa. Rather significantly, the percentage of wages remitted from Nauru is well below the hoped for 22 per cent remittance rates (more than $200 of an annual salary of $900 remitted) from seamen trained at 'Teraka'.

Table 8.5

Source, number, 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

EXPENDITURE

The income derived from these diverse sources is put to three main uses: the purchase of food and other necessaries from the cooperative society stores 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, the staples, rice, flour, sugar, tea, kerosene, tobacco, soap and matches to tinned foods, soft drinks, beer, spirits to perfumes, table cloths, clothing, cooking utensils, spades, bicycles, lamps and primus parts, paint and fishing equipment. Large capital items such as bicycles, wood for canoes, braided fishing lines are not stocked and not seen by Tamana people as goods which could be saved for and purchased on Tamana; they come traditionally from Nauru. However, the cooperative society did arrange the purchase of a motor-cycle and bicycle for teachers stationed on Tamana. It also runs pictures several times a week in the village *maneaba*. Foods are bought for cash (coconuts are accepted for admittance to the pictures) and 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. *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 stick and biscuits singly. Cash or coconuts at a set rate of exchange are accepted; 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 1¢ 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 8.6 shows that weekly store expenditure estimated from the 7 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' remembrance 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 7 in readiness for a wedding (see Appendix 4). Estimates of *mronron* expenditure can probably be regarded as under-estimates 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.

Table 8.6

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

Thus estimates based on means over the 1971-73 period may not be a good indication of future patterns.[6]

[6]For this reason *mronron* expenditure was not considered in calculating index incomes based on known expenditure in Tables 8.1 and 8.2.

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 8.3 to be made) spent $12.75 a week, while the most frugal spent $1.85. On the basis of the mean data only 1 household, Kamantoa's, would have had a sizable 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 7 survey weeks (see Appendix 4) 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 show, and reflect 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 7 survey weeks (see Appendix 4) 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 is 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. In one case, higher expenditure resulted from visits by relatives in wage employment on leave. The data give no evidence of an effort on each household's part to maintain a particular level of store goods 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* and this 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. The only instance of this involved large 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 waited for the bonus to be declared and distributed to

get the money to pay the taxes. For items of general expenditure, largely food, 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 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 study period covered a period of fluctuating copra prices and the question 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 significantly lower in weeks 2, 3, 4 and 5 when the price was 2¢/lb, and to be higher in weeks 1, 6 and 7 when prices were 2.5 and 3¢/lb 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 would 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 2¢/lb, during 1973 prices were at 2¢ for 2 months and at 3¢ 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 ($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 basic 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.

Mronron and the store

Over the survey period the average household purchased nearly 28 per cent of its goods by value from *mronron*; some purchased as little as 5 per cent, others as much as 50 per cent. 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¢ a week at the *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 correlation between store and *mronron* expenditure, although store and *mronron* expenditures 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 buyers, no matter how deprived, took gladly to the prospect of exchanging 32 coconuts for a stick of tobacco. Similarly, the *mronron* were not attracted to the prospect of making copra at 2¢/lb, no matter how many nuts they got. 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 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 8.7 shows, most households brought 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.

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 in 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 must be 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 closer, open at all hours, service is faster and queuing no problem, and above all, ready cash is not necessary. 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* probably contributed substantially to the expansion in expenditure. The amount of expansion which can be encouraged by increasing the ease with which store goods can be purchased must, in the longer term, be limited by income and the availability of nuts. *Mronron* may contribute to the more complete utilization of nut resources. Data on nut utilization suggest 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* 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 supplement 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 1 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 and the social pressure to pay debts is probably stronger because of this.

For all these reasons the manager of the 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 8.8 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 per cent of expenditure by

Table 8.7

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 *mronron*		Percentage of *mronron* 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[a]	n.d.	20.04	n.d.	100.00
Kaiaba+Maera[a]	18.47	n.d.	14.13	n.d.
Timea[a]	n.d.	59.49	n.d.	100.00
Maera[a]	n.d.	47.74	n.d.	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
SD	19.43	25.25	28.59	21.78

[a]Based on 4 or fewer weeks' data and excluded from means

value. Non-food expenditure went mainly on tobacco and going to the pictures. Very few households spent large sums on household goods or equipment and data for those which did are 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

Table 8.8

Mean weekly expenditure on specified commodities at cooperative society and *mronron* by sample households

Commodity	Temakai	Bakanoka	Meri	Tembeti	Kaiaba[a]	Kaiaba + Maera[a]	Timea[a]	Maera[a]	Barawe	Komeri[c]	Katirongo	Tokintekai	Tebebita	Enoka	Kamantoa	Aam	Kaiea	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			

[a] Based on 4 or fewer weeks' data and excluded from means.

[b] Figure distorted by purchase of bag of sugar for wedding and excluded from calculations for sugar in totals and percentages column.

[c] Excludes week 4.

relationship between level of income and the proportion of expenditure on food. Food items still made up over 90 per cent 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 in income are still being expended 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 expenditure patterns 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. Given the obvious limitations, it suggests (see Table 8.9) that weekly expenditure at the store by the population as a whole has risen considerably over the last 20 years; from $37.91 per week to somewhere around $770 in 1972. Per capita weekly expenditure[7] rose from 4.29¢ per week in 1951 to 36.32¢ in 1971. Food items, excluding beverages,[8] accounted for 34 per cent of purchases by value in 1951, by 1971 this had risen to 71 per cent, with a fairly consistent rise over the intervening period. Per capita weekly expenditure on food rose from 1.64¢, which would have bought 0.22 lb of flour in 1951, to 26.57¢ or 3.06 lb of flour in 1971. Weekly per capita expenditure on non-food items was 2.65¢ or 0.39 sticks of tobacco in 1951, in 1971 it was 8.75¢ or 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 per cent, which raises questions as to whether the data for the week in 1951 are atypical. The proportion of expenditure on most commodities is very 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 shift of income into sustenance rather than 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. It is more probable that any changes result from changing preferences and dietary habits resulting from greater variety in store

[7]Per capita estimates based on 1947 census data and a 1971 census conducted by the writer.

[8]Beverages excluded because expenditure of $59.11 in 1 week in 1957 is obviously atypical.

Table 8.9

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
Percentage expenditure on selected commodities					
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.

goods and possibly the inflow of more goods from Ocean Island and Nauru.

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 5 per cent 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 licences $0.85. In total these direct taxes amount to 6 per cent of mean household total income or nearly 29 per cent of locally generated income. Indirect taxes are more difficult to quanitfy. Copra export duty, taking the Copra Board's estimate of 25 per cent 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 1971-73. 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 subsidized. Taking 33 1/3 per cent[9] 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 per cent 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. The present system is unjust and while in theory it purports to consider the productive potential of the land by taking into account land quality and area, in practice it does not. My measuring of individual land plots shows that the registered areas in the Lands Book bear little relation to actual areas. As far as can be ascertained, landowners were asked at the time of registration in 1950 to estimate the areas of their lands in terms of Tamana *eka* (acres), which was the area of the main *maneaba*. Wise men underestimated, braggarts exaggerated and their descendants now pay high land taxes

[9]Figure used in F151/2/5 Discussion Paper 28/73 Copra Prices, GEIC Executive Council.

on small land plots. The present land tax system does little to encourage change and is seen simply as the wisdom of the remote government. If land taxes are justified they should be based on measured, rather than estimated, areas, and since palm densities reflect planting histories as well as land quality, a system of taxation which encouraged individuals to plant lands up to higher densities might have more beneficial results.

SAVING

It is readily apparent from the household income and expenditure data that there is little scope for saving on Tamana. However, most households operate either a Bank of New South Wales savings account or deposit money with the cooperative society. In 2 cases husbands and wives operate separate accounts. Saving schemes associated with *mronron* activities account for several recently opened accounts. Only 3 of the 16 households had no savings accounts, although one of these admitted to having a hidden nest egg of over $45.

Over the 3-year period 1971-73, deposits in the 12 accounts for which data were available totalled $262 ($7.28 per account per year) while withdrawals amounted to $169.62 or $4.71 per account per year, leaving a small saving in the mean situation which amounts to 1.76 per cent of mean annual income. The totals held in accounts at the end of 1973 ranged from $81.36 to $0.02; 3 accounts had more than $20 in them, 2 between $10 and $20 and the remainder less than $10. Households with larger savings tend to be those with salaried members or high remittance incomes. Table 8.3 shows that these households are also more likely to supplement income with savings, which suggests that even money banked ends up as *kabirongorongo* (money that you spend) rather than *karinimane* (money that you keep). Only 1 account was clearly *karinimane* and it belonged to an elderly unmarried person saving against old age. The person concerned deposited money three or four times a year since 1969 without ever withdrawing any. The general pattern seems to be the depositing of a large sum at very irregular intervals with the progressive whittling away of this with smaller withdrawals. The 12 account holders made 29 deposits and 45 withdrawals in the period 1971-73. The mean deposit was $9.04, the largest $52 and the smallest $1. The mean withdrawal was $3.77 with a range from $13 to $0.01. With the obvious exception of the elderly person, saving does not appear to be a deliberate strategy with particular goals in mind; rather it serves as a holding place for money which will be spent in the foreseeable future. The activities of *mronron* in encouraging saving clubs may alter these attitudes in the future.

Chapter 9

Diet

The collection of diet data sufficiently detailed and accurate to permit comment on the nutritional adequacy of individuals' diets is beyond the scope of this survey. Indeed, such data are notoriously difficult and time consuming to collect. The data presented here consider mainly the frequency with which foods of particular types or sources are consumed. As such they give some indication of the importance of various foods in the diet and, more importantly when it is remembered that some 86 per cent of the average household's store expenditure goes on food purchases, the figures give some indication of the relative importance of the subsistence and cash sector in the everyday livelihood of the households.

For the most part the data concern the frequency with which particular foods are eaten by the household as a unit and are based on the 7 survey weeks and a 7-day week. In essence they mirror the diet of adults and children over the age of 3, since the food given to children is almost always identical to that of adults. In times of scarcity children are usually fed first while supplies last. Very small children are fed toddy, milk, mashed pawpaw, pandanus juice and *marai*, the very early stages of the development of coconut flesh. The data relate only to foods eaten on the house site at occasions regarded as a meal[1] by the inhabitants. It was impossible to keep track of foods eaten away from the household, particularly that eaten by children and adults working in the bush.

MEAL PATTERNS

Variability is the most impressive feature of daily meal patterns. There is little evidence to suggest that households

[1]A meal is taken as an occurrence when most members come together and take either solid or liquid food or both. Meals are allocated to the following sectors: morning 2 a.m.-10 a.m., midday 10 a.m.-4 p.m., evening 4 p.m.-2 a.m.

aspire to a particular number of meals each day or to eat particular foods at certain times of the day. Several of the sample households would go for as long as 3 days taking no solid food and drinking nothing but toddy if no fish were being caught. This seemed to be considered quite normal and there appeared to be no pressure to prepare other local foods such as *bero* or *babai* or to buy food from the store in place of fish. Table 9.1 shows that most households had, on the average, between 2 and 3 meals a day, although for the mean household slightly over 40 per cent of the meals were fluid only, usually toddy. Meals at the middle of the day were significantly less frequent than morning or evening meals, although if a midday meal were to be had, it would be more likely to consist of solid foods as well as fluids. Fifty-five per cent of morning meals consisted of fluid only, compared with 20 per cent of midday meals and 42 per cent of evening meals. However, the pattern is one of extreme variability. If fish is available, it is eaten at any time of the day; if not, morning and evening meals are likely to be toddy or *katokaben* (a mixture of grated coconut in toddy) and at any time during the day a dish of breadfruit, pawpaw or *bero* or a flour or rice dish might be eaten.

No immediately obvious economic factors account for the meal patterns. Households with higher incomes do not eat more frequently than households with low incomes. One might expect lower income households to have fluid only meals more frequently because they have less cash to buy store foods when fish are not available, but again this is not the case. There is no significant difference in the frequency of fluid only meals between local-dominated and other-dominated households. The number and keenness of fishermen in the household and individual energies and preferences of household members are probably more important in accounting for meal patterns.

FOOD TYPES

Table 9.2 presents data on the frequency with which particular foods are eaten. Toddy, followed by coconut, fish, *bero*, flour, tea (often infused in toddy), breadfruit, sugar, pandanus and rice stand out as the most frequent items in the diet. Comparison of coefficients of variation enables the foods eaten regularly by most households to be isolated; the lower the coefficient of variation the more regularly the food appears in household diets.

Toddy is pre-eminent as the most important food and was drunk by the mean household at nearly 90 per cent of all meals. In nearly 40 per cent of meals it was the only food taken. The data show very little variation between households. The low frequency of 62 per cent of meals for Bakanoka's household indicates what happens when there are no active males in the household and women are neglected by kin.

Table 9.1

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
Tebebita	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

[a]Based on 4 or fewer weeks' data and excluded from means

Table 9.2

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	-	-	-	-	-
Timea[a]	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	-	-	-	-
Kamantoa	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	-	-
Kaiea	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

[a]Based on 4 or fewer weeks' data and excluded from the mean

Fish was, for most households, the only source of protein. One household ate chicken once and a few households had tinned meat or fish, either bought from the store or sent by relatives from Ocean Island or Nauru. Pig was eaten by some households at New Year celebrations and weddings but these events did not occur within the 7 weeks surveyed. A strong positive relationship exists between the frequency with which fish was eaten and the number of hours spent fishing; the more active households ate fish more often and the redistribution of catches, although it took place and was considered the right and proper thing to do, was not great enough to redress inequalities in potential labour force or initiative. The household most active in fishing (Kaiea's) ate fish on the average slightly more often than once a day; Bakanoka, the neglected old woman, ate fish, on the average, once every 10 days; while that of Tebebita, a household not much inclined to fishing but still often receiving fish from a daughter's husband, had fish once every 5 days.

Coconuts appear in most meals where solid food was taken and are considered the normal accompaniment of fish, being eaten with no cooking as *katarina* (cut in slivers and prised from the shell) or *koikoi* (grated and usually given to the old and young). During the early part of the survey, flour, rice or even breadfruit, pandanus and *bero* dishes were rarely eaten with fish. Such dishes seemed to be considered meals in themselves and alternatives to fish. Towards the end of the survey fish and rice or flour were eaten together quite frequently. Table 9.2 suggests that *babai* is conspicuous by its absence. No households ate *babai* frequently; even Temakai's household, the most frequent eaters of *babai*, ate it only once every 12 days on the average. Some households never consumed *babai* during the survey weeks. It is, for most households on Tamana, more of a ceremonial food than a staple and this presumably reflects the difficulties in cultivating *babai* on the higher reef island, in the drier climate of the southern Gilberts.

STORE FOODS AND LOCAL FOODS

The main questions addressed here revolve around the question of income and diet: whether households with higher incomes eat store foods more frequently and in larger quantities, whether this leads to a neglect of foods from local sources, and perhaps more basically, what is the place of store foods in the diet. In respect of these questions, the data probably raise more problems than they solve. There appears to be no significant relationship between income levels (using mean 1971-73 index income) and either the frequency or quantity of flour and rice consumed by households. As a corollary of this no significant difference exists in the frequency with which local-dominated and other-dominated households eat flour or rice. In fact, the household types are not differentiated by the frequency with which many of the commodities are

consumed. Local-dominated households eat coconut more frequently and use greater numbers of nuts for food (Table 8.4). Even little favoured local foods like *bero*, pawpaw and pandanus are eaten no less frequently by the higher income other-dominated households. Apart from coconuts, the only other commodities where differences are evident are *babai*, where local-dominated households eat *babai* more frequently, and tinned foods, where understandably the higher levels of income of the other-dominated households are reflected in more frequent consumption of tinned foods. Neither *babai* nor tinned food are in total frequent items in the diet and they appeared in fewer than 2 per cent of the mean household's meals.

The lack of conclusive results here could again relate back to problems of the representativeness of sample data. A larger sample over a longer period of time might show that income and the frequency with which store foods are consumed are positively correlated. On the other hand the lack of correlation might be related to the part these foods play in the social system. Flour and rice are eaten as everyday foods in the diet where pots of 1 to sometimes 10lb might be cooked up and eaten over several meals, but they are also the major constituents of *inaomata* feasts (feasts where participants are not required to bring traditional foods). On 7 occasions during the survey, households (6 of these involving other-dominated households) cooked up dishes containing more than 15 lb of flour or rice to feed large numbers of people at the 1 meal. In one instance, 70 lb of flour was cooked and eaten by 50 odd people over 2 days. Most of these feasts celebrated the arrival from or departure of kin for Ocean Island, Nauru or Tarawa, but also smaller feasts like the *katabeti*, a Sunday meal for kin and friends, a feast during the serious illness of a household member, or Easter feasts. No weddings occurred during the survey weeks. Thus many households' expenditure on food could go on large infrequent purchases of store foods, not easily picked up in the sample survey. *Babai* is probably used in a similar way by local-dominated households in feasts. Flour and rice are favoured because of the ease with which large quantities can be prepared. Rice and flour, in comparison with the staples of toddy, coconut and fish, are still relatively infrequent items of the diet and there is little evidence to suggest the existence of an aspired frequency of consumption of these foods which is directly related to income.

This raises the question as to whether store foods are a substitute for local foods. One might expect that if flour and rice were substitutes for local foods like coconut and fish, as the level of consumption of rice and flour rose, reliance on coconut and other local foods would diminish. The ability to test this postulate with frequency data is hampered by the fact that flour, the most frequently eaten store food, is seldom eaten by itself, it is cooked in combination with grated coconut, toddy,

bero and other local ingredients. This could explain why no relationship could be found between the frequency with which rice or flour was eaten each week by all households, and the frequency with which coconut or fish was eaten. More reliance can be placed on the fact that no relationship could be found between the weight of flour and rice consumed per consumption unit, per week (for all households for all weeks), and the weight of coconut consumed per consumption unit, per week. There is no evidence to show that as the frequency or weight of flour and rice eaten each week increases, the frequency or weight of coconut decreases.

Such findings give little grounds to suggest that store foods are substitutes for local foods and this conclusion is not at variance with the subjective impressions gained over the fieldwork period. Households ate cooked meals more frequently during the last 2 weeks surveyed than in previous weeks. Flour and rice appeared frequently in these meals, but coconut, *bero* and breadfruit were not neglected. Rice and flour seemed to be supplements rather than substitutes and were eaten because local incomes had risen with the copra price rise and money was more freely available. Food seemed to be the normal thing to spend money on and this resulted in flour and rice replacing local foods in certain types of feast and possibly in a general increase in meal frequency, rather than a substitution of one item for another in a predetermined meal pattern. These findings also raise important questions as to the utility of money and the relevance of development planning which seeks to raise the general level of income in the community.

Thus, rice and flour are not seen as an essential part of the Tamana diet, and little status is attached to the frequent consumption of these items. Most householders regarded local foods as superior to rice and flour, mainly because local foods 'stayed longer in the stomach and made one feel satisfied or full longer'. The main attraction of store goods is the ease with which they can be acquired, particularly when *mronron* sell on credit, and the relative simplicity of preparation. The obverse of these findings is that there must be a ceiling to the frequency with which some local foods are eaten and to the satisfaction derived from meals of them. Fish and toddy are preferred foods at any time, but coconut and possibly *bero* are limited in this way, which may explain why 40 per cent of the mean household's meals were fluid only and why several of the sample households were satisfied to go for as long as 3 days on a fluid diet when fish were scarce. Resources were not a limiting factor; the households had adequate coconuts and ready access to *bero* bushes. They politely explained that 'they didn't want to eat coconuts, didn't want to spend money on flour or rice and were content to wait until they had fish to eat as was the custom'.

Finally, as some estimate of the importance of cash incomes and their meaning in the diet, it can only be pointed out that

the main store food staples, flour and rice, occurred in slightly more than 12 per cent of the mean household's meals. Several households had meals of rice or flour once every 2 days on the average, and at the other extreme 1 household had flour or rice on less than 1 day in 10. These findings point to the strength and importance of the subsistence economy and its ability to provide the basis for a majority of meals taken by the sample households.

Chapter 10

The household economy in summary

The household is a variable unit subject to frequent changes in labour composition and even locale. It is probably unrealistic to view it as an enduring corporate entity united by common ambitions. Some 33 per cent of the households are simple nuclear units, but the remainder are more complex kin groups which may contain segments, each with its own ambitions. The underlying theme is the desire to be independent and control one's own life. This does not give rise to a Chayanov-type cycle of family development because of situational factors: the shortage of land for housing and housing stock, lack of capital goods necessary to set up an independent household, and equally important, responsibilities to kin. The differences between households are mainly situational: whether the head has inherited the necessary land and capital goods or been overseas to work for them and whether the household now has near kin in employment. None of these things are really within the control of the individual and there is little he can do to alter the situation. It is accepted as fate *(tibanga)* and indeed stress on the values of conformity and equality tends to militate against the individual's changing the situation unless his *tibangana* leads him there.

The average household spent 50.44 per cent of its allocated time in subsistence activities, 21.12 per cent in social activities, 7.29 per cent cash earning. School, sickness, care of others and other miscellaneous activities accounted for the remaining 21.15 per cent of allocated time.

In the local context no clear household types or time allocation strategies are immediately apparent. There is little evidence of individual households having chains of command to review daily needs of the household as a unit and allocate responsibility to individuals for particular tasks. Social factors appear important in influencing what members of particular age groups and sexes do and the amount of time they spend in particular activities. Workers tend to allocate much the same amount of time to subsistence and social activities regardless of the number of workers in the household or the ratio of consumers to producers. There appears to be a relatively small range of activities considered

'proper' for a particular age and sex group and a recognized length of time over which the individual should be active. Cash-earning activities are not controlled in the same way. Needs are more important in determining cash earning and these bear little relationship to household size, composition or consumer-producer ratios on Tamana under present conditions. Access to remittances is probably much more important.

The subsistence economy, to judge from diet data and households' responses to changes in copra prices, is still strong and viable. It provides a large part of food, housing and household requirements. Toddy, fish and coconut are by far the most important part of subsistence production and the most frequent items of diet. Toddy appeared in 90 per cent of meals, coconut in 50 per cent and fish in 20 per cent. In comparison, rice or flour appeared in only 13 per cent of household meals.

The resources of land and capital equipment are unevenly distributed between households. Some households have obviously more land and *babai* pits than they wish to use, while others have very limited resources. Despite this the chapters on cash and subsistence production suggest that the system has flexibility and that the latter households can under present conditions operate satisfactorily by utilizing the resources of others. As population increases, either through natural increase or the return of workers from overseas, the scope for this type of accommodation will diminish.

Land and coconut resources do not appear to be limiting factors in the subsistence production of most households. In extreme cases the shortage of male labour may lead to a reduction in the satisfactoriness of diet because of a reduction in the frequency with which toddy and fish are eaten, but generally the redistribution of surpluses from kin or the seconding of the able-bodied to look after the elderly reduces the problem. Considering the subsistence use of coconuts only, at present levels of utilization most households could support probably twice the present populations or even more. The situation cannot be said to apply when copra production is included.

In the cash sector, the mean annual income 1971-73 of the average sample household was $146.52. Remittances, gifts and cash from untraced sources accounted for probably 45 per cent of mean household income. Local production generated only 25 per cent of income. Only 2 households overall, and very few in any one of the 3 years studied, got more than 50 per cent of its income from local sources.

There is little evidence to suggest a strong commitment to the cash economy. Households do not seem to aspire to maintain a particular level of cash use and implement income-earning

strategies to achieve this end. Income levels vary greatly over time. For half the sample households, the changes in income level were produced by changes in local income sources and the households were shown to be sensitive to price changes for commodities. In copra production particularly, households moved into and out of production with the price changes. The remaining household income changes were the result of changes in wage or remittance incomes. They responded in much the same way to changes in commodity prices in the local sector and the possession of a wage or remittance income did not lead necessarily to a neglect of possibilities for cash earning in the local sector.

Handicrafts, copra and *mronron* profits are the main contributors to local income. The scope for increasing copra production above the high levels experienced in 1973 is in the short run limited. In 1973, probably half the sample households were close to using all the coconut resources available to them in subsistence and copra production. However, there is probably considerable scope for increasing production in the long term through additional planting and increasing palm densities. Handicrafts production is limited by low returns and the unattractiveness of the task.

The incentive to increase income is probably restricted by the limited utility of the money earned. Eighty-eight per cent of the mean household's store and *mronron* expenditure was on food. The remaining income went on taxes, school fees, church donations and such like. The households believe that money is only for taxes and food; and that large capital items are beyond their income or even saving capacity. Nauru, Ocean Island and Tarawa are the traditional sources of this sort of money, as well as most household utensils, clothing and such like. Most expenditure on food is for feasts or supplementary consumption. The purchased foods are not seen as more desirable or better alternatives to local foods. They are valued more for convenience; the ease with which they are acquired and prepared.

In the everyday life of any Tamana household it is possible to see an intertwining of social factors, economic values and circumstance. The factors of age and sex determine the role of a household member. Norms prescribe what an individual should do and how long is a reasonable time to be seen doing such tasks. The importance of maintaining a 'complete' and independent household ensures that the house site buildings are kept in good repair, the members eat fish and toddy frequently and that the food levies required for kin, village and island feasts are provided. At the same time the concepts of equality and conformity tend to ensure a uniformity of household effort and make it difficult to isolate meaningful household types. Here, economic circumstance plays its part and the major differences are between households with access to wage or remittance incomes and those without. Differences relate more to the easiness of life and

the ease with which a household maintains its position in the community.

PART 3

Beyond the household

Chapter 11

Kin and community activities

This section is concerned with cooperative activity where the household is not the primary unit of organization and where households or individuals come together to pursue common interests or goals.

KIN-BASED GROUPS

As was pointed out in Chapter 2 the *utu* has no reality or permanence as a means of mobilizing resources for common long-term ends. It is ego-oriented and its composition would vary with which particular individual initiates the activity. The nature of the occasion would also influence the way in which an individual defines his *utu*. Weddings, funerals, first birthday celebrations, welcomes and farewells are the most common events which mobilize the *utu*. Potential participants meet, decide on food, cash and other contributions each participant will provide. The levy at one time provides an entry to the celebration, discharges kin obligations and consolidates mutual responsibility between *utu* members. *Utu* ties are also kept alive by small everyday exchanges of foods which are usually directed towards older kin and stress the rights of the elderly to be provided for by their descendants. The *utu* now also defines the limits of *bubuti* which can be operated without shame and provides a pool of potential workmen who can be called on for assistance. Many of these activities stress the difference between the *utu* and the household; if an individual requests help from a member of his *utu*, affines and non-kin resident in the *utu* member's household do not necessarily participate.

TRADITIONAL NON-KIN BASED GROUPS

Airiri groups

The most important traditional non-kin based groups are the *aiai* toddy groups and the *airiri* groups. The *airiri* groups studied involved the cooperation of 18 to 20 households where 1

woman member undertakes to carry out specified tasks for other members of the group in turn. *Airiri* activities tend to be organized around tasks which are disliked and regarded as time consuming and the products of which are needed in large quantities at irregular intervals. Included here would be the various stages of thatch making, string making, the manufacture of coconut leaf shutters and the collection of coconut midribs. 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 which are later used by the *wairau* group which sews the thatch leaves onto batons. The fourth major *airiri* activity is the *tao kora* or string-making group which makes string, coconut leaf shutters and collects midribs for house repairs.

Membership is drawn from the village, usually 1 member per household. Not all households belong. The decision to join will reflect the need for rethatching in the foreseeable future (2 to 3 years), the stock of accumulated materials and other responsibilities like child care. The amount of work required of members is specified. Starting with the *borau bobanikaina* group, each member of the group is directed to bring 12 bundles each of 20 leaves to a soaking pit belonging to 1 member at a specified time on the day that it is that member's turn. The leaves are put to soak. Thus, on 1 day in a cycle of 20 (if the group has 20 members) each member will get 4,800 leaves. The owner removes the leaves, dries them and brings them back to a storehouse in the village. If she is a member of a *tororau* group, when her turn comes other members will come to her house and clean, flatten and roll a set number of leaves. The same applies to the *wairau* group. The *tao kora* (string-making) group seem to be more flexible and the task is decided on the day by the owner of the turn. Once the cycle is completed and all women have had a turn at having all other members work for her, participants can elect to remain members and begin another cycle or drop out, so that at any one time there will be no relationship in the numbers or composition of any of the component group.

Airiri groups illustrate the activation of some important attitudes towards work on Tamana. Firstly, they concentrate on work that is tedious, unpleasant and time consuming; 1 woman, or even several women in the 1 household, would have to work for many weeks or even months to amass the same quantity of housing materials that is achieved in 1 cycle of an *airiri* group. Secondly, it stresses the preference for and obvious enjoyment gained from working together which removes some of the tedium of many tasks. *Airiri* work is not done with an immediate end in mind. The group's members realize that at some time in the future the household buildings will have to be rethatched and repaired, and participation in *airiri* groups means that when this time arrives the necessary materials are available through the expending of small amounts of time over long periods, rather than having to spend long periods

on thatch making at one point in time and thus not being able to fulfil other normal, often social, obligations. This suggests that it is wrong to assume that time is allocated to satisfy immediate ends and that norms are important in determining the allocation of time. Behind all this work is the pride in having a 'whole' house in good repair and a place of respect in the community because of it. Several *airiri* groups have become aware of the cash-earning potential of group work. The realization of such potential has so far been associated with *mronron* and is discussed in that section.

Aiai groups

Much the same reasoning as that behind the *airiri* groups forms the basis for the traditional *aiai* groups. These toddy-accumulating groups were briefly discussed in Chapter 7. Member households of an *aiai* group produce slightly more toddy than they need for daily consumption and pool the surplus. Usually, each household donates 1 *ibu* of toddy which entitles it to 1 share in the round. Thus, when a household's turn comes around it gets all the surplus toddy and has enough to warrant boiling down to make *kamaimai* worthwhile. This removes the necessity of a household increasing toddy production substantially for the express purpose of getting enough to make *kamaimai* or constantly reboiling small quantities to stop fermentation until a large enough surplus is accumulated to make *kamaimai* production worthwhile.

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. Village 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 manner 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.

NON-TRADITIONAL GROUPS

These fall into two main groups. The first contains the relatively permanent organizations which have developed or been grafted onto Tamana society to fill the vacuum left by the collapse of *maneaba* government. Changes in government policy explain many of the changes in their form. The second group comprises much smaller groups which tend to be ephemeral. Some may have been set up in response to government or church stimulus, others owe their origin to internal innovation or the dissemination of ideas from other islands. Their characteristics are that there were large numbers of them, they are relatively short lived and they disappear without a trace. The Tamana Rose Boys, whatever they did, have gone and no one seems to remember what they were or what they did. In 1962 the Mannanoia Club, a club pledged to conserve *babai* which got its members to assign over to it some of their *babai* pits and then fined them if they removed tubers from the pit, was flourishing with a membership of 100 (F34/4/15 District Officer's Tour Report 8 October-6 November 1962). Today there is no trace of it or any similar club. The *mronron* are clearly the most important group of the second type. They too undergo constant change, partly in response to economic conditions, but also as members' interests and assessment of the purpose of the group changes.

MRONRON

A *mronron* is an indigenous business selling basic store goods and a small range of prepared foods in exchange for nuts or cash. Prices are slightly higher than store prices, but goods are available on a 24-hour basis and in smaller quantities than normally sold by the store. At the time of the survey all *mronron* except 1 were cooperative ventures involving the working together of a number of people to achieve a common aim, usually a cash dividend. In the past, individuals ran stores for varying lengths of time, often selling goods bought back from Nauru or Ocean Island. Only 1 person had kept a store going for several years and this was because she had fallen out with her *utu* and was using the store as a source of income and security.

The meaning of the word *mronron* implies roundness, association and cooperation and hence should be applied only to cooperative ventures. One informant put a slightly different connotation on 'round' and explained that the purpose of a *mronron* was to make money go round; to take it from those who have it and give it to those without; to make the money work in going round. This is a very apt description of what a *mronron* on Tamana does. It makes money circulate, but it does not, in its present form, succeed in bringing very much new money into the island economy except, perhaps, by stimulating copra production. Many *mronron* work

together to provide building materials, mats, compost etc. for members at nominal charges and thus reinforce the values of keeping a household well cared for, discouraging laziness and providing enjoyment through working together and getting the job done quickly.

Some *mronron* possibly commenced operations as early as 1960, but the majority appear to have started in 1968 or later. The stimulus appears to have been associated with the RAK (*Reita n Aine Kamatu* Association of Protestant Women) which organized the main island feasts connected with the church. The RAK divides the community into *kainga*-based groups which are directed to provide specified foods for the annual feasts. The food levies include some store foods. Most *kainga* or groups of *kainga* raise the money for such goods by putting in so many coconuts each, cutting copra, selling it to the sote and buying the goods. The *mronron* is an extension of this process. The goods bought are then resold to the public at a slightly higher price and money or coconuts are accepted as payment. The members cut the copra, sell it to the store, buy more goods for resale and so the process goes on.

At the time of the survey 18 *mronron* were in action on Tamana. Many began operations only after the rise in copra prices. Usually the *mronron* involves the cooperation of 16-20 households living on the 1 *kainga* or in groups of contiguous *kainga*. They are often the same groups as those levied by the RAK. A few are associated with choirs or string bands. The setting up of a *mronron* is frequently associated with stimulus from 1 member of the community, but rarely on Tamana does the *mronron* come to be regarded as belonging to that person and he gets no bigger share of the profits than any other member. The names of the *mronron* are fanciful and indicate the members' expectations of their *mronron*. Examples are Nei Biriakina (to grow fast), Nei Karema (small things from many places), Nei Autau (the vessel that never empties) and Nei Kataia (try).

Most *mronron* are variations on a theme and begin with interested parties subscribing capital of coconuts, handicrafts or cash to buy store goods for resale. Goods are sold from members' houses rather than from a centralized store, each member taking responsibility for a particular item. Cash or coconuts are accepted in payment. Most *mronron* extend credit to purchasers, whether they are members or not, but debts must be paid at the end of each week. The goods normally held by the *mronron* are the more frequently purchased store goods: flour, rice, sugar, tea, soap, kerosene, matches, batteries and tobacco. Members make bread, doughnuts and tea for sale on several days of the week. On a set day each week the *mronron* members meet, record takings and stock in hand, distribute cash for the purchase of new stock and arrange for the nuts to be made into copra and sold to the store. Profits are usually distributed at a set time each year, or even several times in the year to coincide with members' needs for

sizable lumps of money to pay taxes, school fees and the like. The division of profits does not lead to the dispersal of the *mronron*; some profit is retained to finance its continued activities. Several *mronron* collapsed in 1972 by distributing too large a proportion of the assets, thus leaving insufficient working capital for trading to continue.

While this gives a generalized picture of the main characteristics of Tamana *mronron* it should be stressed that they are not static entities. Their vitality is influenced by the general economic climate prevailing in the colony. *Mronron* activity declined in 1972 when cash became short after the fall in the copra price. Individual *mronron* histories reflect the interests of the members, internal feuds, loss of interest and drive, departure 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. Such changes are important and best dealt with by describing the activities of particular *mronron*.

Nei Toromi *mronron*

This *mronron* was the one best known to the writer and is one of the longer operating *mronron* characterized by sound management policies and the continued interest and pride of its members. The *mronron* is not atypical, but understandably management skills do differ and management is critically important to the success of the *mronron*.

The Nei Toromi *mronron* commenced operations in 1969. Initially there were 16 member households all drawn from Barebuka *kainga* and members of the same RAK sub-group. The actual meaning of membership is not clearly defined. Membership is individual but the household is the unit involved in the *mronron*'s activities. No household held more than 1 membership. Membership requires the providing of labour, male and female, at the required time. The labour does not have to be provided by the individual registered as member. If the household moves away they may nominate relatives to take their place and keep their membership alive (the caretakers get any division of profits while they work for the *mronron*), or the departing member can claim his share of the accumulated capital and terminate his membership. Given the mobility of Tamana population and the constant changes in the household personnel, the flexibility is important because it maintains a constant labour force for the *mronron* regardless of changes in its constituent households. New members can be admitted if they reside on the *kainga* and if they agree to pay a set amount into the *mronron* capital. This is calculated by adding all the assets of the *mronron*, capital and liquid, dividing the total by the number of current members and this sets the membership fee.

The *mronron* is run by an elected committee from which a manager and a bookkeeper are appointed. The manager oversees the general running of the *mronron*, checks the books each week and is entitled to 2 shares in each division for his responsibilities. The most important thing about the manager's and bookkeeper's jobs in the Nei Toromi *mronron* is that each member must take a turn at the job. This prevents the *mronron* becoming too closely associated with 1 person and gives all members responsibility and managerial and bookkeeping experience. The driving force behind the setting up of the *mronron* is a 34-year-old ex-store assistant with some years schooling at Hiram Bingham High School, Beru. While he is no longer manager, he keeps a watchful and helpful eye on the books and the activities of the less experienced managers and bookkeepers. He rightly argues that if the *mronron* is to survive over time, all members must know how to run it.

Each member takes responsibility for 1 store item and must keep details of all transactions. If his stock runs out he is fined. During the week when additional labour is required for copra cutting, bread making and the like, members are summoned by whistle blast and non-respondents are fined for their absence. After the evening service on Sundays, a meeting is called to make up the books and review the week's trading. A lantern placed in the street discreetly signifies the commencement of the meeting; work and making noises such as whistle blasts on Sunday are frowned on by the church. Each member brings his takings, details of stock and coconuts in hand and details of his debtors and these are duly recorded in the *mronron* cash books. Any shortfall in stock, cash or coconuts has to be made good and a fine paid. The books are checked by the manager, a member is deputized to collect outstanding debts and a date is set for cutting copra. A member can elect to pay cash in lieu of time spent in copra cutting at a rate of 1¢ for 1 nut and keep the nuts for household use.

Divisions of profits are made several times a year and members may petition for a division to be made, usually when taxes or school fees fall due. Most members see the *mronron* in terms of getting larger sums of money together at once for such needs. The mechanics of a division follow set rules. A special meeting is called, the books are made up and the value of cash, stock in hand and coconuts is established. Half of the liquid assets are then distributed among the members. In 1973 members received $20 in dividends from Nei Toromi.

The *mronron* also lends to members. The amounts vary from a few dollars up to $30. Interest rates are high; 10 per cent per month for the first month, going up to 20 per cent per month if the debt is not discharged in the first month. As a result few people borrow and those borrowing were remittance receivers who needed a bit more cash to tide them over until the next remittance arrived.

At its inception in 1969, member households put in 20 coconuts to provide basic working capital. In 1970, the *mronron* activated ties with a worker on Nauru who sold mats for the *mronron* (at prices three times that offered by the cooperative store) and sent back the proceeds in Irish Cake tobacco, flints and cigarette lighters which were then sold through the *mronron*. No commission was charged by the man on Nauru. Ties with Nauru appear to have lapsed after September 1972 for no apparent reason. The major change in the *mronron*'s direction occurred in August 1973. The *mronron* was well established, running smoothly and money was more freely available on the island because of the copra price rise. The membership decided that the money earned through the *mronron* should not be spent by individuals on food and taxes because these could now be readily paid for with money earned from selling copra. It was decided instead that the money should be saved for the payment of school fees in the future and that every household should have a $50 nestegg to provide for such needs. A single decision changed the *mronron* from a cash-earning to a saving institution; it switched from being concerned with short-term *kabirongorongo* (money that you spend) to capital accumulation and *karinimane* (money that you keep) because it had become easier for individuals to obtain money for short-term ends and the *mronron*'s attention should be focused on more difficult and important long-term ends. From August 1973 onwards divisions were made on a weekly basis and a set sum was given to members in turn. The money had to be banked and the member's bank book publicly checked each week to make sure that the money had not been withdrawn. A fine of $1 is imposed on any member with less than the required amount in his bank account. The goal of having all members with $50 in their bank accounts was estimated to take 2 years. Plans were made at the inception of the scheme to celebrate the milestone. Each member put aside 1 pig and 3 *babai* plants for an enormous feast when the goal was achieved.

The creation of a focus of interest based on the *kainga* has had implications for other forms of community organization. There is a tendency for the *mronron* and *airiri* groups to come together. Nei Toromi *mronron* formed its own *airiri* group in November 1973. The *airiri mronron* functions in much the same way as a normal *airiri*, except that the member whose turn it is must pay 20¢ into club funds. At some time this fund would be dispersed among the members. The charge of 20¢ bears no relation to the value of the goods produced and this is recognized by the fact that only members can participate. The aims of the group are community-oriented rather than cash-oriented and stress the values of working together, protection against one's innate laziness, and the wish to have a good house. The cash incentive is probably not very great. One month after the group started, the members decided to have a celebration. The cost of the tea, sugar and milk was more than each member's potential share of 'kitty' and so all are indebted to the fund.

It is clear from the changes which have occurred in the *mronron* over time that it is not simply a cash-earning venture. The changes reveal something of a duality in the nature of a *mronron*. Its attraction to the individual is that it is a non-traditional form of organization, to some degree outside the norms of equality and conformity. Through membership of a *mronron* an individual can strive to increase his own cash income but at the same time claim immunity from censure because he is working for the group rather than himself. While the *mronron*, by its corporate nature, can pursue such 'non-Gilbertese' ends, developments over time shows the *mronron* to express many traditional values: the joy of working together, maintaining a well-kept house regardless of income, and being independent through having a nestegg to fall back on.

Mronron economics

In 1973, the 14 *mronron* whose cash transactions could be traced in the Tamana Cooperative Society's records bought $7,420 in store goods for resale and sold $6,063 worth of copra back to the society. The *mronron* accounted for nearly 15 per cent of store purchases from the society and nearly 34 per cent of the island's copra sales. While these figures look impressive the cash return to members is remarkably small. In 1973 Nei Toromi, 1 of the 2 most active *mronron*, purchased $1,413.46 worth of store goods for resale and earned $853.36 from copra sales. During the year, $380 was returned to members in dividends ($20 per household per year). Each household spends between 6 and 7 hours a week working for the *mronron* and this gives a rate of return of approximately $0.06 an hour.[1] The rate of return is much lower than the householder would get if he cut copra for himself ($0.26/hour at $0.03/lb) but higher than that from handicrafts ($0.04/hour). Clearly, factors other than rate of return govern the decision to work for the *mronron*, rather than by oneself for one's own ends. The *mronron* can achieve ends such as $50 in the bank, which an individual considers impossible without stimulus from others and protection from the temptation to spend rather than save money. The *mronron* divisions also provide money in relatively large sums at one point in time whereas it would take an individual many hours' or days' work to accumulate the same amount. The enjoyment gained from working with others and lessening the boredom of what are regarded as tedious tasks is a potent factor in favour of *mronron* work. So too is the belief that the *mronron* taps resources belonging to other people which would not normally be available to *mronron* members.

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[1]This does not include capital gain. In the first 3 years of operation members' initial capital of 20 nuts (worth 22¢ as copra) had grown to be worth $12.25.

Mronron and the future

1972 proved a difficult year for all *mronron*. Earnings from copra fell and patronage tapered off because the nut/cash exchange rate went from 1 nut - 1¢ to 20 nuts = 11¢. With the price rise in May 1973 a massive upswing in the level of *mronron* activity and the number of *mronron* operating on Tamana occurred. They appear to have contributed materially to the cleaning up of the nut surplus which accumulated during 1972, even to the point that future production was being eaten into. Tengare *mronron* accumulated 932 nuts from a week's trading in late January and 40 per cent of the nuts had been picked from the trees rather than collected after falling. Many managers realize that the future growth of *mronron* must be limited by nut resources and the volume of cash on the island and that the addition of more *mronron* into the system must affect the profits of all *mronron*. Several *mronron* argue that they must switch their attention to activities which will bring more money into the island. The possibility of sales of salt fish, *kamaimai* and *rauara*, cigarette paper, either to the Tamana store or through contacts in Tarawa, is being considered. Freight costs, pilfering and establishing satisfactory contacts as well as problems in organizing labour and continuous production will be problems which will have to be surmounted.

VILLAGE LEVEL GROUPS

The *Botaki n Rorobuaka* (council of married men) organize most activities at village level. The activities are centred on the village *maneaba* and most fund-raising activities are concerned with the maintenance and running of the *maneaba*. Fund raising usually takes the form of directives to members to bring salt fish, mats, pandanus cigarette papers, *kamaimai*, oil, *bonobono* (reef flatworms, used as a perfume or fixing agent in perfumed oil), and such items which are sold on Ocean Island or Nauru by the village's offspring organization there. Irish Cake tobacco, lighters, flints and diving glasses are sent back to Tamana for resale by the committee. Fund raising is aimed at particular projects related to the *maneaba*, not to raising the cash earnings of its members.

The *rorobuaka* are assisted by a women's group, *Komete n te Kawa* (committee of the village) which organize social activities and food for feasts. The *Komete n te Kawa* superseded the *Botaki n Aine Barebuka* (Association of Women of Barebuka) which had additional cash-earning functions. The BAB held auctions, mat-making afternoons and provided labour for members at a charge. Funds accumulated were periodically dispersed among the members. Most of these functions have been absorbed by the *mronron* and its village functions by the *Komete n te Kawa*. The BAB now concerns itself mainly with women's affairs at an island level and works on projects such as fund raising for the building of a maternity house at the hospital.

The *rorobuaka* is also responsible for organizing labour for Island Council and government sponsored schemes such as the Environmental Sanitation and Water Supply Scheme and the Agriculture Department's Coconut Improvement and Replanting Schemes.

The first stage of the toilet scheme involved excavating and lining the soakage pit and sealing it with a slab and water trap. The *rorobuaka* decided that since many households did not have sufficient manpower to carry out the heavy labour required, the village as a whole would undertake responsibility for the scheme and each household with males between 18 and 50 was levied to provide labour on set days, either for digging or casting slabs. The more difficult work of moulding the traps was taken on by the committee members. The work was carried out systematically and at the end of many months' work all households had toilets installed. No charges were made and no wages paid. All capable of working had to participate because it was a village decision. Individuals were left to provide the superstructure and this job was invariably taken over by the *mronron* who worked to provide members with the building at a nominal cost. Community goals again provide the motivation and the community gains satisfaction from the achievement of the goals.

The Agriculture Schemes were not successful. The problems which confronted them were of an inter-village rather than intra-village nature and will be discussed in Chapter 12. The scheme showed that the households within a village were willing to work together on a major undertaking where the goal was communally-oriented, rather than for individual gain. Barebuka *rorobuaka* intended using the money gained from a replanting scheme to help finance the rebuilding of the village *maneaba* in permanent materials. The scheme came unstuck because other villages did not opt for similar schemes. The benefits of the Replanting Scheme accrued to individuals as well as the village and some individuals did not belong to the village carrying out the work.

ISLAND LEVEL SCHEMES

Several projects initiated in the past by the Island Council have generated island-wide activity and support. The building of the Island Council primary school is the most important of these and illustrates clearly Tamana thinking on community projects and the responsibility of the individual to the community.

By the 1950s the Mission School was hopelessly overcrowded, understaffed and ill equipped. Tamana parents expressed concern for the fact that their children rarely got accepted for high school and thus had little chance of gaining employment. The setting up of a small Island School in 1958 did little to ease the situation as its roll was restricted to 40 students. Agitation

for a new school continued and a decision to build a new school was finally reached in 1966. In 1968, a school committee was formed with the responsibility of raising $4,000 which was the island's share of the project, in addition to providing labour. The Island Council was not satisfied with the intended 4-classroom school. After a meeting with the Council, the District Commissioner records:

> that it was the Council's intention that the new Council School should replace all existing schools and cater for all the island's children, in which case a four class-roomed school will be inadequate and obsolete before it is even built. The people are willing to build a six class-roomed school — in fact the Council insists on this size — even if there are not enough teachers (F34/4/15 District Commissioner's Tour Notes 12-18 November 1968).

The Council's thinking is clear and shows again the importance of *boraoi*, the concept of equality and conformity. If the project is a community project, then all households can expect to have their children educated at the school. If not, the Council would find itself in the impossible situation of having to decide who should go to school and who should not. A 6-classroom school was built and staffed together with 2 more classrooms built of local materials and staffed by monitors (F34/4/15 District Commissioner's Tour Report 8-15 April 1970), and the Council was saddled with a $3,000 debt (F34/4/15 District Officer's Report 30-31 July 1970). Attempts to raise money for the school show the other side of *boraoi*: while individuals have a right to expect equal opportunity they also have to contribute equally. Initial fund-raising attempts began with a 50¢ levy on all households on Tamana and a levy of $26 on all men working on Ocean Island and Nauru. Ocean Island men refused to pay the $26 and claimed they should only pay a flat rate of $1. The Council's reaction was to argue that people on Ocean and Nauru should pay more because they could get money more easily, and if the Ocean Island workers did not pay, their children would be refused admittance to the school (F34/4/15 District Officer's Tour Report 1-10 July 1970) or charged school fees (Tamana Island Council Minutes 59/70). The problem of the school debt was finally resolved by charging school fees and raising the level of taxes. Behind all the pressure for improved school facilities is the belief that they will improve Tamana children's chances of getting employment. The expenditure was seen as an investment in the future which would produce a larger flow of remittance incomes to Tamana.

The Island Council Fishing Scheme represents a more direct attempt by the Council to raise money for the island. The scheme was first mooted by the preceding *Kabowi n Abamakoro* in November 1966 (Minute 9 1/11/66) when the *Kabowi* suggested stationing Tamana men on Tarawa to fish, sell fish to the Tarawa people and

handicrafts to tourists. The scheme got more impetus in 1972 after a Councillor made contact with the hospital and schools in Tarawa about supplying fresh fish. A lease of land at Bonriki was arranged and in June 1973 12 men (4 from each village) left for Tarawa. The scheme was drawn up in cooperation with the Tamana Tarawa Committee and involved building a house on the leased land, fishing the reef areas and selling the fresh fish to the hospital and school. The Tamana Island Council was to pay the men a wage and the men were to send the proceeds to Tamana. The scheme came to a halt when the Tamana Island Council was dismissed. The newly elected Council considered itself too busy to take on the fishing scheme again and it was handed over to the Old Men. The scheme was put on a much sounder footing. Three of the Old Men (again, 1 from each village) went to Tarawa to arrange the lease and the details of the scheme with the Tamana Tarawa Committee. The new scheme was estimated to cost between $2,000 and $3,000 which would be raised on Tamana by the Old Men levying households for salt fish and *kamaimai*, mats for sale at Nauru and from the *An Tamana* Island fund held by the Old Men. The scheme was intended to follow much the same form as the previous one, except that the fishermen would have outboard powered dinghies. All households were required to contribute to the scheme and the universal hope was that it would grow into a fishing company which would replace the loss of employment and income imminent with the exhaustion of Ocean Island phosphate deposits. At that time there were no concrete details as to how the profits were to be distributed, except that all islanders could expect turns at working in Tarawa.

SUMMARY

The examples discussed in this chapter show that cooperation between households in *airiri* groups and *mronron* on a village and island-wide basis are a normal part of Tamana everyday life. Households expect to cooperate and the aims are not narrow and cash based but are concerned with the well-being of all members of the community. Cooperation stresses the entrenched values of conformity and equality rather than individual opportunity and individual gain. At present, cooperation of all households in village and island schemes is taken for granted. The village *rorobuaka* can direct members to produce goods and labour for the common good and individuals or groups accept punishment for non-compliance. The Island Council and the Old Men cannot be sure of similar support. Surely this recognition of common goals and willingness to pursue them by the joint effort of all households should form the basis of development planning rather than schemes which stress the individual and encourage him to spend more and more time in activities aimed principally at raising his own income. The school is, to the people of Tamana, a symbol of community achievement and an investment in the future. The fishing scheme is intended to be likewise. Cooperative spirit is a

resource which should be built on rather than destroyed. Development planning should encourage building from within, rather than attempt the grafting on of often foreign concepts and institutions.

The *mronron* were discussed in depth because they are the most important indigenously organized cash-earning group in the community and they contributed substantially to the increase in economic activity apparent in 1973. The organization and day to day operations of some *mronron* show a degree of business and organizing skill which is very commendable. A blend of bookkeeping and enforced regulations protect the better run *mronron* from the common fate of disappearing assets and disintegrating support. Members see the rules as protecting themselves from themselves. The *mronron* bring together labour and resources which are normally disparate and achieve a level of production not normally considered possible by an individual working alone. It provides money in large lumps which can be put to special purposes, whereas individual activity can only produce small sums of money over longer periods of time which tend to get spent, rather than saved. It allows individuals to escape norms which control individual actions or even provide disincentives to effort (such as the fear of *bubuti*). As the same time the *mronron* provides the enjoyment of working together which makes work easier and less tedious and stresses the value of working for the good of all members.

The *mronron* is not a static entity and changes with the changing aspirations, energies and needs of its members as well as reflecting the general economic climate of the colony. Individual *mronron* are aware that their potential for growth is limited by the pool of coconut resources and cash on Tamana and are looking for ways to widen the scope of their activities and break into the larger markets of Tarawa and Nauru. The institutional problems of maintaining steady production, transport frequency, freight charges, packing, bottling, pilfering while being shipped to Tarawa, and finding a suitable outlet in Tarawa or Nauru still have to be solved. The following recommendation is offered with reservations; it could lead to an important break-through as far as Tamana *mronron* are concerned, or it could lead to stultification and loss of interest. There could be scope for the employment of an extension officer, (Gilbertese and with some experience in running *mronron*) to act as a middle man between the *mronron* and the government. His would be a very delicate task requiring an officer of considerable sensibility and experience and a real awareness of Gilbertese ways of thinking and the value system. His main purpose would be to deal with specific *mronron* and their problems and report back to the government on ways in which the groups could be assisted to expand. The job does not call for an expert; it requires someone who is willing to listen, learn and understand. Above all the initiative and flexibility of the groups must not be destroyed. The *mronron* belong to the members, they are proud of them and their success, the *mronron* express their

members' aspirations. Any outside attempt to 'develop' them could easily destroy the sense of pride of ownership and initiative and reduce the *mronron* to yet another government idea requiring the unquestioning, even uncomprehending cooperation of the Tamana people yet again.

During the latter part of 1973 the *mronron* contributed substantially to the expansion of local income earning and expenditure. They were able to do this because goods were available on an extended basis, could be purchased on credit and paid for with coconuts if ready cash was not available. Credit does not appear to have been a problem because it was extended for 1 week only and the debt was owed to a group within the community rather than the more remote and impersonal store.

The manager of the cooperative society store on Tamana saw the expansion of *mronron* activity as beneficial to the Tamana economy as a whole and was keen to encourage *mronron* activities. He argued that expanded *mronron* activities meant expanded copra production and store sales which benefited everyone since most of the store goods and all of the copra passed through the society's store as well.

A supplementary recommendation relates to *mronron* licensing. If the government is concerned to promote indigenous economic activity on outer islands, it seems illogical to impose a disincentive in the form of a *mronron* licence. Given the labour inputs into the *mronron*, the returns to its members are small. If the licence were paid, it would reduce the dividends even further. The additional taxation burden is hardly justified, especially since nearly all goods sold by the *mronron* are bought through the cooperative society store at retail prices and hence carry sales tax and the copra sold back to the cooperative society incurs export duty. Further taxation seems unnecessary and *mronron* licences should be abolished.

Chapter 12

Tamana and the government

GOVERNMENT THROUGH TAMANA EYES

The Tamana people's attitudes towards the government are shaped by a long history of undeniably paternalistic control, first by the LMS and later by the colonial administration as well. When asked what constituted 'the government' most informants were in agreement that it was 'Tarawa': the Governor, the Commissioner, the District Officers and less surely, the Legislative Council. On Tamana this pervading force was represented by the Island Council, the magistrates, policeman, Island Executive Officer (IEO), Agricultural Officer, radio operator, the school, the store and the Legco member. A distinction was drawn between the Island Council, whose sole purpose was to work for the government, and the Old Men, who worked for the island.

None could satisfactorily explain what the distinction meant until it was demonstrated by events in early 1973. The activities of several council members incensed many Tamana people who found that they had no way of either voicing their protest to the Council or influencing its decisions. As tension mounted, people turned to the Old Men to call a *maungatabu* (whole island meeting) to discuss the issue. Such a meeting would have expressed the traditional meaning of government on Tamana, with the Old Men in their former position as *karo te utu* (head of the families) and the people to be *rabata n te tautaeka*, the body of the government. Tamana people now see the 'government' as defined above as the *karo te utu* but they do not see themselves as constituting its body. The Island Council does not and cannot, because of the way it is structured, fulfil this role. It is seen as an instrument of government liaising between Tamana and Tarawa, which necessitates skills in English and knowledge of European ways. Its structure is not 'Gilbertese'. The president is put in a position where he can coerce others. Decisions are put to a vote, rather than decided by a consensus, and members are elected, rather than required to take their turn in serving the community. The present Council is thought to function by enforcing decisions taken by a higher body.

The role of government is seen principally as a protective one. The government is the protector of the people and is responsible for making people lead good lives and live in law and order. Its job is to think about the island and tell the people to do good things. The Legco member is seen in the rather curious position of messenger; taking complaints of Tamana people (usually relating to particular Tamana rather than colony-wide problems) to Tarawa and bringing back the decisions of 'government' to Tamana. He is not seen to take part in the decision-making process itself. Tamana people do not take part in the decision-making process. They see their role as one which carries out decisions and this is reflected in the ready and unquestioning acceptance of the superior knowledge of the government and the schemes it proposes.

GOVERNMENT DEPARTMENTS

The success or failure of many of the services provided on the outer islands reflects several problems. The plans are made on the basis of colony-wide action and at this level little can be done to modify plans or their implementation to suit conditions on particular islands. It becomes a political and administrative problem as to the extent to which a particular island can receive differential treatment. The lack of involvement of people in early decision-making process means that schemes can be irrelevant to the people's seen needs or contain ill-conceived aspects which make their application impossible. The activities of most government departments impinge on the lives of Tamana people but discussion will be restricted to the three which probably have the most scope for influencing the future development of Tamana.

AGRICULTURE DEPARTMENT

The Agriculture Department is a relatively recent addition to the colony administration. Prior to the arrival of a Coconut Officer in 1963, agricultural development was undertaken by officers or bodies not primarily concerned with agriculture. In the 1930s, Tamana people say they were made to work in their *babai* pits every Thursday and were fined by the *kaubure* if they failed to do so. In the 1950s the *kaubure* were directed to set up Agricultural Committees to encourage the cleaning and planting of lands. School Agriculture Committees were also set up to promote agricultural development, but none of these appears to have had any lasting effect on agricultural activity on Tamana. Agricultural development received its main boost in 1965 with the appointment of 2 officers to take charge of the 'Colonial Development and Welfare Scheme for the Improvement of the Coconut Industry' and a 'Plant Introduction and Livestock Scheme'. The activities were brought together in an independent Agriculture Department

in 1966. The schemes still characterize the main thrust of the Agriculture Department's activities. The former has had more impact on Tamana.

Coconut Campaign

The main purpose of the Coconut Scheme was to implement the recommendations of the coconut agronomist, a Mr Green, who visited the colony in 1960. On Tamana it gave rise to the Coconut Campaign of 1966-68 which was seen basically as an extension exercise (Department of Agriculture *Annual Report* 1967, p.2) and involved the setting up of a nursery to provide seedlings and the supervised planting of several blocks of land. Trees were spaced in 21 ft triangles (114 palms per acre) and planted in holes dug to specified dimensions. Some lands were under-planted, with the understanding that the older palms would be thinned by poisoning. The landowners provided the work force and worked with the Agricultural Officer and his assistants. No payments appear to have been made for labour although the landowners were evidently entitled to a rebate of land tax for 2 years on the lands with new seedlings only on them (F2/5/15 26/2/68). The landowner was required to keep the palm seedlings weeded and mulched and inspection was required before a land tax rebate was approved. Between 1966 and 1967, 220 acres of land were replanted. Most landowners refused to agree to the poisoning of palms, and except in a few cases this was not carried out. The condition of these plantings in 1972 and 1973 was very variable. Some lands were well tended and the palms were beginning to flower; others were neglected and in poor condition; a combination of poor tending and difficult site conditions.

The Department's expectations of the Coconut Campaign were never made clear. Nurseries were established to provide replacement seedlings (F2/5/15 Coconut Campaign Tour Report 29/1/65), but there appears to have been no provision of seedlings for additional plantings by interested individuals, nor does any framework appear to have been provided by which interested parties could carry out their own replanting and claim remission of land tax which may have provided an incentive to further planting. Instead, in the workers' words, 'when the Agricultural Officer stopped working we stopped working' and there is little evidence of any major ongoing effect of the campaign. This stresses the need for continuity in extension work and the need for a permanent extension officer on the island to generate and maintain enthusiasm. This was achieved in March 1973. Putting the campaign in perspective, its results were not entirely negative; the demonstration effect was valuable for many landholders already interested in improving land management and the planting techniques demonstrated have since been applied by some landowners. However, these landowners were, by and large, already concerned and their lands well planted and tended. The fruits of their improved management will be small

in comparison with the potential for improvement on more neglected lands belonging to less interested landowners.

Coconut Subsidy Scheme

The apparent failure of this approach led to the Coconut Subsidy Scheme which hoped to stimulate coconut improvement by an injection of subsidy money. The subsidies were to be applied to two main areas: improvement and replanting. Replanting subsidies were gained by clearing lands with low palm densities and on very low density lands the digging and planting of lands to a density of 87 per acre. Improvement Schemes provided subsidies for the clearing of lands of non-economic vegetation and if necessary the bringing up of palm densities to 87 per acre. Palm densities over 87 per acre were not required to be thinned. If land in an Improvement Scheme had bare areas over one-fifth of an acre, subsidies were available for each palm planted. Subsidies were also to be paid for the maintenance of replanted and improved areas for a period of 9 years. Initial thinking recognized that a scheme based on individual holdings would be unworkable and favoured cooperative ventures involving landholders working areas of not less than 20 acres (F30/2/2 1970-73, Appendix 1, Administration Coconut Subsidy Scheme). Subsequent experience led to the raising of subsidy rates and the lowering of the minimum area to 5 acres. In 1974, the subsidy rates were substantial: $90 an acre for clearing and digging planting holes, 9¢ a bearing palm left standing after improvement up to a maximum of 87 per acre; for replanting bare areas over one-fifth of an acre the rate was 50¢ per palm. The Agriculture Department also provided seedlings grown from selected nuts purchased from landowners at 1.2¢ each. Maintenance subsidies are paid at the rate of 4¢ per palm (for a maximum of 87 palms per acre) for 9 years.

The application of the new scheme was slow. A permanent Agricultural Officer arrived in March 1972 and he began promoting the scheme at once. Interest was considerable; he addressed a total of 700 listeners in meetings in the 3 villages, and the villagers agreed to work together on the scheme. After much delay, caused by the shortage of tools, forms and the recasting of the scheme, 1 replanting and 2 improvement schemes were finally approved in January 1973 involving 67 acres of land combining 139 separate landholdings.

The *rorobuaka* of all 3 villages reached an agreement by which all landholders in each village would work communally on schemes within the village district regardless of who owned the land. In the 2 southern villages which registered improvement schemes, the subsidies for clearing were to be shared among the workers, while the northern village took on the more ambitious task of a replanting scheme where the subsidy was to go into village funds for the rebuilding of the *maneaba*. The different responsibilities

accepted by the 3 villages turned out to be the downfall of the replanting scheme. The Tamana emphasis on equality applies to villages as well as individuals. The Barebuka landowners became incensed that they were working on a replanting scheme on lands which belonged to people in Bakaka and Bakarawa as well, whereas the landowners in the latter villages were only carrying out improvement work on any Barebuka landowner's lands within their village districts. They considered this unjust and abandoned the scheme before hole digging began. Barebuka subsequently registered an improvement scheme and equality was restored. Had all 3 villages registered replanting schemes, no problem would have arisen and Tamana's capacity for communal work would have seen all 3 schemes to completion. Several smaller replanting schemes were registered towards the end of 1973. They were independent ventures involving 3-6 landowners and areas of 4-5 acres. No further improvement schemes were registered and by February 1974 all registration of improvement schemes was in abeyance.

In retrospect the Coconut Improvement Scheme did not achieve its objectives. Its purpose of improving the quality of existing palm groves was not appreciated by Tamana people. It was seen simply as a short-term cash-earning venture embarked upon by individuals who had no involvement with or interest in the land being developed. Any approach which dissociates land and the individual is likely to meet the same fate.

The approach taken in aggregating land into 'manageable' units for such projects tends to ignore the importance of land and the individual. Land is not simply a means of production, it is an expression of the social system. The landowner is holding land for his offspring. The land gives them sustenance and a place in the community. The association between the individual and land is still sufficiently strong on Tamana that agricultural extension projects could be more meaningfully directed at the individual rather than land. It should build on his awareness of the need to improve resources for his heirs' sake. It would thus become relevant to his conception of the world. The problem of fragmentation and smallness of parcels of land would become less important because the individual rather than the Department would become the initiator of action. The Agriculture Department has not demonstrated, except for administrative convenience, why replanting should only be carried out on blocks of 20 or 5 acres. The landowners who registered the small replanting schemes did so because they were concerned to improve their coconut resources. They would probably have acted individually on their own lands in response to the stimulus of the interest created by the Replanting Scheme. They formed into a group because it was required of them by the Agriculture Department.

The problem of credibility needs more attention. The Department seems to have assumed that the people would see the need for

improved grove management and copra production. Data presented in Part 2 indicate that most households have sufficient nut resources for their immediate needs and even some surplus. Copra accounts for only 9 per cent of the average household's income. Under these conditions the need to stress long-term strategy is paramount. Impending problems related to the running down of Ocean Island should be stressed. To some islanders the whole question of improvement and planting schemes seems irrelevant. I quote the predicament of the Agriculture Officer in his own words:

> Some islanders have come and put up 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 the air (F2/5/15 Report June 1972).

If the extension officer is not fully aware of the purpose and importance of a development scheme how can he convince the people that their participation is worthwhile?

There are several aspects of the Replanting Scheme which require more consideration and research. The thinking of the Agriculture Department in promoting uniform age stands of evenly spaced palms appears to be aimed at obtaining the maximum return from the trees during their productive lifespan. It implies that at some point in time all palms will be replaced which means that any piece of land could be non-productive for perhaps 20 out of every 90 years. Insufficient thought appears to have been given to the applicability of this model to individuals' landholdings which are small, dispersed over several of the island's differing ecological zones, and which will be distributed among his offspring towards the end of his life. Variability of production on different lands during excessively wet and excessively dry periods means that all lands should be productive. Similarly, the need of an heir to inherit a productive land since he will not inherit all lands suggests that every land should be productive all the time. Much more attention should be given to establishing the optimum spacing of mixed aged stands which will give a satisfactory level of continuous production. Research needs to be directed towards these ends rather than to plantation type production which takes no account of the realities of the landholdings of individuals.

New crops

Little success has been achieved in introducing new crops into Tamana, although the Agricultural Officer has made several commendable attempts. Custom and climate worked against him. The officer set up a demonstration garden soon after his arrival and managed to generate considerable interest in the garden. In

August the first crop of tomatoes, beans and Chinese cabbage was harvested and tasted by interested villagers. He records: (F2/5/15 Report for August) 'when tasted ... some commented that they were tasty while others found the taste strange and terrible. In my opinion the islanders only admired the beauty of these vegetables while they were growing, but when getting them to eat the vegetables is rather critical.' His second garden failed because of the non-germination of seed. Another attempt was made, in co-operation with the headmaster, to establish a school vegetable garden with the idea that the vegetables would be cooked and eaten in the school grounds, perhaps encouraging in the children a taste for a more varied vegetable diet. The effort was frustrated by drought. Rainfall variability means that cultivation of shallow rooting crops will always be difficult on Tamana. If the diversification of diet is important, more consideration could be given to building on the hydroponics experiments carried out on Tarawa in 1973-74 and the school would seem to be a good place to introduce these activities into Tamana.

The discussion of the various agricultural schemes above points up some of the problems common to all development schemes. If the cooperation of the people is required then the schemes must be seen to be relevant to the people's felt needs. There may be a problem here in distinguishing between short-term and long-term prospects and here the role of the extension officer is of prime importance. Care should also be exercised that too much attention is not given to too narrow a range of needs. The stress on copra and coconuts tends to ignore other needs for other fruits, building materials, handicraft materials and the like. The self-sown, non-fruiting pandanus is as much a resource to a Tamana person as a fruiting one. Agricultural planning must take into account the realities of land ownership and the meaning of land to the people. Much more attention should be given to people rather than land in agricultural development. If an individual is convinced of the need to improve his land and the Department assists his attempts the chances are that he will do it regardless of whether subsidies are offered. Such an approach puts much more responsibility on the Agricultural Assistant as an extension officer. Because the training of such officers is a recent innovation, most are young and relatively inexperienced. Insistence on a certain level of high school education means that many officers' experience and understanding of and respect for outer island life are lacking. These are problems that only time can answer, but the question should be asked as to whether an Agricultural Assistant must be young, able to communicate in English and have a high school education or could the extension service not train and utilize older men interested in agricultural development, experienced in local production and versed in the ways of outer island life? The Department might consider the possibility of running extension courses (in Gilbertese) in nursery, planting and fertilizer techniques for island representatives. The interest in agricultural

innovation is present; a discussion of the use of fertilizers over the radio brought immediate requests for purchase, and when fertilizers did become available they were sold out within 1 day (F2/5/15 Reports, July and August 1972). If extension courses were to be made available, in the Tamana context, an equal number of places for participants from each village should be made available and the selection should be carried out by the village committees. As long as the intentions and purposes of the course are made clear the village committees would be in a strong position to suggest suitable candidates. If the individual goes as a village representative the village committee is then in a position to specify his responsibilities on return to the community at large.

Agricultural development and land reform

Land reform is often seen as a precondition for agricultural development and after reviewing the progress of the replanting and improvement schemes on Tamana, the Agricultural Officer made the observation that 'there is a great need for some land reform here' (Inspection Tour of the Southern Gilberts, 1 July-3 August 1973, F2/5/15 Beru File). What sort of necessary reform and why it should promote the cause of the replanting and improvement schemes was not specified. The reality of the land situation is that individual landholdings are small and landowners' plots dispersed. On Tamana at least, they are all accessible. Any attempts to reallocate and redistribute land would be a massive task and unless the present inheritance laws were changed the process would simply begin anew. To attempt to change the laws would destroy the whole basis of relationships and responsibilities between people. Land inheritance assures coming generations of a place in society and at least some land; it assures the current landholder of the right to be cared for in his old age.

The present system has several positive aspects which tend to be ignored. The prospect of an individual becoming completely landless and hence losing his place in the community and claims on other *utu* members is remote. The distribution of lands is uneven but Tables 5.1, 5.2, 7.9 and 8.4 show that land ownership was not the only means of access to resources. Some households used many more nuts than their palms were estimated to produce; others used fewer. No massive surplus of unused nuts was evident which shows that some redistribution must have been occurring and that the present system has a flexibility through which the subsistence and possibly copra needs of others are met. Land reform and the social change which must accompany it could easily break this chain of responsibility and end up benefiting a few but disadvantaging many. Inequalities in landholdings do not arise because of the inheritance system, but because of the differential fertility of different descent lines within the *utu*. Adoption, careful choice of marriage partners and the redistribution of lands of issueless owners mean that the process is not purely unidirectional.

Only a conscious population policy can reduce the universal reduction of per capita resources.

Agricultural development is basically then a problem of convincing the households with average and above average land resources to increase their palm resources either for short-term gain or for long-term ends of ensuring adequate resources for their offspring's needs and the possible needs of less advantaged kin. Figure 5.1 shows there is little evidence to suggest that landowners with high per capita landholdings have less densely planted lands than others. This is basically a question of incentive and it has not been shown that land ownership patterns act as a disincentive. In the short term the question is basically economic. Low and fluctuating copra prices are probably more important than limited resources. In the longer term most landowners hope, and are convinced by this hope, that education and a job in Tarawa will make their children *oinibai* and free of the need to cut copra and toddy. Land scarcity is no doubt a stimulus to this hope, but land reform cannot increase the total stock of land on Tamana and the scope for redistribution is limited since even the most advantaged household had only 5.40 ha of land vested in its members.

EDUCATION

While schooling has long been a part of all Tamana children's experience and an accepted part of their upbringing, the purpose of education in the community's eyes has changed and the place of education needs further clarification. Schooling was closely associated with missionization. The first church schools were set up in 1875 and by 1881 schooling became compulsory. The LMS village school taught children from the ages of 7 to 16 and the teaching had a strong religious emphasis. Subjects included Bible studies, arithmetic, grammar and writing in the vernacular, geography and singing. English appears to have been taught at some times but not at others. The condition of the school in 1960 is vividly described in the Assistant Commissioner's Travelling Diary 4-7 May 1960 (F34/4/15):

> 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 on assorted books, readers etc. He has ten low bench tables each sufficient for four pupils.

Not surprisingly, and despite government inspections and testing of pupils, very few students went on to high school in either Tarawa and Beru and few if any gained permanent employment on the basis of their Tamana education.

An Island School, housing 40 students in a single classroom staffed by 1 teacher and an unpaid monitor, was finally established on Tamana in 1958. The curriculum of the Island School emphasized English, mental and written arithmetic, geography and history. Its emphasis towards outside needs is obvious and its success was measured in the numbers of its students accepted into high school in Tarawa. Parents complained to the Assistant Administrative Officer in 1962 that no children had been accepted from Tamana for high school over the preceding 3 years and accused the teacher of not doing his work properly (Travelling Diary 30 April-19 May 1962, F34/4/15). The character of the Island Schools and their curriculum emphasis have been retained in the Island Council Schools except that attendance is open to all and practically all children attend school.

Purpose of education

Most informants who received their schooling at the LMS village school claim that the education they received had little relevance to the lives they have since led. Arithmetic because of its use in handling money was sometimes singled out as an exception; music was another because it enabled the informant to play in the Tamana Brass Band. People went to school because it was the custom, because the pastor told them to, because their parents wanted to keep them out of mischief and because the *kaubure* beat them if he found them out of school.

The same informants see the schooling available to their children as being quite different from their own. Firstly, education now comes from the government and the government controls employment. Having a government school places their children under a different *tibanga* ('fate'). Their schooling will make them *rabakau* ('clever'), cleverness being defined in terms of being able to speak English, understand *imatang* ways and get employment. One informant only thought the 'cleverness' learnt at school had any relevance to life on Tamana. To Tamana people at large, education and employment are synonymous and their school represents an investment in the future employment prospects of their children. The early successes of placing 8 children in high school in 1 year was ample dividend, but lean years when none or only a few children get accepted cause resentment and questioning of the purpose of such investment in the 'new'education.

The Education Department is caught in the unenviable position of having to develop a curriculum which provides for the few who are likely to go on to high school or employment in the

European-dominated world of Tarawa, but at the same time satisfies the needs of the remainder of the population who will continue to live on Tamana. Fine words are spoken about the necessity of a curriculum which is relevant to the needs of the people but insufficient effort is made to define what relevance means and relevance for whom. As far as the Tamana people are concerned schooling is only relevant in terms of acquisition of skill in English and through it employment. This is admittedly a narrow and, given the growth prospects of employment in the colony, a quite unrealistic viewpoint. However, it is a sincerely held view of the relevance of education. The Education Department is rightly concerned with the relevance of the education system for the majority of the population. The Acting Director explains the policy:

> The Education Department is trying to ensure that work in the Upper Primary Schools is relevant to the future lives which the boys and girls can expect to lead so that they are able to fit happily and contentedly into their village community and contribute usefully to it. If the Education in the schools is right there should be no 'unemployment' gap between 15 and 17 years on an outer island. A 15 year old should be able to take his place in the village, fishing, cutting toddy, farming or helping in the home (F105/1/38 School Leaver Problem: Beru, Memorandum for Acting Secretary to Member for Internal Affairs from Acting Director of Education, 19 January 1973).

With the future put in these terms, the absence of any substantial evidence to show that boys and girls in the past have been unable to fit contentedly and happily into the village community and the suspected irrelevancy of the concept of an "unemployment" gap', the more critical observer might be led to question the relevance of any formalized education system whatsoever.

On the more positive side, the attempts to reduce the emphasis on English and stress literacy in and the use of Gilbertese, the introduction of locally oriented social and environmental studies and local skills, so as to encourage a wider awareness in the individual of his place in the community and the wider world, are all laudable aims. The educational problems are enormous and it must be accepted that the results may be seen as less than relevant by some parents.

The Schemes in Environmental Studies warrant special comment because of the educational problems involved. The scheme 'starts with the study of many aspects of local life, important traditional skills are taught and practised through the Home Economics and Community Skills Syllabuses' (Green, 1973). It will be apparent to the readers of the various reports of this survey that the islands studied are very different and while some threads are common the differences are great. This questions the validity of

what must be generalizations about 'local life' and 'traditional skills'. The possibility arises that the examples contained in the teaching material on 'local life' could be just as foreign as some of the former teaching on history and geography and yet the pupil will be told that this is 'local life in the Gilbert Islands'.

The problems could be compounded by the fact that teachers may come from other islands and not be aware enough of life on the island on which they are stationed, to adapt the material. Their educational progression from island primary school to high school and teachers college means that their effective contact with outer island life may have finished when they were 12 years old. In some teachers this has produced a contempt for the unsophistication of outer island life, while in others it produces an embarrassment at their lack of knowledge of outer island life and incompetence in traditional skills which makes them feel uncomfortable in handling the syllabus and sensitive to the fact that their pupils may know more about the subject than they do.

In addition to the teacher's problems in relation to the teaching of traditional skills, it is suspected that the curriculum organizers have failed to understand the nature of traditional skills. These belong to individual *utu* and are closely guarded secrets, not common knowledge. All *utu* would possess their slightly differing particular skills and magic relating to fishing and toddy cutting and they are passed on from generation to generation. An individual might choose to describe some part of a particular skill at an important event such as a child's first birthday celebration. He is unlikely to be persuaded to do this at a school, even if the Island Councils are advised to include $50 in their estimates to cover the payment of such craftsmen who might be employed on school projects such as housebuilding, canoe building, fishing and dancing (C/10 Memorandum Director of Education to District Commissioner 25 April 1973). It has not been established that these skills can be, or should be, taught in the school room. The skills are still being learnt by individuals over a long period of time by active participation. It would be a great pity the teaching of such skills is attempted at the expense of new and different skills which are needed but not widely available. The growth of *mronron* means that there is a growing demand for skills in bookkeeping and business management. The increasing volume of mechanical gadgetry filtering back to the island might call for elementary practical mechanics courses. Such skills are not widely available in the community and are relevant to the evolving needs of the community.

MEDICAL DEPARTMENT

The medical services on Tamana are provided by a dresser and nurse stationed at the island dispensary and several nurse aides resident in the villages. The service provides antenatal and

postnatal care, a baby clinic, a fairly basic level of treatment of minor illnesses and injuries, basic drug dispensing and a referral service for more complex cases to the colony hospital in Tarawa. Apart from minor complaints as to non-attendance and the periodic shortage of medicines, most islanders seem reasonably satisfied with the service. For the dresser's part, his main complaints centre on the fact that he is often called too late to be of help in many serious cases, and that patient's kin apply traditional treatments in his absence which often cause complications. One internal ulcer sufferer died while in his care after he had been massaged by relatives.

The main activity of the Medical Department impinging on this survey is the family planning campaign. Family limitation has long been seen as a possible solution to the colony's population 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 (F52/21/1 [i]) Memorandum from Chief Lands Commissioner to Secretary WPHC 29 April 1946). Nothing was achieved until the commencement of the present family planning program in 1964 and major progress was not made until 1969. The present program reflects very careful preparation with attention to staff training, recording, ensuring of supplies and an intensive hard-sell extension program of talks, films, discussion groups, constant radio publicity through announcements, talks, song sessions and song-writing competitions. The impact of the program on Tamana is immediately apparent. The island records show 1 contraceptor in 1968 and 24 new contraceptors in 1969. By the end of 1971, there were 93 notified contraceptors and 30 per cent of females in the 15-44 age group were using contraceptive devices. Tamana response level was about average for the colony (*Report of the Family Planning Section of the Medical Department ... 31st December, 1971*). Early emphasis was on the IUD while in 1973 emphasis switched to the Depo-Provera injections. The impact of the program was reflected in the much reduced replacement ratios (ratio of children 0-4 years per 1,000 women 15-45 years) revealed in the 1973 census (see Table 1.4).

Whether this trend is maintained and results in a permanent reduction in the rate of population increase is of critical importance and will depend on the number of present users who discontinue and the number of females who commence contracepting for the first time. The 1971 *Report of the Family Planning Section* considers that the discontinuance rate to 1971 was remarkably low. During 1971 6 Tamana women discontinued and 19 new patients became contraceptors. The *Report on the State of Family Planning Acceptance ... at Mid-September 1973* reports on the period from the end of 1972 to mid 1973 and claims evidence of a 'fertility backlash' as shown in a 27 per cent abandonment of family planning. It also states that there were few new patients during the period. The inferred reasons for this are socio-economic and psychological

reactions to the absence of babies, inadequate follow-up and no tours of inspection by the Family Planning Section, and 'crazes'.

On Tamana, at least, the evidence of a fertility backlash is not forthcoming. There are problems reconciling Central Office Records and Dispensary Records. The data supplied in the 1973 report show that of the 99 notified contraceptors at 31 December 1972, 17 had discontinued by mid 1973 which is taken as evidence for a fertility backlash. What the report fails to show, and what is clearly evident in the Dispensary Records on Tamana, is that 20 females who had not been contraceptors previously became contraceptors during 1973. This is the highest annual figure since 1969. Looking specifically at the discontinuers on Tamana, only 5 of the 17 are classified as 'voluntary discontinuers'. The remaining are 'follow-up failures' which presumably result from staffing and touring difficulties experienced by the section and their inability, through circumstances beyond their control, to provide adequate follow-up service. If a fertility backlash were in operation it is inconceivable that 20 more women would begin contracepting. Again the Tamana Dispensary Records show that over the 1969-73 period only 1 woman ceased contracepting because she wanted a child. Four women became pregnant after loops were expelled, all of whom switched to another form of contraception after the birth of the child. One discontinued because she had apparently reached menopause. The records show a willingness on the part of Tamana women to try various contraceptive techniques until they find the one which suits them best. The case for a fertility backlash on Tamana is not proven. The problem comes back to follow-up service and if it is the aim of the government to promote a population policy for the colony it is imperative that follow-up services for the Family Planning Section be maintained. The Family Planning Section must look to the contraception method which it can successfully supervise given certain levels of staffing. It appears that the switch to D-P may have been encouraged by the ease of administering without due regard to the ability of the section to provide adequate follow-up service. The 1973 report suggests that the continuance rate of IUD is much higher than for any other method. Its applicability in spacing children as well as completing families needs more consideration. In this respect it is significant that the Tamana Dispensary Records show only 1 contraceptor with no previous issue.

Looking to the future, the fact that there is little evidence of a fertility backlash on Tamana at present does not mean that one will not arise in the future. A family planning campaign cannot be pursued without consideration of its wider implications for society. Consideration must be given to the labour force needs of the subsistence economy and the likely level of out-migration from the islands. Present attitudes towards family planning show the fruits of the hard-sell campaign. People are convinced that they live on a very tiny island and that the need to restrict

population is real and immediate. The answers to questions about the need for family planning are usually pat and to some degree uncomprehending. The cracks in the facade are beginning to show. People realize there are fewer children around and children are the joy of a family's life. Older men are expressing concern for their future security. Several informants described the ideal family as being like a staircase, with children of all ages, so that with the progression of time there is a constant supply of labour to cut toddy, fish and so on. A small family clustered early in a woman's childbearing years does not provide this. Fewer children imply a freeing of more of a woman's time and unless the freed time can be diverted into some satisfying activity a reduction in family size could lead to a general decrease in the satisfaction derived from outer island life. These prospects call for the need to promote contraception for spacing children rather than simply limiting family size. If acceptance continues and the lowered replacement ratios are sustained, attention must be given to the encouraging of women to take up new activities to absorb the time normally devoted to child care. The family planning scheme has made considerable progress, its achievements must not be allowed to fall away.

The discussion of the activities of the 3 government departments is not meant to be simply critical. It is of course easy to be critical from afar, and to concentrate discussion on the negative rather than positive achievements of the various government departments. In this discussion an attempt has been made to describe and analyse some of the problems confronting their activities as they apply to an outer island situation. The discussion does not imply that only these departments need be concerned about the impact of their activities on outer island people. The discussion highlights the need for all departments to involve people more closely in the planning and decision-making process. If the scheme is for outer island people then outer island people and not the more sophisticated Gilbertese in Tarawa must be involved. It is only when people see a proposal as being relevant to their needs can the government hope to get a self-sustained response. Many schemes introduced in the past have produced an initial favourable response which later evaporated. Tamana people see it as their responsibility towards government to be amenable and cooperative. Their momentum fails either because the government's own interest changes and it promotes another scheme, because the intent and purpose of the scheme may never have been fully understood in the first place, or because the scheme was irrelevant to local conditions and expectations. This calls for more, and much more sensitive, extension work at the village level in cooperation with the *rorobuaka* and the Old Men. Until the Island Councils are dissociated in people's minds from the government they cannot be used. Such a dialogue could go a long way to solving the Development Plan's 'problem of obtaining effective participation by the people in forming the philosophy and details of the Plan' (Gilbert and Ellice Islands, 1972:1).

PART 4

Summary

Chapter 13

Summary, conclusions and recommendations

ENVIRONMENT AND POPULATION

Environment

Tamana is a limited and limiting environment. The land area is small and the only scope for increased production is in the intensification of use of present land. The soils reflect the island's origin, climate and vegetation. The soils are almost entirely calcium and magnesium carbonates, deficient in minerals, some nutrients and humus. Rainfall is low and variable. Even in 'normal' conditions low soil moisture is a limiting factor in the growth of more moisture-demanding species such as breadfruit. In severe droughts, of which there have probably been 5 or 6 in the last century, the growth of even the most drought-resistant plants becomes seriously affected. Coconuts cease to set nuts and palms are killed in the higher drier parts of the island. Because of the island's isolation and the rigorous physical conditions, the range of indigenous plant species is very small and the scope for introducing new species is limited because they must be able to adapt to the difficult local conditions. The prospect for introducing shallow-rooting crops is dim unless carried out under very intensive cultivation. Breadfruit and pawpaw are the only crops so far successfully introduced on Tamana and the former at least cannot establish itself naturally and needs constant attention and supplementing with compost. On the other hand human activity has changed the island vegetation considerably. The natural range of the coconut has been extended greatly at the expense of other vegetation by planting, stimulated by the copra trade. A sample of 132 lands belonging to the sample households shows that nearly 57 per cent of the lands have palm densities of less than 150 palms per ha and only 20 per cent have densities in excess of 200 palms per ha (Table 7.8), suggesting some scope for intensification of planting. While this may benefit population by raising the potential for cash earning it could adversely affect the availability of other subsistence foods and important raw materials for housebuilding and handicrafts. Clearing may benefit coconut production but seedling pandanus used in building

must grow in dense stands in order to grow tall and straight enough to provide useful timber. Such increased production would still be subject to the vagaries of climate, and production would be periodically reduced or even cease when drought affects palm growth and nut formation. Intensification is still subject to environmental limitations. The Tamana population has starved in the past and if droughts of equal magnitude occur in the future outside assistance will be necessary to prevent suffering and malnutrition.

Population

The population on Tamana at the time of the 1973 census claiming Tamana as home island stood at 1,301. The population trends during recorded history show the impact of malnutrition and disease, recruiting and labour migration and most recently the impact of family planning policies. The 1963 census was the first to show a population larger than that of the first reliable count in 1872. The population reached a peak some time around 1968 and there has been a slight decline since, partly due to increased out-migration but also reflecting decreased fertility as a result of birth control. The population density of 290 per ha in 1973 is one of the highest in the colony and very much larger than the colony average of 175 per ha. The potential Tamana population is very much higher and probably in the vicinity of 2,000 people. Most of the absentees are on Tarawa, Ocean Island and Nauru in employment, with spouses or parents in employment or visiting. The spectre for declining employment opportunities means some of the absentees may be forced to return to Tamana thus greatly increasing the pressure on local resources.

Land

At present land supplies a large part of household needs including the major staples of toddy, coconut and *te bero* as well as raw materials for housing and many household needs. Locally derived income which can be attributed directly or indirectly to land is relatively small. Copra, handicrafts, miscellaneous goods and the dividends from intra-village trade account for only 25 per cent of the average household's income (Table 8.3). A large part of total income is spent on store food which supplements rather than replaces local products.

Land is held individually and because of the laws governing the transfer of land the prospect of an individual's becoming entirely landless is remote. However, land is distributed very unevenly between individuals and this reflects differential fertility between *utu* or sections of *utu*. It does not result from the misoperation of the Lands Code. In discussing the resources available to a household a distinction must be drawn between

land ownership which refers to rights to land vested in individuals in the household and land usage which arises from informal agreements to allow others the use of lands to which they and their offspring have no legal claim. The mean sample household had rights to 3.64 ha of land through its members and an additional 0.56 ha belonging to others, usually relatives, overseas (see Table 5.2). While absentee lands do not add to secure long-term production prospects, they are a valuable supplement to household production in the short term, particularly for the less well endowed households. The flexibility in the system and the disparity between usage and ownership are important aspects of the present land use system, which provides an avenue for a temporary reallocation of resources which goes some way to redressing the imbalance in official resource accessibility. Every attempt should be made to ensure the flexibility is maintained. Tamana people should be encouraged to put up schemes by which the productivity of long-term absentee-owned lands can be improved. For traditional reasons a caretaker cannot plant such lands and as a result the lands tend to be sparsely planted.

Palm resources

Palm densities on households' total landholdings ranged from 107 to 207 palms per ha. There is no relationship between per capita land holdings (i.e. the need to plant) and palm densities except that the 3 households with the lowest per capita land scores had palm densities of over 190 palms per ha. Nearly all households had more palms yet to commence bearing than they had in current production (many of these were planted and some groves under-planted) and this suggests that present production levels can be maintained in the longer term.

The adequacy of resources is more difficult to assess because the household's situation depends on so many other variables: the length of time for which additional lands are available, the amount of money being remitted from overseas and the effect this income has on the consumption and utilization of nuts for copra and the effect of price changes in stimulating or depressing copra-making activities. If the assumed production of 23.1 nuts per palm per year has any reality for Tamana during the 1971-73 period between half and two-thirds of the household had enough nuts to meet their estimated subsistence and cash needs. Even at the high levels of copra production encountered after the 1973 price rise, 6 of the 15 households could probably have expanded production further. The remaining households' estimated utilization was actually greater than the assumed production of their palms. Since palm production could well have been higher than 23.1 nuts per year, no strong argument exists to suggest that resources are a limiting factor in copra production. The incentive to produce, which reflects the value placed on nuts in relation to the spending power of the money earned, and the importance of other

sources of income in satisfying the limited demand for cash, are probably much more important. In the longer term, increasing population and declining overseas employment prospects with lowered remittance incomes underline the need for continued or expanded planting programs. Many Tamana individuals have yet to be convinced of the need for this. In their view the future is in education, jobs on Tarawa for their children and remittances for themselves. The incentive to plant is, for many householders, lacking.

Land reform

Land reform has often been suggested as a solution to disincentives to expand production. In the Tamana situation there is no evidence to show why this would provide an incentive to increase production. Direct questioning always seems to produce a feeling of land hunger, but the responses often relate to the future rather than the present situation. Lands Court proceedings do not suggest a deep-seated land hunger, where one would expect to find litigation being used as often as possible to increase landholdings. A few households obviously need more land. The 2 households most sure they needed more land had among the lowest palm densities on their existing lands and would, according to calculations, have had nut surpluses under present conditions. The case for land reform is not strong. The present situation, with its inherent flexibility and temporary redistribution of resources based on traditional values, has many advantages because it stresses responsibilities and linkages between people. It reflects the meaning of land in the community. More attention should be given to extension work to convince people of the need to plant for the uncertain future and utilize land resources more fully.

Most land reform in other societies in the past has been imposed from outside without due regard for the place of land in society. On Tamana, and in the Gilberts generally, land is the basis of society; it is the means by which an individual is identified as belonging to a kin group and it provides a means of demonstrating identity through the generations. Because land is inherited by individuals from individuals it specifies social relations and underlines an individual's rights and obligations towards certain other people. Land is security and insensitive land reform could easily destroy the very basis of society. The only long-term solution is a substantial reduction in the birth rate and a continued policy of temporary employment off the island which ensures a pool of land for temporary redistribution among those remaining on the island.

THE ECONOMY

The goal in life of most Tamana adults is to be *oinibai*, to be a member or head of a household which is independent and controls its own destiny. This implies individual ownership of lands, possession of a house, bicycle, canoe, sewing machine and enough cash to meet institutional charges such as school fees and taxes without having to *bubuti* from others. In former times being *oinibai* was seen mainly in terms of owning and having enough land. The present conception has expanded to include the other items mentioned and thus embraces the long-standing employment patterns and the accumulation of capital goods associated with it, the cash flow of island-generated income and remittances from relatives in employment as well as land and the subsistence it provides. All three have differing parts to play in the Tamana economy and all three are affected by different attitudes and value systems.

Subsistence sector

Subsistence looms large in the economy and appears to be viable and vital. It accounts for 50 per cent of the average household's time allocation and appears to be controlled by norms rather than immediate needs. Workers tend to allocate much the same amount of time to subsistence activities regardless of the number of workers in the household or the ratio of consumers to producers. Among women in particular there is a strong preference for working in groups. There is a relatively small range of activities considered proper for particular age and sex groups and a recognized time length over which an individual should be active. This is reinforced to a degree by the preference for group work rather than individual work. The subsistence economy provides a large part of the food, housing and household needs. In the diet it provides almost all the protein and a large part of the carbohydrate intake. Toddy appeared in 90 per cent of meals, coconut in 50 per cent and fish in 20 per cent. Even though food purchases account for a large part of store and *mronron* expenditure, the main staples purchased, flour and rice, appeared in only 13 per cent of meals. On Tamana it is a source of pride to have one's family drink undiluted toddy, eat fish often, have *babai* for the necessary feasts and live in a well-thatched and well-repaired house. It shows that the members are active and energetic members of the community. No similar status is ascribed to having large volumes of material possessions or eating rice and flour frequently. Such nonconformity would go against the fundamental Tamana belief in equality and conformity and ensure shame and censure.

Cash sector

The average sample household's mean annual income over the 1971-73 period was $146; however, variability from year to year

is an important characteristic of income. Remittances, gifts and untraced sources of cash account for 45 per cent of the average household's income, indicating that a large proportion of household income comes from outside sources and is largely beyond the recipient's control. Local production generated only 25 per cent of the average household's income. Only 2 households of the 16 studied got more than 50 per cent of their income from local sources.

High incomes from remittances and wages do not necessarily lead to ignoring cash-earning opportunities from local sources and similarly a fall in remittance income does not automatically lead to increased activity in local cash-earning activities. There is no evidence to indicate aspiration towards maintaining a particular level of expenditure and the implementation of particular income-earning strategies to achieve such a level. Nor is there a generally accepted level of time allocated to cash earning similar to that influencing time allocation to subsistence and social activities. Households pass into and out of the cash sector with changes in wage or remittance incomes, or as local cash-earning possibilities or new goals present themselves. The former are beyond the individual's control, the latter are the individual's response to changes in prices for local commodities like copra or the formulation of a new goal such as handicraft making to raise funds for the church generator. Tamana's commitment to the cash economy varies constantly and is influenced by particular conditions at particular points in time.

The reasons for this situation lie partly in the utility of money and the nature of the relationship between the subsistence and cash economy, and partly in traditional values and conceptions of the nature of money. The cash economy on Tamana is in no way an alternative to the subsistence economy. It plays a minor complementary role. Cash income is used mainly for tax payments (6 per cent), church donations (about 5 per cent) and store expenditure (the remainder). Over 88 per cent of the average household's store expenditure went on food items, largely flour, sugar, rice and tea. The former staples appeared in 13 per cent of meals taken. This food did not replace local food. Instead people probably ate more frequently when local income was more readily available and rice and flour as well as coconut were eaten. This suggests that the utility of money on Tamana is perceived as being limited mainly to food purchases and this comes back to the conception of money. According to informants, money on Tamana can only be won in small quantities. Because it is in small quantities it is by definition *kabirongorongo* money that you spend and food is the only readily available commodity which can be bought with small quantities of money. The other sort of money *(karinimane)*, which is in large lumps to be kept, is not thought of as being available on Tamana and comes from work off the island. It is money to be used for payment of school fees and taxes in the

future. The non-availability of capital goods in the store, the belief that it is not possible to raise large sums of money on Tamana and the fear of censure for trying to raise oneself above the level of the others tend to militate against the attempt, and in any case money in large sums and capital goods come from employment off the island. *Mronron* activities represent an indigenous attempt to come to terms with this situation. By working in groups an individual can claim a degree of anonymity and escape censure. Group work is considered more pleasant and less tedious than working by oneself and can achieve a volume of production not thought possible by an individual. The *mronron* does not usually have an immediate goal governing its activities. Its main purpose is to provide larger sums of money at irregular intervals. Such a goal is thought to be beyond the ability of an individual who can only get small amounts of money over long periods of time and the temptation is to spend these rather than save. The *mronron* circumvents the situation and protects the individual from himself. By working steadily for the group over the months, large sums of money become available when divisions are made and these can be used to meet major needs like taxes and school fees. During the last few months of fieldwork, after the copra price rose, most of the cash-earning activities of the sample households were carried out on behalf of the *mronron*.

Employment off the island

Two separate and conflicting trends are evident here. There has been a long tradition of overseas employment and it is very much part of a young Tamana man's growing up that he go off to work on Ocean Island or Nauru and see new sights, different things, and work to accumulate *karinimane* and capital goods necessary to set up a household on Tamana. It is an integral and necessary part of the subsistence economy on Tamana. The person going expects to return and take an active part in community affairs. As employment opportunities at Ocean Island and Nauru close and employers favour recruits with previous work experience the age of labourers is increasing and the chance of a younger individual going to Ocean Island or Nauru to get money and capital goods is becoming more remote and gives rise to a sense of frustration. In recent years employment on Tamana has increased in importance. However, the same attitudes do not apply to employment on Tarawa. Employment there is gained because of education and the individual has a different star to follow. Living expenses on Tarawa are much higher, saving is more difficult, capital goods relevant to outer island life are not so readily available and the individual is not so free to pass between employment and outer island life because salary and prospects depend on length of service. Employment on Tarawa tends to be seen as permanent. The individual is *oinibai* because he has a salary and is freed from the need to catch fish or cut toddy. He becomes integrated into the cash economy and he is not expected to return. The employees' parents

often see their future as going to Tarawa to look after grandchildren so both the children's parents can continue to work. The growth of employment on Tarawa implies a break in life patterns, a weakening of the outer island economy and will probably lead to increasing dissatisfaction with outer island life, making wage employment even more attractive and the frustration bred by the lack of employment opportunities deeper.

DEVELOPMENT AND THE FUTURE

The interplay between the three interwoven elements of the Tamana economy and the environment provide the background against which any development proposals put forward must be measured.

The 1973-76 Draft Development Plan (Gilbert and Ellice Islands, 1972:27) sets out the government's policy objectives for rural development:

1. To spread economic opportunity as widely as possible through the country;
2. To involve people in the planning and development of their own communities;
3. To coordinate all government extension and services in a team approach to problems identified by the people themselves;
4. To provide a reasonable level of government services to existing communities, and to any new groupings arising from commercial or economic developments.

The objectives expressed here are admirable and ones which few would quarrel with. However, the likelihood of their successful implementation, in Tamana terms, hinges very much on the definition of 'economic opportunity' and the relevance of the definition to present outer island life. The discussion of methods for implementing the Development Plan is somewhat disturbing because it implies a very narrow, cash-based definition of economic opportunity. It states (p.27): 'Potential appears to be limited to agriculture, fisheries, handicrafts and the possibility of tourism. Proposals to develop each of the first three, and a preliminary assessment of tourism are included in this Plan.'

The wisdom of such a narrow definition of economic opportunity and so narrow a focus to development is questionable in the light of the following factors:

(1) The prospects for substantial expansion of the cash economy are limited.

(2) The subsistence economy on Tamana is strong and viable.

(3) The present level of cash-earning activities and incomes from outside contribute only a small proportion of the sustenance needs of the community. Most expenditure is on food items and a large part of the remainder on taxes and school fees. The cash economy is not an alternative to the subsistence sector, it is complementary to it.

(4) Increasing dependence on the few available island cash-earning outlets would make people far more adversely affected by price changes over which they have no control.

Bearing these factors in mind, the first priority of development should be to maintain the viability and integrity of the subsistence economy. The following four areas are of particular importance here.

Agricultural development. The Agriculture Department has much to offer in this field in ensuring the long-term productivity and improvement of resources. Attempts to date on Tamana have so far proved unsuccessful; firstly because of the failure to convince people of the need for replanting, given their view of the future, and secondly because of the failure to tailor plans to the reality and scale of the landholding system. The plantation-type approach of uniform age stands might give maximum productivity during the palm's bearing span but it is quite inappropriate for small-scale producers with small, scattered landholdings. All lands must be productive all of the time and capable of being passed on to the next generation as a productive unit. Agricultural development would be probably better served by focusing attention on the people who carry out the improvements rather than the lands which they own. In this way the smallness and dispersion of individual holdings become less of a managerial problem. Research must be directed towards establishing optimum spacing of mixed age palm stands which will give a satisfactory level of production.

Impact of new cash-earning ventures. The introduction of a new cash-earning venture such as commercial fishing has important implications for the Tamana subsistence economy. Commercial fishing activities will come into direct conflict with the concern Tamana people show for the husbanding and conservation of marine resources as expressed in their Island Council Fishing Bye-Laws. The possibility of over-fishing and declining domestic catches cannot be overlooked. Fish at present provide practically all of the protein intake of Tamana households and even then the average Tamana household has fish only 1 meal in 5. Very few households felt that they had large enough incomes to buy tinned meat or fish from the store for general consumption. Domestic fishing as a protein source must be protected. Commercial fishing also creates problems because it places a cash value on an item which is for

most households not a proper item for exchange. Surpluses produced at present can either be preserved or more commonly redistributed among kin and neighbours lacking fish and often without active fishermen. If the surplus were to be sold rather than redistributed the protein intake of many households could suffer.

Education and employment. Education and employment are completely intertwined in Tamana people's minds. Improved island schooling is seen as essential for improved chances of access to high school and jobs in Tarawa. Investment in school buildings was seen entirely in terms of an investment in job opportunities and the failure of the expansion of schooling to be matched by expanded job opportunities has produced a sense of frustration, futility and a general lessening of the satisfaction with schooling and outer island life. The hoped for certainty has become a lottery with the few lucky ones escaping to the outside world of employment. Given the limited likelihood of expansion in jobs at Tarawa or anywhere else in the colony, the need to reconsider the purpose of education is paramount and because the indigenous people's and the educationists' views are so divergent careful extension work is necessary. If education is to be relevant to the lives of the majority, rethinking is obviously necessary. Syllabus developments go some way to achieving this end but there is a real danger that the level of generalization necessary for the production of colony-wide curricula and teaching material might mean that teaching is still removed from local reality and conflicts between school wisdom and local wisdom develop. This could weaken the importance of family education and education outside the school, which goes largely unacknowledged. The concern for making education relevant to the current outer island situation should not be at the expense of the needs of new developments. The growth of *mronron* activity calls for the teaching of skills in bookkeeping and elementary business management. The increasing range of mechanical gadgetry finding its way into Tamana homes might call for elementary practical mechanics courses to increase the range of skills available in the community.

The nature of employment is of considerable importance to the subsistence economy on Tamana. Contract employment has long been an integral part of Tamana life. The goods, cash flow and savings it produces have contributed substantially to the efficiency, comfort and satisfaction with outer island life. In contrast, employment in Tarawa probably produces a much smaller cash flow, fewer of the needed goods and savings and is seen as an alternative to outer island life. If it is the government's intention to maintain satisfaction with outer island life and stem the flow of immigrants to Tarawa, it could well look to the possibility of introducing a system of contract or rotating employment in Tarawa and thus spread the benefits of employment more widely and encourage people to see employment as a stage in outer island life rather than an alternative to it. Most people want to travel

and see other places. It is not so clear that the desire to leave their home island permanently is widespread.

Population policy and family planning. Any long-term planning concerned with the subsistence economy must address itself to the problem of population limitation and the reduction in the island birthrate. Given the variability of coconut production with drought, there is little point in attempting to implement a policy tying the island population to the level which would be self-sufficient under severe prolonged drought conditions. Periodic drought assistance will always be necessary. Some level of population control is necessary to maintain the viability of the subsistence economy and reduce the fragmentation of land and diminishing per capita land and palm resources. Such a policy must give adequate attention to the labour needs of the subsistence economy and stress the importance of spacing as well as limiting the number of children in a family. Such an approach has implicit in it some control over migration within the colony, particularly that by young people to Tarawa. Under present conditions the impact of out-migration by young people is not, on an island-wide basis, severe although individual households may suffer considerably. The time allocation data in Chapter 6 suggest no great shortage of labour for current household needs. However, in the unlikely event of out-migration being increased, or maintained at current levels with reduced birthrates, the ability of the subsistence economy to cope could be jeopardised, particularly the widely accepted practice of sending young people to live with and provide for ageing relatives. While few households suffer from labour shortages at present, the migration of young household members to Tarawa has left some small households short of labour and this is reflected in poorer diets, particularly lower toddy and fish intakes.

Prospects for increasing island cash income

At present remittances and other untraced sources of cash account for some 45 per cent of the average sample household's income. The spectre of declining employment in the phosphate industry and limits to the expansion of employment on Tarawa mean that there may be a need in the future to stimulate cash-producing activities on outer islands to compensate for the loss in income. The scope for increasing cash incomes on Tamana by the introduction of new activities is limited. There is some potential for expanding the level of existing activities. The main problem in capitalizing on hitherto untapped resources of land and labour is basically one of incentive. The resources of labour and raw materials are there, as the handicraft boom in 1971 and increased copra-making activities after May 1973 show.

The problem lies basically in the part cash income plays in the total economy. Cash income is a complement to subsistence

income and apart from institutional charges such as taxes and school fees which have to be met each year, most households are free to move into and out of the cash economy in response to particular local conditions. There is no tendency to try to maintain a particular level of cash use and organize cash-earning activities to achieve this level. On Tamana it is assumed, rightly or wrongly, that cash can only be earned in small quantities and small quantities of money can only be spent on small items, like food, rather than accumulated for specific long-term goals such as savings or the purchase of large capital items. To some degree the stock held in the store reflects this viewpoint and tends to reinforce the limited utility of money on the island. Finally, the fact that outside income sources provide such a large proportion of cash income at present probably acts as a damper on island cash-earning activity.

The events in late 1971 and after the copra price rise in 1973 show that participation in the cash economy is capable of expansion but goals and prices as incentives to produce have to be present. It cannot simply be assumed that more satisfaction will automatically be derived from having more cash. It involves a choice made by the individual to forgo time previously spent in social, subsistence or general leisure activities for extra time spent in cash earning. The goals and incentives are perceived from within, and only these goals will be relevant to the individual and take account of his responsibilities to the broader Tamana community, its values and aims.

Past experience on Tamana suggests that corporate bodies rather than individual households have the most important part to play in expanding cash-oriented activities. The *airiri, aiai* groups and now the *mronron* are well-established responses to the problem of scale. The latter in particular warrant further attention for their potential contribution to cash-earning possibilities for several reasons.

(1) They aggregate resources and labour in such a way that satisfaction is maximized and a required goal is achieved while at the same time the work is enjoyed, the community values of working together and maintaining or raising the general conformity of standards of living are stressed.

(2) Corporate groups tend to have greater stability of resource access, labour availability and probably a greater constancy of purpose. The household on Tamana is the basic economic unit, but it is a very fragile and constantly changing unit. People come and go and with them access to the resources of land and labour expand and contract. Thus the household is not a stable entity with a predictable resource base on which long-

term goals and strategies can be based. In contrast the work force of a successful *mronron* is constant even though the actual participants may change. For many, group interaction reinforced common goals and maintained interest, given modification, for several years at least.

(3) The money received from *mronron* distributions is in larger sums than that normally gained from individual cash-earning activities and hence the recipient has potential access to a greater range of goods which may in turn increase the utility of money and increase the incentive to earn more.

The main problem confronting the expansion of *mronron* activities is the fact that they function mainly by enlarging the circulation of money already on the island and by stimulating copra production. The multiplier effect is small and the *mronron* do not greatly increase the island's total store of wealth. In this sense expansion is limited and the more *mronron* which come into operation, the smaller each one's share of existing wealth will be. Many *mronron* operators recognize this and are looking for ways of breaking into the Tarawa market with sales of salt fish, *kamaimai* and cigarette paper as a means of increasing total Tamana wealth. To date, attempts have been tentative. Considerable problems in organizing labour, continuity of production as well as freight, packaging, pilfering and obtaining suitable market outlets still have to be overcome. Government assistance could help create a breakthrough and increase the *mronron*'s scope for cash earning considerably. It is essential that such assistance be supportive rather than directive. The initiative and flexibility of *mronron* must not be destroyed. They belong to their members; they express their views and they are moulded to meet particular felt needs. While they are pre-eminently a cash-earning concern they still take cognizance of community involvement and general improvements in living standards for all members. They are relevant to the aims, needs and values of the people. They do not stress individual action at the expense of wider social commitments and responsibilities and they spread economic opportunity widely through the community.

DECISION MAKING AND PLANNING

If development is to build on, rather than destroy, existing structures, planning must be relevant to goals which outer island people perceive. Several schemes discussed in this report indicate considerable potential for mobilizing the community to achieve particular goals. To date most examples have been the result of direct stimulus from outside. The apparent lack of interest of Tamana people in planning their own futures and the

failure of most development projects to become self-sustaining can be attributed to the Tamana people's view of themselves and their conception of the role of government. If government is to achieve its stated aim of greater involvement in planning, this problem must be faced before realistic dialogue and participation can be achieved.

The problem stems basically from the long history of paternalistic control, first by the church and later by the church and government. People see the government as the decision maker. The role of government is to protect people from outside influences and from themselves. Tamana people do not see themselves as controlling their own destiny. The government, because of its superior power and wisdom, is always right. The Legco member is seen in the unhappy position of taking complaints to Tarawa and bringing decisions back to Tamana. He is not seen as taking part in the decision-making process. That is both the right and at the same time the responsibility of government. Thoughtful extension work is needed to make people more aware of the governmental process, the role of their elected member and their responsibilities as electors.

Even though the Island Council has been given a greater part to play in local decision making and in putting proposals to government for community and economic development, the potential for success is limited by the fact that the Island Council is seen as part of the government. It is a foreign institution and not seen primarily as a body for mobilizing local thought on community issues. The Island Council deals with government affairs on the island; it sets taxes, organizes people to work on the rest house, the hospital, government offices and houses for government personnel. These activities reinforce the view that the Island Council works for the government rather than the people.

The structure and conception of the Island Council is 'non-Gilbertese' and as such it is difficult or even impossible for it to mobilize community interest and involvement in decision making. As far as can be established, traditional decision making never involved the election of representatives and the reaching of decisions by majority votes. Decisions were always taken after discussion had reached a consensus. Every member had the right to enter into the discussion. In theory at least, leaders were not elected. Each member was expected to take a turn at this responsibility. The Island Council bears little similarity to traditional organization. It has no ties in the community and is superimposed on top. Village representatives have no direct responsibility to their village nor any special position in village organization. No prestige is associated with being a councillor. Councillors tend to be elected for their assumed ability to deal with government which implies skills in English and knowledge of European ways. These are not widely valued or respected

attributes in the community. However, particular presidents have shown the ability to mobilize the community behind development projects, such as building the school, but these are unfortunately rare.

There is an obvious need to integrate the Island Council into the framework of community decision making and representation. On Tamana this is difficult because the traditional system is but a pale shadow of its former self. A traditional island-unifying entity is almost non-existent. The Old Men occupy a rather ambiguous position. They may be called on in a time of need, but for the most part they are disregarded. While the village *rorobuaka* can fine members for non-attendance at meetings, very few of the potential members of the Old Men's Council actually participate. In contrast to the Old Men, the *rorobuaka* is an alive grouping capable of expressing the collective interest of the village and capable of taking, and implementing, decisions regarding the welfare of the village. It is not certain that the 3 *rorobuaka* could be integrated to form a viable means representing island interests. The possibility is worthy of consideration. If village energies could be amalgamated and directed towards island problems, a representative island council, capable of taking a key role in local planning, could emerge. Details of the form and structure should be determined by local people and in this it may be possible to capture the attention of all people and produce a council which will primarily concern itself with projects relevant to the goals and ambitions of Tamana people.

It is essential that Tamana people face the future with assurance and confidence in the importance of their own values and abilities. The problems in this alone are great because the legacy of a century of paternalism will take many years to overcome. The problem is compounded and made more urgent by the fact that Tamana and the Gilbert Islands face an independent future at a time when the threat of inadequate resources becomes a more pressing reality. At this time, more than any other time, clear and lasting decisions on destiny have to be made. The choice is between facing the future in a Gilbertese way, which stresses the rightness of the Gilbertese values of conformity, equality, community identity and responsibility, or a modified European approach which stresses the individual, increasing consumption and participation in the cash economy. The former must emphasize the attractiveness of village life and the potential for the elaboration of a broad subsistence and cash base to the economy. The latter implies a neglect of the subsistence sector and increasing dependence on cash which can only accentuate limited resources and lead to increased demand for employment opportunities off the island; a demand which will not be easy to meet given the prospects for the economy of the group as a whole. The alternatives are clear. The choice must be left with the people.

Appendix 1

Items of personal and household property, sample households

Item	Household															
	Enoka	Katirongo	Bakanoka	Kamantoa	Kaiea	Tokintekai	Temakai	Barawe	Maera	Komeri	Timea	Kaiaba	Tembeti	Aam	Tebebita	Meri
Buildings																
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
Household equipment																
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	-	-	-

Household equipment cont.																
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	-
Fishing equipment																
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	-

Fishing equipment cont.																
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
Tools																
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
Clothing and personal items																
Lavalava	27	14	6	50	40	8	8	10	6	8	11	8	13	14	13	38
Shirt, *tibuta*	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 2

Activity categories and regroupings used in Chapter 6

Activity category used in Tables 6.3, 6.4	Activity category used in Figures 6.2, 6.3	Activity category used in Figure 6.1	Includes
Cash	Copra	Preparing copra	Collecting nuts, husking, splitting, drying, cutting and bagging, selling.
	Wage	Paid work, permanent	Salaried work as teacher, dresser, nurse, etc., permanent employment by cooperative society, Island Council and government agencies, paid attendance at Island Council meetings.
		Paid work, casual	Loading and unloading ships, repairs to store, etc.
	Other cash	Commercial handicrafts	Collecting, carrying and preparing materials to make mats, baskets, fans, string etc. where goods are made specifically for sale.
		Commercial cooking	Bread, doughnut, pancake, sweet and *kamaimai* making where goods are made specifically for sale. On Tamana activity often carried out for *mronron*
Subsistence	Fishing	Fishing	All fishing expeditions on reef, diving or from canoes.
	Babai	*Babai* work	Pit repair and construction, planting, weeding, collecting compost and soil, sieving soil and composting plants.
		Babai harvesting	Travel to pits and harvesting.

Other subsistence	Collecting food	Coconuts, *bero*, pandanus, breadfruit, *te non* and other medicinal plants.
	Toddy cutting	Looking for trees, preparing spathes, rebinding spathes, cutting toddy, looking for new toddy shells, making new toddy shells.
Household handicrafts	Household handicrafts	Collecting, carrying and preparing materials for mats, baskets, fans, skirts, string, cigarette paper, flares for fishing, sewing, crocheting, mending, collecting ingredients and making perfumed oils etc.
Domestic	Collecting firewood	Collecting firewood.
	Homesite tending	Washing clothes, dishes, toddy shells, drawing water, ironing, cleaning house, sweeping and weeding grounds and street areas.
	Animal tending	Feeding pigs and poultry.
	Household cooking	Daily cooking, preparing dried and preserved foods, boiling toddy etc.
	Private buying and selling	On Tamana visits to store only.
Capital	Housebuilding and capital repairs	Collecting, carrying, preparing materials and building houses, furniture, pig pens, canoes etc. for self or as *kabeabea*. Repairs to any of the above. All stages of thatch manufacture and use. Shifting or demolishing existing buildings. Repairs to tools, bicycles, fishing equipment etc.

Appendix 2 continued

Activity category used in Tables 6.3, 6.4	Activity category used in Figures 6.2, 6.3	Activity category used in Figure 6.1	Includes
Social	Church, club, community	All island meetings and feasts	Island Council gatherings and feasts, cooperative society and Old Men's meetings and feasts. Island feasts, school functions and competitions.
		Court, council, village meetings and feasts	Village and council meetings, court and Lands Court sittings, village feasts.
		Group and club	*Mronron* meetings and work, club meetings, feasts and work sessions.
		Community work	Communal work levied by Island Council and village committees.
		Agricultural schemes	Communal work on Replanting and Improvement Schemes. In Barebuka village this was communal unpaid work.
		Church	Church services, choir practice, meetings of church council and women's groups. Voluntary labour for church.
	Social recreational	Family feasts and help	Attendance and help in preparation for all kin feasts and celebrations.
		Help to other households	Similar, but to unrelated households.

		Visiting kin	Visiting kin.
		Visiting others	Visiting others.
		Leisure outside household	Pictures, choir competitions, performances and practices, Island Nights, Scouts etc.
Other or miscellaneous	Sickness	Sickness	Inactivity due to sickness.
		Hospital	Visits to hospital or baby clinic because of individual's or kin needs.
	Care of others	Care of others	Child minding, feeding, bathing etc. Care of sick.
	School	School	Travel to and from school, school attendance and homework.
	Other	Gaol	Time spent in detention only.
		Business visiting	On Tamana, time spent helping or receiving informal help from others.

Unallocated time includes sleeping, eating, personal washing, resting and non-organized leisure.

Appendix 3

Gilbertese fish names and tentative identifications

Tamana name	Tentative identification	Common name
Ana	*Hemiramphus* spp.[a]	Garfish
Anaroro		Garfish
Anoi	*Sphyrna* sp.[a]	Hammerhead shark
Aongo	*Caranx lugubris*	
Arinai	*Halichoeres trimaculatus*	Wrasse
Te ati	*Pelamys* sp.[a]	Bonito
Atiati	Possibly applies to all fish taken at one fishing place	
Aua	*Crenimugil crenilabis*	Mullet
Baba	*Acanthurus guttatus*	Lancet fish
Baibai	*Bothus* spp.	Sole, flounder
Baiku		Ray
Bakos	*Ginglymostoma ferrugineum*	Shark
Bara	*Acanthocybium solandri*	
Bare		
Barebu		
Barere	*Pempheris oualensis*	
Bari		Kingfish
Baru	*Labroides dimidiatus*	
Bauteira		
Bawe	*Lutjanus vaigiensis*	Snapper, Goat fish
Bokiroro	*Gerres* sp.[a]	
Boni	*Arothron* spp.	
Bubu	*Rhinecanthus rectangulatus*	Trigger fish
Bureinawa	*Holocentrus tiere*	Soldier fish
Burewa	Possibly fishing for the above at night	
Ikabauea	*Sphyraena* sp.[a]	Barracuda
Ikakoa	*Aphareus furcatus*	
Ikamaua	*Scarcus pectoralis*	Parrot fish
Ikanarina		
Ikaraura		Red fish
Ingimea	*Neothunnus macropterus*	Tuna
Ingo	*Lutjanus* sp.[a]	Red fish, snapper
Inunikai		
Kama	*Elagatis bipinnulatus*	Rainbow runner
Kauato		Large *Kuau*
Kika		Octopus
Koinawa	*Acanthurus triostegus*	
Ku	*Holocentrus* spp.	Soldier fish
Kuau	*Epinephelus merra*	
Kuaua	*Caranx malampygus*	Kingfish

Appendix 3 continued

Tamana name	Tentative identification	Common name
Make	*Belone platyura*	Goat fish
Mataboua		Flagtail
Mon	*Myripristis* spp.	
Nunua	*Sphyraena fosteri*	Barracuda
On		Turtle
Onatitimea		
Onauti	*Cypselurus* spp.	Flying fish
Oningea		Parrot fish
Rabono	*Gymnothorax* spp.	Conger eel
Raku		Swordfish
Reiati	*Cirrhitus* spp.	
Rereba		Kingfish
Riba	*Acanthurus* spp.	Surgeon fish
Ribabanni	*Acanthurus* spp.	Surgeon fish
Rokea		Shark
Tababa		Shark
Tanin		
Tauri		Oil fish
Tauti		Porcupine fish
Tawataŵa	*Euthynnus yaito*	Skipjack
Tewe		Goat fish
Ura		Crayfish

Identification from name lists in Randall (1955) unless otherwise indicated.

[a]Indicates identification from Catala (1957).

Common names from Sabatier (1971).

Appendix 4

Data on household expenditure and income based on the results of weekly surveys of sample households

STORE EXPENDITURE

	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				
Temakai	0.22	0.12	0.12	0.06	0.00	0.43	0.00	0.95	0.14	111.24	1.77
Bakanoka	3.65	0.00	0.00	0.00	0.00	0.06	0.00	3.71	0.53	259.61	1.82
Meri	0.70	0.00	0.00	0.46	0.13	0.63	1.43	3.35	0.48	106.44	1.38
Tembeti	n.d.	n.d.	0.12	0.06	1.87	0.54	0.00	2.59	0.52	151.54	1.25
Kaiaba	n.d.	n.d.	n.d.	n.d.	n.d.	1.29	2.66	3.95	1.97	49.04	1.80
Kaiaba + Maera	n.d.	0.39	3.13	0.32	0.22	n.d.	n.d.	4.06	1.02	139.08	3.07
Timea	1.54	n.d.	n.d.	n.d.	n.d.	0.21	1.22	2.97	0.99	70.12	2.25
Maera	0.38	n.d.	n.d.	n.d.	n.d.	2.04	1.22	3.64	1.21	68.40	1.27
Barawe	n.d.	0.00	1.04	0.60	0.14	0.64	1.02	3.44	0.57	75.58	2.42
Komeri	0.67	0.65	0.00	11.24[a]	0.00	2.85	1.66	5.83	0.97	113.35	1.72
Katirongo	3.08	0.34	0.48	0.00	0.96	0.99	1.75	7.60	1.09	96.19	4.03
Tokintekai	2.38	0.22	2.49	0.00	0.34	0.00	0.32	5.75	0.82	135.26	2.96
Tebebita	2.16	0.00	0.99	8.44	0.00	0.34	0.45	12.38	1.76	171.66	4.32
Enoka	0.49	0.00	6.15	0.60	1.33	2.61	0.54	11.72	1.67	128.26	1.73
Kamantoa	5.09	1.76	0.00	1.73	2.64	2.44	1.64	15.30	2.19	70.30	10.72
Aam	2.76	1.55	2.18	0.42	3.83	8.73	1.17	20.64	2.95	94.25	3.46
Kaiea	1.68	0.00	0.97	0.48	0.05	2.78	32.50[b]	5.96	0.99	108.46	3.52
Total	24.80	5.03	17.67	13.17	11.51	26.58	15.08	99.22	14.68	1,622.14	49.49
Mean	1.91	0.39	1.26	1.02	0.82	1.65	1.01	7.63	1.13	124.78	2.91
Coefficient of variation%	77.03	154.83	138.16	224.96	145.35	129.03	77.27	75.47	71.00	39.57	76.77

TOTAL EXPENDITURE

	Survey week							Total	Mean Weekly Expenditure	Coefficient of Variation
	1	2	3	4	5	6	7			
Temakai	0.22	0.12	0.12	0.40	0.15	0.82	0.20	2.03	0.29	87.16
Bakanoka	3.65	-	-	-	-	0.16	0.10	3.91	0.56	244.31
Meri	0.79	-	-	0.46	0.13	1.17	1.63	4.18	0.60	105.52
Tembeti	n.d.	n.d.	0.30	0.16	1.87	1.48	0.60	4.41	0.88	85.47
Kaiaba	n.d.	n.d.	n.d.	n.d.	n.d.	2.28	2.66	4.94	2.47	10.87
Kaiaba + Maera	n.d.	0.52	3.13	0.83	0.50	n.d.	n.d.	4.98	1.25	101.66
Timea	1.54	n.d.	n.d.	n.d.	n.d.	1.41	2.12	5.07	1.69	22.36
Maera	0.50	n.d.	n.d.	n.d.	n.d.	4.64	1.56	6.70	2.23	96.29
Barawe	n.d.	-	1.04	0.86	0.57	2.82	1.76	7.05	1.17	100.19
Komeri	0.67	1.61	0.48	14.24[a]	1.01	4.13	1.76	9.66	1.61	82.83
Katirongo	3.08	0.34	0.48	0.36	0.96	2.74	2.65	10.61	1.52	82.27
Tokintekai	2.38	3.00	2.84	0.96	0.34	0.81	1.26	11.59	1.65	64.39
Tebebita	2.16	-	0.99	10.24	-	0.52	1.10	15.01	2.14	170.07
Enoka	0.49	0.46	6.15	0.86	1.98	3.84	1.94	15.72	2.25	92.94
Kamantoa	5.09	2.56	-	1.73	2.64	4.36	2.50	18.88	2.70	61.96
Aam	2.76	1.55	2.18	0.42	4.23	9.33	1.86	22.33	3.19	92.39
Kaiea	1.80	-	0.97	1.00	0.05	4.34	32.50[b]	8.16	1.36	118.20
Total	25.13	10.16	18.68	18.28	14.43	44.95	23.70	133.54	19.92	1,387.70
Mean	1.93	0.78	1.33	1.41	1.03	2.80	1.58	10.27	1.53	106.75
Coefficient of variation%	75.12	126.19	129.94	191.41	120.58	82.55	51.06	60.83	56.39	46.30

Based on 4 or fewer weeks' data and excluded from calculations of the mean

[a] Reflects visit by wage-earning relative and excluded from calculations of the mean.

[b] Reflects purchase of bag of sugar for approaching wedding and excluded from calculation of the mean.

Appendix 4 (cont.)

MRONRON EXPENDITURE

Survey week							Total Mronron Expenditure	Mean Weekly Mronron Expenditure	Coefficient of Variation	Mronron Expenditure as Percentage of Total Expenditure
1	2	3	4	5	6	7				
-	-	-	0.34	0.15	0.39	0.20	1.08	0.15	107.01	51.70
-	-	-	-	-	0.10	0.10	0.20	0.03	170.78	5.11
0.09	-	-	-	-	0.54	0.20	0.83	0.12	169.12	19.85
n.d.	n.d.	0.18	0.10	-	0.94	0.60	1.82	0.36	108.46	41.26
n.d.	n.d.	n.d.	n.d.	n.d.	0.99	-	0.99	0.50	141.42	20.04
n.d.	0.13	-	0.51	0.28	n.d.	n.d.	0.92	0.23	101.66	18.47
-	n.d.	n.d.	n.d.	n.d.	1.20	0.90	2.10	0.70	89.21	41.42
0.12	n.d.	n.d.	n.d.	n.d.	2.60	0.34	3.06	1.02	134.58	45.67
n.d.	-	-	0.26	0.43	2.18	0.74	3.61	0.60	136.66	51.20
-	0.96	0.48	3.00[a]	1.01	1.28	0.10	3.83	0.64	82.17	39.64
-	-	-	0.36	-	1.75	0.90	3.01	0.43	156.22	28.36
-	2.78	0.35	0.96	-	0.81	0.94	5.84	0.83	114.13	50.38
-	-	-	1.80	-	0.28	0.65	2.73	0.38	171.24	18.18
-	0.46	-	0.26	0.65	1.23	1.40	4.00	0.57	128.26	25.44
-	0.80	-	-	-	1.92	0.86	3.58	0.51	143.57	18.96
-	-	-	-	0.40	0.60	0.69	1.69	0.24	129.67	7.56
0.12	-	-	0.52	-	1.56	-	2.20	0.31	184.93	5.41
0.33	5.13	1.01	5.11	2.92	18.37	8.62	34.42	5.17	1,772.14	364.55
0.02	0.39	0.07	0.39	0.21	1.15	0.54	2.65	0.40	136.32	28.04
192.06	200.26	214.88	240.00	150.40	62.02	76.99	58.61	57.97	24.00	62.52

INCOME

Survey week							Total	Weekly Income	Coefficient of Variation
1	2	3	4	5	6	7			
-	-	-	6.21	-	-	0.48	6.69	0.96	243.14
-	-	-	1.10	-	-	-	1.10	0.16	264.57
-	-	-	7.89	-	0.91	9.63	18.43	2.63	160.61
n.d.	n.d.	-	3.45	2.65	-	-	6.10	1.22	138.87
n.d.	n.d.	n.d.	n.d.	n.d.	0.80	-	0.80	0.40	141.42
n.d.	1.52	4.26	15.88	-	n.d.	n.d.	21.66	5.42	132.88
-	n.d.	n.d.	n.d.	n.d.	-	1.62	1.62	0.54	173.20
-	n.d.	n.d.	n.d.	n.d.	-	-	0.00	0.00	0.00
n.d.	-	-	8.17	-	-	-	8.17	1.36	244.94
0.40	-	-	-	-	1.47	-	1.87	0.27	206.24
-	-	-	13.00	12.00	-	23.00	48.00	6.86	134.82
-	-	-	9.60	-	-	-	9.60	1.37	264.57
-	-	12.40	10.20	-	-	15.00	37.60	5.37	127.36
-	0.10	-	-	-	1.52	-	1.62	0.23	246.04
-	-	-	5.00	-	-	-	5.00	0.71	264.57
10.00	-	-	6.70	11.13	-	13.18	41.01	5.86	99.09
-	-	-	-	12.50	-	-	12.50	1.79	264.57
10.40	1.62	16.66	87.20	38.28	4.70	62.91	197.69	28.79	2,659.39
0.80	0.12	1.19	6.23	2.73	0.29	3.93	15.21	2.21	204.57
345.80	337.17	287.42	80.25	183.27	187.67	182.92	106.75	103.78	30.73

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