

The Australian  
National University

Development Studies Centre  
Monograph no.12

**Taim bilong mani**  
The evolution of  
agriculture in a  
Solomon Island  
society

**John Connell**



**Taim bilong mani**

The Development Studies Centre has been set up within the Australian National University to help foster and co-ordinate development studies within the University and with other Institutions. The work of the Centre is guided by an Executive Committee under the chairmanship of the Vice Chancellor. The Deputy Chairman is the Director of the Research School of Pacific Studies. The other members of the Committee are:

|                          |                        |
|--------------------------|------------------------|
| Professor H.W. Arndt     | Dr W. Kasper           |
| Dr C. Barlow             | Professor D.A. Low     |
| Professor J.C. Caldwell  | (Chairman)             |
| Mr E.C. Chapman          | Dr T.G. McGee          |
| Dr R.K. Darroch          | Dr R.C. Manning        |
| Dr C.T. Edwards          | Dr R.J. May            |
| Mr E.K. Fisk             | Mr I.S. Mitchell       |
| Professor J. Fox         | Dr S.S. Richardson     |
| Mr J.L. Goldring         | Dr L.T. Ruzicka        |
| Professor D.M. Griffin   | Dr R.T. Shand          |
| Mr D.O. Hay              | Professor T.H. Silcock |
| Mr J. Ingram             | Dr R.M. Sundrum        |
| Professor B.L.C. Johnson | Professor Wang Gungwu  |
| Dr G.W. Jones            | (Dep. Chairman)        |
|                          | Professor R.G. Ward    |

Development Studies Centre  
Monograph no.12

**Taim bilong mani**  
The evolution of  
agriculture in a  
Solomon Island  
society

Series editor RTShand

The Australian National University  
Canberra 1978

© John Connell 1978

This work is copyright. Apart from any fair dealing for the purposes of private study, research, criticism, or review, as permitted under the Copyright Act, no part may be reproduced by any process without written permission. Inquiries may be made to the publisher.

National Library of Australia  
Cataloguing-in-publication entry

Connell, John  
Taim bilong mani

(Australian National University, Canberra.  
Development Studies Centre. Monograph; no. 12)  
ISBN 0 909150 66 4

1. Siuai (Papuan people). 2. Agriculture —  
Bougainville Island. I. Title. (Series).

630'.91935

Printed and manufactured in Australia  
by The Australian National University

## Summary

This is a detailed analysis of the transition from a subsistence agricultural system to a quite affluent semi-commercial agriculture amongst the Siwai of south Bougainville (the North Solomons Province of Papua New Guinea). The pre-war agricultural economy, based on swidden cultivation of taro has, along with other facets of Siwai economic life, previously been described in detail (Oliver, 1955); part of this is reconsidered here. The pre-contact agricultural economy was effectively one of 'subsistence affluence'; contact enabled further diversification and later some attempts at copra production and sale. During the second world war taro blight precipitated a dramatic change to sweet potato and, following experience in observing and working on European plantations and Japanese wartime gardens, Siwais, with the encouragement of traditional leaders, attempted to grow rice for commercial sale. For two decades cash crop cultivation was largely unsuccessful until cocoa became established; this effectively superseded other cash crops although cattle provided a measure of diversification. The money generated from cash cropping enabled business development, especially trade stores, to attain a measure of success. Cargo beliefs were rarely important. Agriculture in Siwai had become a source of affluence.



## Contents

|  | <u>Page</u> |
|--|-------------|
| Foreword   |             |
| Chapter 1 Siwai: the environmental stage   | 1           |
| Chapter 2 The people of Siwai  | 23          |
| Chapter 3 Traditional agriculture: development and destruction                                     | 42          |
| Chapter 4 Agricultural recovery: the rise of rice  | 77          |
| Chapter 5 Siwai Rural Progress Society: the organization of diversification                        | 111         |
| Chapter 6 Coffee and cocoa: towards the cash economy   | 130         |
| Chapter 7 Pigs and cows: animals in the agricultural economy                                       | 179         |
| Chapter 8 Business and cargo   | 198         |
| Chapter 9 <i>Taim bilong mani</i> : the process of incorporation                                   | 231         |
| <u>Appendices</u>  |             |
| No. I Ten year agricultural development plan Buin sub-district Bougainville, 1956-66 (K.I. Tomlin) | 254         |
| No. II Siwai Rural Progress Society - trading accounts   | 258         |
| No. III Copra and cocoa prices 1947-74   | 259         |
| No. IV A note on documentary sources   | 260         |
| Diagrams (see p.viii)  |             |
| Tables (see p.viii)  |             |
| Bibliography   | 265         |

|                 | <u>Page</u>                                |
|-----------------|--|
| <u>Diagrams</u> |  |
| Figure 1        | Bougainville 2                             |
| Figure 2        | Siwai 3                                    |
| Figure 3        | Siwai population growth 26                 |
| Figure 4        | Age components of Siwai population 30      |
| Figure 5        | Pre-war garden sequences 63                |
| Figure 6        | Rice gardens 1949 95                       |
| Figure 7        | Rice producers 1969-71 133                 |
| Figure 8        | Coffee producing villages 1960 137         |
| Figure 9        | Coffee production 1965 139                 |
| Figure 10       | Coffee producers 1971-72 141               |
| Figure 11       | Cocoa producing villages 1961 143          |
| Figure 12       | Cocoa producing villages 1962 144          |
| Figure 13       | Cocoa production 1962-63 148               |
| Figure 14       | Cocoa growers 1963 152                     |
| Figure 15       | Village companies 1968 157                 |
| Figure 16       | Cocoa plantings 1959-72 166                |
| Figure 17       | Cocoa price 1956-72 167                    |
| Figure 18       | Copra driers 1972 174                      |
| Figure 19       | Pigs 1951 181                              |
| Figure 20       | Cattle projects 1970 192                   |
| <u>Tables</u>   |  |
| Table 1         | Siwai rainfall 12                          |
| Table 2         | Siwai mean age at marriage 32              |
| Table 3         | Bougainville birth intervals 33            |
| Table 4         | Births and age-specific fertility rates 36 |
| Table 5         | Death rates in Siwai 40                    |
| Table 6         | One copra price 1913-1940 53               |

## Foreword

My primary debt is to the people of Siwai and especially those in Siroi and Maisua villages with whom I lived for some seventeen months between November 1974 and April 1976. It was without doubt one of the most enjoyable periods of my life although, in a difficult political climate where the benefits of expatriate research were often not apparent, it was not always without problems. It is naturally impossible to name all of those who taught me something of their life but at the risk of ignoring the many who assisted, some of whose names appear elsewhere in this book, it is essential to mention a few. It was Anthony Anugu, now Member of Parliament for South Bougainville and then President of Siwai Local Government Council, who first welcomed and assisted a naive researcher with only a smattering of even Melanesian Pidgin, guided me into my first village and subsequently provided regular intellectual and nutritional sustenance. In the villages where I lived John Sune, Kamuai and Stephen Sukina were foremost among those who were willing to put up with my social blunders, my inability to even understand more than a little of their own language and the occasional tedium of systematic enquiry. Without the women, above all Aie the wife of Sune, who provided me with food, and the men and children who were always willing to share coconuts, betel nuts and galips with me, life would have been immeasurably poorer. It is unfortunately true that many of those who were the kindest and most helpful to me will never be able to read this book. It is, nevertheless, for all of them.

Within Siwai I received generous assistance from all the institutions then in existence there: the Siwai Co-operative Society (and especially John Pinoko Sipisong), the Siwai Local Government Council and all the subsequent village governments. Both the Catholic and United Church missions gave me valuable data from their files, and at the Tonu United Church mission Sister Pamela Beaumont was a constant and valuable source of information. Elsewhere on the island, the executive of what was initially the Bougainville District Government, and above all Moses Havini and Leo Hannett, were always willing to discuss local political events. Finally,

at Bougainville Copper Limited, Cliff Newman especially was most helpful in providing access to records, individuals, transport, and cups of coffee. All of them eased the irregular problems of research work.

The original impetus for this study came from Mr E.K. Fisk through his association with the Council for Pacific Development Studies at The Australian National University. He has been my guide, mentor and critic throughout the planning, implementation and writing of this research project; without him it would simply not have been possible. A different kind of debt is due to the Council for Pacific Development Studies who provided and extended the financial support for this work, made possible by a large and generous grant from Bougainville Copper Limited, and, through the Department of Economics, provided a congenial home for me in the Research School of Pacific Studies. Outside the Australian National University I owe an enormous debt to Professor Douglas L. Oliver of the University of Hawaii, who not only encouraged me to re-study Siwai but visited me there, bringing useful ideas and criticism, and who has read and given valuable comments on almost the whole of the present manuscript. Finally I am grateful to Michael and Judy Hammett, also of the University of Hawaii, who throughout my stay in Siwai were themselves carrying out research in the Eivo-Simeku village of Atamo in central Bougainville. Their constant enthusiasm advice, and encouragement were unflinching supports.

The present volume is only one part of a larger study of the evolution of contemporary economy and society in Siwai. In its turn this forms a part of a wider-ranging series of enquiries into the pattern of change through much of the island of Bougainville, a large amount of which is now available and has contributed enormously to knowledge of one of the most interesting islands in Melanesia. The present research project was designed primarily to examine the contemporary operation of village economies in Siwai, and particularly the relationships between food crop and cash crop production, labour migration and the emergence of *bisnis*. The Siwai area was chosen because it had already been studied in considerable detail in 1938-39 by Douglas Oliver in his book *A Solomon Island Society* which would enable the present study to be both comparative and complementary. This orientation was chosen partly because of a particular belief in the necessity of long-term comparisons in rural areas as a basis for development studies and partly because of the almost complete absence of such long-term studies in a Melanesian

context. Inevitably this emphasis resulted in the research having a more substantial social component than was originally intended. This book is, in a sense, no more than an introduction and prologue to contemporary Siwai life; it traces the historic changes in the agricultural system, in so far as this is possible, and attempts to chart the important transition from a purely subsistence situation, without even peripheral participation in the cash economy, to one where the production of cash crops is almost universal. It ends around 1972 when the trans-island road finally linked the east and west coasts of Bougainville. More detailed data on the organization of the contemporary Siwai economy are in the process of being analysed to form the logical sequel to the present account. The derivation of the title reflects the nature of some of these changes; in the course of field-work I asked an elderly man what was the difference between living in Siwai now and living in Siwai nearly four decades earlier, when Douglas Oliver had been there. His reply was short and succinct:

*Taim bilong bipo em taim bilong pasin. Nau em i taim bilong mani.* (In those days it was a time of customs. Now it's the time of money.)

Siwai words, especially place-names, are spelt in a manner derived from a combination of the Siwai pronunciations that I was familiar with, the orthography devised for use in Bible translation and vernacular literacy and the pre-war usage of Douglas Oliver. Inevitably they will satisfy none of these. Oliver originally used the spelling Siuai, after the pronunciation of people in the Rataiku area of northeast Siwai. Few people have subsequently used this spelling and Oliver himself no longer uses it. I have therefore used Siwai throughout. Words in the Siwai language, Motuma, are identified by a capital S and words in Melanesian Pidgin are identified by NM.

Almost all of this manuscript was written in Canberra and various drafts were carefully scrutinized by E.K. Fisk and Douglas Oliver; I am indebted to them for rescuing me from numerous fantasies and fallacies. I am also indebted to G.E. Harrison and Dr G.W. Jones who commented on parts of Chapters 2 and 3. Neither they nor any of those acknowledged here will agree with everything I have written; I hope all will at least enjoy a part of it.

## Currency

Up to 1975, Papua New Guinea used the Australian currency. Until February 1966, this was the A£, divided into 20 shillings. From that date onwards, Australia converted into dollars and cents, at the rate of A£1.0 = A\$2.0 (A\$1.0 = 10 shillings).

In April 1975, Papua New Guinea started to issue its own currency, than at par with the Australian dollar, renaming the unit the kina, divided into 100 toea.

## Chapter 1

### Siwai: the environmental stage

Our own Siwai forests are good - the source of all desirable things: of food and game and building materials. Only madmen would choose to live elsewhere!

(Siwai man, cited by Oliver, 1955:104)

Bougainville is the easternmost island in Papua New Guinea but geographically and, in many respects, culturally it is the northernmost part of the Solomon Islands, a distinction recognized in its status from late 1976 as the North Solomons Province of Papua New Guinea. The island is tropical, hot and humid and dominated by a central spine of mountains, the Emperor and Crown Prince ranges, that has long hindered communication across the island. The largest mountains, Balbi (which rises to 2835 metres), Bagana and Takuan, are all volcanoes; the first two steadily pour out smoke and ashes over the adjoining mountain flanks whilst all three have provided extensive areas of volcanic soil, ideal for agriculture of almost any kind. Despite the earthquakes that are locally associated with the volcanoes and the floods that sometimes follow heavy rainfall it is usually a pleasant environment that provides a diversity of natural resources for the steadily growing population.

Before the war it was more difficult to be precise about a Siwai area; Oliver (1955:8) notes how 'Siwai' was initially a single point on the south coast between Aitara and Mamagota villages, but eventually the name was applied to a longer stretch of the coast and then the hinterland beyond. Oliver states that since the word 'Siwai' had wide acceptance among Europeans he would retain it to refer to those people who spoke Motuma, their culture and the area in which they lived. He did not record the people's own identification of themselves and I have no evidence that the people who now call themselves Siwai have not always thought of themselves as such. Nevertheless the definition of a Siwai area clearly

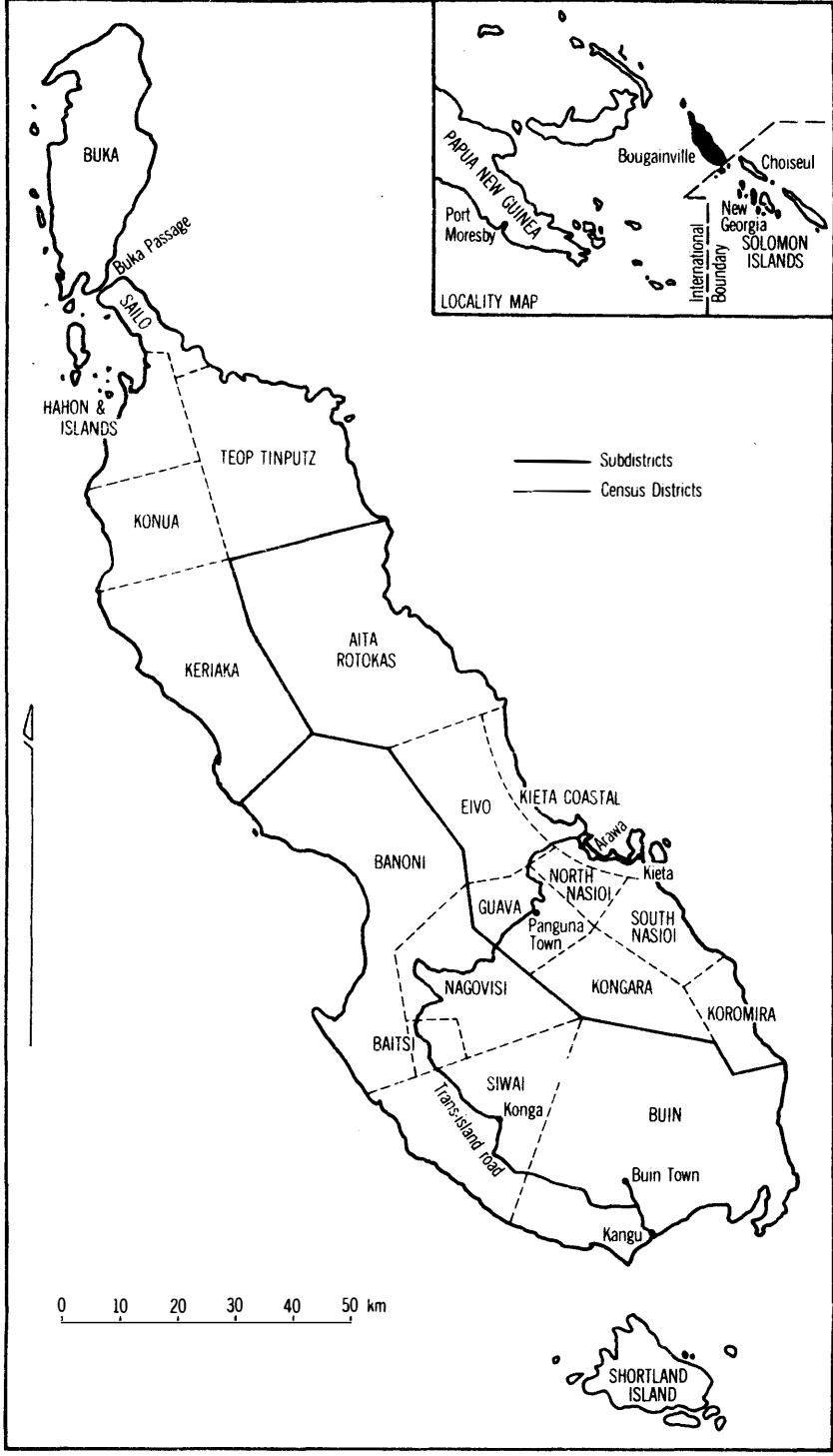


Figure 1. Bougainville



presented some problems. Oliver speaks of the Siwai occupying the centre of the Buin plain: 'The territory identified with them is roughly demarcated by the Mivo River on the east, the Torovera River on the west, the mountains on the north, and the swamps and sea at the south' (Oliver, 1955:9), but he later calls this area 'the main part of the tribal area' (Oliver, 1955:15). The pre-war administration seems to have recognized the Siwai area as it is now (Chinnery, 1924:88). All Siwais never co-operated or acted together in any way, nor was there a distinct and separate political hierarchy (Oliver, 1955:103) yet linguistic and cultural homogeneity certainly then emphasized the unity of a Siwai area even if there was a fuzziness about the actual boundaries.

There were also districts within Siwai (cf. Oliver, 1955: 320 and Figure 2) - Rataiku, Mokakuru, Ruhaku, Korikunu and Tonu - and people for most purposes felt a social unity within these rather than in the more general Siwai area. How these districts emerged is unknown but their boundaries were much the same both in 1938 and in 1975 and were more easily defined than the distant and less certain Siwai boundaries. There is a close relationship between these districts and those sometimes called *tuhia*, that is the area usually associated with an important feast-giver. It is in this sense that a mission manual translates *tuhia* as 'kingdom' (Oliver, 1949a(3):23) whilst the earliest European missionary in Siwai translated it as 'homeland' (A.H. Voyce, pers. comm. 1975). In the pre-war years they were used by the administration as the basis for local administrative areas; in the 1970s they became the areas of the village governments that replaced the local government council. These districts have been the most significant and long-standing regional groupings within Siwai.

Siwais recognized micro-cultural variations within Siwai; for example, in central Siwai cultural variations were considered to be greater to the west than with the villages of the east and northeast. Moreover, the villages in the west had incorporated Nagovisi phonemes into the language to a much greater extent than the incorporation of Buin phonemes in northeastern Siwai. Throughout the fringe areas, villages shared many cultural characteristics with areas on all sides of them to the extent that in a few places it was claimed that the similarities across language groups were much less than those with other more remote Siwais. Despite the cultural variations that mark districts within Siwai, the social divisions that have followed from the religious differences

of the missions are rather more important in contemporary Siwai social organization.

The Siwai census division is presently defined by a couple of fairly arbitrary lines drawn from Mount Taroka across the centre of the Buin plain of south Bougainville. The lines are arbitrary to the extent that they are geometric divisions, of a kind beloved of colonial administrators, which include all Siwai villages and also one village, Tarowa, which was originally an entirely Buin (Telei) speaking village but is now more or less bilingual, with social ties increasingly directly towards Siwai. They also approximate to the courses of the Puriata and Mivo rivers which are more or less traditional boundaries of the Siwai linguistic area. Although Siwais have rights to land outside these rivers and others use land within them, it is a division which effectively demarcates a culture region. As communications have improved and administration has considered Siwai a single area, the fragile and tenuous links that shaped the region have been strengthened, especially through administration devices such as the Siwai Local Government Council. Indeed Oliver foresaw this when he commented 'there may some day develop a tribal political organization accompanied by explicitly expressed identification between tribe and territory' (1955:104). Other modern institutions have also generally assisted in shaping and formalizing the present Siwai area but the local government council was the most significant of these because of its formal organization, regular meetings, and ability to influence developmental changes throughout the area. In 1975 all villages in the Siwai census division were represented in the council although Haisi and Hiru-Hiru villages had been in the Bana Council until the previous year. In mid-1975, the Buin Council ward that consisted of Tarowa, Siuru and Tupopisau requested that they be allowed to join the Siwai Council. (The Tarowa councillor then claimed that their customs were exactly the same as those of Siwai, even though their language was mixed. Siwai councillors expressed general enthusiasm for this, most expressing the belief that it was only to suit administrative convenience that they had been put into the Buin Council area.) The Siwai Society (see Chapter 5) has also emphasized the Siwai Council area, although there have in the past been attempts from the Haisi and Sininai areas to set up a new society more responsive to their own interests; the three neighbouring Buin villages all have many members in the Siwai Society whereas, in the west, Horino villagers are divided between the Bana and Siwai Societies. The DASF have tended to administer villages in

the Sininai-Haisi area from their Boku office rather than from Konga. Both missions have emphasized the present Siwai area whilst it is generally believed that the Monoitu Catholic mission was a significant influence on the Haisi area, strengthening the Siwai language and culture there in the period before Haisi had its own mission. A loosely-defined region has become increasingly real; within Siwai there is a considerable cultural homogeneity that effectively demarcates it from neighbours on either side but Siwais do not worry about these divisions; there is, after all, an extensive area between the Puriata and Mivo rivers which continues to provide game, timber and land, and their immediate neighbours are little different from themselves.

Siwais are not therefore dissimilar from other conventionally conceived tribal groups; they

are not closely bounded populations in either territorial or demographic senses. They are not economically and politically integrated and display political organization under hierarchial leaders only as a result of contact with already existing states, although such contact may be quite indirect. They are not either war or peace groups and rarely if ever show congruence with language communities or with religious communities (Fried, 1975:Preface).

The 'pristine tribe' is indeed a creation of myth and legend (Fried, 1975:114), yet changes in Siwai and elsewhere in Melanesia, especially those fostered by councils (cf. Langness, 1963:168-9), have induced and strengthened beliefs in cultural unity and even homogeneity whilst, simultaneously, the more rapid emergence of external economic links and often substantial economic differentiation within small areas has minimized the conceptual value of the concept of 'tribe' (cf. Good, 1975). Nevertheless it is useful to consider the Siwai region as a socio-geographical area of relative cultural uniformity as recognized by the local people.

Siwai, therefore, is the central part of the south Bougainville plain, now some 100 kilometres from the largest town on the island, Arawa, and about 30 kilometres from the tiny town of Buin. In fine weather a Siwai truck may reach Arawa in three hours and Buin in less than an hour, but conditions are rarely so ideal; bridges and causeways may sometimes be ruptured and floods in the rivers that are not bridged can often close each of these roads for more than

ten hours and sometimes longer. In 1975 there were three unbridged rivers between Arawa and Siwai and three more towards Buin. At Tonu, in central Siwai there is a small airfield suitable for twin-engined aircraft; this too is occasionally flooded and heavy rain and thick cloud in the mountains may also disrupt air travel. Rapid travelling demands some meteorological expertise and occasional luck but Siwai is no longer a rural area remote from the rest of the world; increasingly it is part of an island and a nation.

From above, the Siwai landscape appears a monotonous vista of dark green bush, fading into the grey mountain chains to the north and extending to the shores of the Solomon sea. Neither mountains nor sea have much relevance to Siwai life. Patches of garden cultivation and their occasional spirals of smoke are relatively rare breaks in the scene whilst the rivers are overhung by trees. A few dusty roads form modern intrusions in the greenery and the village lines also conspire to destroy the apparent homogeneity. It is an area where secondary bush vegetation is dominant in creating the visible scene and it takes time for the unpractised eye to differentiate between forest, secondary regrowth, plantations and gardens; trees are everywhere so that the impact of centuries of human residence rests lightly on the landscape.

The line villages, which have, since the early periods of Australian administration, characterized formal Siwai settlement patterns, are with only two exceptions more than five kilometres from the coast. Siwais are emphatically 'bush' people rather than 'sea' people, although this was probably less true in the remote past. Indeed one of the ceremonies that traditionally, and occasionally still, marks the introduction of a leader's son into the men's house is when the boy is taken on the long journey to the coast to see the sea for the first time (cf. Oliver, 1955:189). For most Siwais any visit to the coast is extremely rare. The tidy line villages themselves are in stark contrast to the varied green of the surrounding gardens and bush; women are seemingly always at work removing the occasional intrusive weed from the village areas. It is indeed as Tuzin has described for Arapesh villages of the east Sepik:

Living sites are traditionally bared of ground cover ... People say this is to promote sanitation and protect against snakes and centipedes, which may be true; but there also

seems to be an ingrained notion that human habitation requires, among other things, a flat area cleared of natural obstructions. A bit of grass, pleasing to the European eye, is an unwelcome intrusion to be studiously removed ... the village has a swept tidiness verging on bleakness, reflecting an anxious concern for orderliness that extends to squared corners, straight lines, symmetrical piles and neatly bound bundles (Tuzin, 1976:8-9).

Even so, Arapesh villages are not arranged in the straight lines on flat sites that characterize Siwai villages; here austerity is relieved only by occasional trees planted within the village. The contrast between the severe order of the village and the lush abundance of the surrounding vegetation is quite remarkable.

### Land and soil

About half of Bougainville Island consists of mountains and foothills with steep and often precipitous slopes. The copper mine at Panguna is in the centre of such a region but the plains of south Bougainville are lowlying and the only steep slopes are the sides of dissected stream valleys, sometimes several hundred feet below the general land surface. Away from the mountains, the streams and rivers are not so entrenched and communications are somewhat easier. The Siwai coast however is partly bordered by a beach ridge which has hampered drainage and produced considerable areas of swampy ground extending, in a few places, for several kilometres from the coast.

Most of Siwai is a plain, highly dissected by rivers rising in the mountains and flowing southwest into the Solomon Sea. The largest of these rivers, the Puriata, Mobiai and Mivo, flow in deep valleys and are often difficult to cross; heavy rainfall raises their level by a few feet and unless they are bridged they are then impossible to cross. Each of these rivers is now bridged on the main trans-island road but crossing at other points is still difficult; heavy rains often isolate upland Rataiku at least for a few hours and, as in 1976, even the largest bridges can be broken in the worst floods. Smaller streams are usually unbridged and, as in Nagovisi (Mitchell, 1976:17), Siwai paths wind their way around these so that casual travellers, and researchers, are often unaware of the multiplicity of streams flowing

through the plains. The soft alluvial surface of the plain has enabled these fast-flowing streams to deepen their beds resulting in many flat-topped alluvial ridges, narrow in the upland areas but wide in the southern plains, that are the main areas for extensive agricultural activity.

Villages and hamlets are mainly clustered in central Siwai, between an altitude of 30 and 100 metres above sea level. Two remote villages are at the coast and there are several upland villages that occupy the widest of the upland ridges. Iru is about 360 metres above sea level but few other villages are even 200 metres above sea level. In these higher areas communications are rather more difficult and highly concentrated in a mountain-coast direction. In northeast Siwai, the Rataiku, the location of settlements, roads and gardens is influenced by the environment to a much greater extent than anywhere else in Siwai. Siwais distinguish Rataiku as ecologically different from other parts of Siwai; the people of Rataiku are 'mountain people' or the 'people from on top' although they do not necessarily believe that this causes behavioural differences. Conversely, for Siwais, mountains are the uplands of Rataiku (and Iru for the people of western Siwai) and not the central dividing range of Bougainville, which is the area where rain clouds build up but is otherwise unimportant in Siwai geography. This is a useful division which was employed by Oliver and is retained here. Villages in the mountains are usually located on the high ridges, well away from the rivers which flow in steep-sided valleys that would be quite impossible for settlement. In central Siwai the ridges are much less sharply defined, hence villages are usually much closer and more accessible to water although, very occasionally, they may be more susceptible to extensive floods. Siwais themselves, because of the location of the mountains and the alignments of the rivers radiating from them, use the words *rano* and *ronno* to mean respectively either 'upstream' and 'downstream' or 'north' and 'south' (Oliver, 1955:100). This differentiation is one that is much more useful than formal geographical directions.

Bougainville is located in a particularly active part of the tectonically unstable margin of the Pacific Ocean and, in southern Bougainville especially, earthquakes (*S-*i*pi*) occur almost every week, an average as high as any in the world, and are a dramatic influence on the Siwai environment. '... some of them are violent enough to topple houses and cause dangerous landslides' (Oliver, 1955:9),

even though most do no more than shake house posts and awake sleeping Siwais. Damage to houses or gardens is exceptional. By any standards, however, the earthquake of 21 July 1975 was exceptional; six months had passed without even a minor tremor when the earthquake, measured at 7.2 on the Richter scale, with its epicentre about 100 kms southwest of the Siwai coast, shook the island. The initial tremor lasted for two minutes; further substantial tremors lasted for two days and daily earthquakes followed for twenty days. Damage occurred throughout Bougainville, especially to the more permanent constructions of the towns, and in Siwai there was considerable destruction; some 400 houses collapsed completely and others took on eccentric alignments. Since most houses have sago leaf roofs fastened to thin girders, injuries, resulting from fire as much as from falling houses, were rarely severe. Bridges were fractured and some roads cut by landslips but most gardens were unharmed though in some of the more steeply sloping gardens of Rataiku, landslips did destroy some newly planted areas. Despite the time lost in rebuilding houses, and a couple of days in which few people did more than sit near their houses speculating on the likelihood of another enormous earthquake, it did not have the dramatic effects of similar earthquakes in an urban, industrial environment. Rural economy and society are more resilient to this kind of disruption.

Siwais believe that earthquakes are a result of volcanic activity although it seems that this is not actually so; rather earthquakes trigger off volcanic eruptions (Blake and Mieztis, 1967:47) as occurred in 1975. Few Siwais themselves can remember an earthquake as destructive as that but some stories recall a previous one, possibly around German time, when there were tidal waves in the rivers, taro gardens were destroyed and there was a short period of hunger.

Most of south Bougainville is covered with layers of volcanic ash which lessens in depth away from the mountains but is only absent entirely within five kilometres of the coast. This volcanic ash provides the base for the development of most soils of the area and almost all the populated area of Siwai is situated on soils derived from it. These soils are essentially a combination of sands and loams; one of their outstanding features is that they are surprisingly resistant to erosion (Scott, 1967:112). In conditions of considerable earthquake activity and high rainfall this is an important characteristic enabling gardens to be constructed and maintained even without terracing on steeply sloping

ground. The scanty evidence available suggests that the soils of Siwai are generally of average fertility and all are subject to high leaching. Apparently the only soil analysis ever made in Siwai, near Kutin village, recorded that 'the results show the soils to be acid in reaction, free of toxic levels of soluble salts and are marginal to deficient in phosphorus. Potash levels are low while nitrogen is satisfactory in the top six inches but decreases rapidly with depth' (Shaw, 1969). Based on the distribution of soils in Bougainville the south Bougainville plains were early considered to have the best potential for agricultural development (van Wijk, 1962:132), and even the poor growth of coconuts could not be attributed to soil deficiencies (Sumbak, 1970).

Siwais themselves recognize variations in the quality of soils, and, like the agricultural extension officers (NM - *didimen*) of Siwai, they believe that cocoa grows best on the loamy soils of the upland ridges rather than on the more sandy low-lying plains. In a few isolated patches, there are good clay deposits which, until recently, were used for manufacturing pottery which was traded within and sometimes beyond Siwai. However, Siwai soils, apart from the swamplands that back the coast, have had a very limited influence on either settlement or land use; the cultivation practices that have always been used are not demanding of the capacity of the soils to supply plant food which has led most observers to comment on their richness; only the single soil survey suggests otherwise.

### Climate

Often overwhelmingly, the most impressive features of the climate of south Bougainville are heat, humidity and an extremely heavy rainfall. There is no apparent seasonality. Years are marked by the fruiting of the canarium almond tree (*S-mor*) and not by any climatic changes. Siwais themselves distinguish no seasonal variations. As elsewhere in Bougainville (Blackwood, 1935:30) they speak of a 'time of rain' but this applies whenever the weather is wet; rain is the most dramatic climatic influence on Siwai life. Central Siwai has about 500 centimetres (200 inches) of rain a year (see Table 1) which is quite typical of south Bougainville (Ward, 1975:13); coastal villages have much less and upland villages rather more. There are however considerable variations; in 1969 there were 320 inches of rain at Konga but in 1975, which was an exceptional year, no more than 132 inches fell at Siroi. These are both exceptional

Table 1Siwai rainfall

| Tonu<br>September 1958 -<br>February 1969 |               | Konga<br>1957-61, 1969,<br>1972-73 |               | Siroi<br>February 1975 -<br>March 1976 |               |
|---|---------------|------------------------------------|---------------|--|---------------|
| <u>Months</u>                             | <u>Inches</u> | <u>Months</u>                      | <u>Inches</u> | <u>Months</u>                          | <u>Inches</u> |
| J   | (9) 17.23     | (5) 19.05                          | (1) 16.39     |  |               |
| F   | (10) 14.45    | (5) 21.07                          | (2) 13.08     |  |               |
| M   | (10) 17.39    | (4) 16.46                          | (2) 13.93     |  |               |
| A   | (9) 12.76     | (4) 11.46                          | (1) 14.67     |  |               |
| M   | (10) 11.67    | (4) 19.88                          | (1) 15.18     |  |               |
| J   | (10) 11.14    | (6) 16.96                          | (1) 13.19     |  |               |
| J   | (9) 25.50     | (7) 24.56                          | (1) 5.16      |  |               |
| A   | (6) 16.39     | (7) 26.40                          | (1) 8.14      |  |               |
| S   | (9) 17.37     | (7) 24.55                          | (1) 4.47      |  |               |
| O   | (10) 16.07    | (4) 12.87                          | (1) 10.66     |  |               |
| N   | (8) 15.42     | (4) 12.41                          | (1) 14.78     |  |               |
| D   | (7) 12.82     | (3) 14.77                          | (1) 17.05     |  |               |
|   | 188.21        | 220.34                             | 146.70        |  |               |

Sources: Tonu (United Church Mission: Sr P. Beaumont); Konga (DASF Konga, File 37-1); Siroi (John Connell and Joseph Uamo). Each station is between 50 and 60 metres above sea level. The figures in brackets represent the number of months for which a complete record was available. None of these data were collected with the finesse that would satisfy a meteorologist; in the two years of overlap between the Konga and Tonu records the rainfalls are sufficiently similar (although naturally different) to suggest that most of the data are reasonable. The variation from the 'true' rainfall is probably very slight and does not affect the arguments presented here. These data are much more useful than interpolations from more distant observations.

extremes; even so the variation about the mean is still quite large.<sup>1</sup>

A day without rain is quite rare in Siwai; almost as common is the sort of period that Oliver recorded in 1939 when 'there was a downpour which lasted for thirteen days except for a few half-hour letups' (Oliver, 1955:492). There are no good data on dry periods; in a four-year period between 1959 and 1962 every month had at least 50 per cent (and usually over 75 per cent) rain days although in the 'drought' of 1975 three successive months, from September to November, had less than 50 per cent rain days. In November 1965 nine successive rainless days were recorded at Tonu; this was not exceeded in 1975 although in one 39-day period there were only 6.6 centimetres (2.61 inches) of rain. Under a tropical sun this was effectively a drought; small rivers dried up so that Kapana villagers, amongst others, had to travel as far as the Mobiai for water, and some crops withered in the gardens. Droughts of this kind are very rare but have occurred before; in 1967 one councillor remembered what was an improbably severe drought:

*Wanpela taim i bin gat bikpela san; olgeta wara  
i bin drai. Mobiai tasol i bin stap. Gras i bin  
kamap long hap we wara i save ran longen. Ol  
bikpela man ol i traim long wokim tru tasol  
sampela ol i no inap; sampela ol i bin wokim gut  
na ren i bin kamap.*

(Once there was continuous sunshine; all the rivers dried up until only the Mobiai remained. Grass grew where the rivers had run. All the prominent men tried to make rain but some were unable to; some did it properly and rain returned.)  
(Siwai Local Government Council Minutes, March 1967.)

Siwais now offer no explanations for these droughts although in the past they were blamed on the activities of ill-meaning magicians and the 1975 drought was blamed on the enormous earthquake that had preceded it.

All villages obtain their drinking water primarily from the many springs that are often the sources of small Siwai streams; even during the worst drought these are rarely dry

<sup>1</sup>The mean rainfall in Siwai (averaged between Tonu and Konga over a twelve-year period: 10 years at Tonu and 2 additional years at Konga) is 198 inches (503 cms) with a standard deviation of 41.75.

so that drinking water, of excellent quality, is always available close to any village. Although some villages, and some households, have constructed iron water tanks, filled from regular downpours, these are nowhere essential to adequate water supply.

Rather more dramatic than the rare rainless days are the days of torrential downpour and the periods when these torrential downpours extend over days, washing away roads and bridges, flooding gardens and occasionally leading to serious food shortages. Almost all showers of rain are heavy but short-lived; thunderstorms are common, often resulting in heavy afternoon downpours followed by lightning flickering over the sea into the night. A Tonu mission cow was once killed by lightning but thunderstorms are rarely fatal. Most days are characterized by sunny mornings, a gradual build-up of cloud around mid-day, starting over the distant central mountains and moving towards the coast followed by afternoon rain. At Panguna, where conditions are not so very different from upland Siwai, 62 per cent of all rain (in a two-year period) fell between 12.00 and 17.00 (BCL, 1969). This concentration of heavy rain in a short afternoon period often has serious consequences:

Once in a while rain clouds collect in the mountains and precipitate enormous quantities of water which then rush down the stream beds, increasing the normal water depths tenfold. These stream floods rush down with a roar, and sometimes drown natives who are unable to reach higher ground (Oliver, 1955:9).

Voyce (pers. comm. 1975) once recorded a six foot high wall of water rushing through Tonu. On several occasions I recorded two inches of rain in less than an hour. This kind of spectacular flood is a greater problem now that Siwai has come to depend on the outside world; roads and bridges are washed away, stores cannot obtain supplies and cocoa and vegetables fail to reach their markets. Rather more regular are those occasions when Siwais are forced to remain overnight in other villages; 'high tides' block the paths which become deep in mud.

In the comparative aridity of 1975, heavy rainfall was rare; I recorded 22.3 centimetres (8.78 inches) on one day in November but this was an exceptional day. Between 1959 and 1968 at Tonu there were only about eight days, no more

than one day per year, when there was more than 12.7 centimetres (5 inches) of rain. The single wettest day was near the start of the wettest recorded month, July 1965, when 31.5 centimetres (12.42 inches) fell. It is the intensity of rain in an often brief period of the afternoon, rather than its duration even over a day, that effectively disrupts most afternoon agriculture and characterizes the climate of Siwai.

A much more serious disruption to Siwai gardening is the occasional waterlogging that follows a long period of exceptionally heavy rain. 'More generally coconut growth is hampered by inadequate soil drainage, and therefore waterlogging' (Tomlin, pers. comm., 1977). Many Siwais believe that these catastrophic floods occur at seven year intervals and, indeed, the little climatic data available tend to support this kind of generalization. The worst floods were in 1957, 1965 and 1972. The most dramatic of these was in the single month of July 1965 when 164.2 centimetres (64.65 inches) fell; even so there was still one rainless day. Continued heavy rain in the next two months, when 103.0 more centimetres (40.6 inches) fell, never enabled gardens to regenerate and there was a substantial food shortage. Siwais have never satisfactorily accounted for these floods; during heavy rains in 1967 it was remarked by the Council Vice-President that since Public Works Department (PWD) employees do not work in heavy rain but still get paid, '*Plenti man ol i bilip olsem: i gat wampela man i save wok long PWD husat i save mekim dispela ren, bikos em i laik bai em i sindaun nating na kisim pe* (Plenty of people believe that one of the PWD workers has made this rain since he prefers to do no work, rest and get paid)'. Other councillors were not convinced that a PWD worker would have this skill nor that past floods could be explained in the same way.

One of the worst of these floods may have been that of 1972 following the brief visit of Cyclone Ida. At Konga there were 284 centimetres (112 inches) of rain in the four months from May to August, and over the whole of southwest Bougainville the pattern was much the same. As early as May emergency rations had been sent to flood victims at Moratona in Nagovisi and Torokina in Banoni but there was no general concern until September when very heavy rainfall (including 117.4 centimetres (46.24 inches) in one week at Boku) washed away low-lying sweet potato gardens. Generally upland areas survived better than the lowlands. Much sweet potato rotted in the ground and other unaffected roots became inedible because of their poor flavour. *Didimen* found that the best

sweet potatoes, including the only one that weighed more than half a pound, came from mounds. Banana clumps rotted and the surviving stems failed to form bunches; leafy vegetables were in short supply from the gardens but could still be collected from the bush. Very few pawpaw trees produced fruit and peanuts also rotted. Chinese taro (*Xanthosoma sagittifolium*) was only slightly affected by the rains. The root crop by far the best able to withstand floods is taro (*Colocasia* spp.); thus pre-war Siwai, before the death of taro (pp. 73-5), was well able to withstand floods. Siwais switched to purchasing rice and other food from trade stores, but since road transport was impossible for three or four months, supplies did not last beyond August. The administration then assisted by distributing supplementary food, including rice, wheatmeal and peanut oil, by aeroplane and helicopter. Siwais also reverted to more extensive sago production, and isolated villages like Aitara remained almost entirely dependent upon sago for a long time. Although the Buin market seems to have remained well stocked, sago was one of the six most important foods there (Arndt, 1972). The Konga market survived less well; by June goods there consisted predominantly of pumpkin leaves, other wild leaves, wild yams and Chinese taro. At the start of September the total amount of produce was no more than one man could carry (French, 1972a). Maisua villagers remembered cutting twelve sago trees for food during this five month period, a massive increase on contemporary cutting rates (Connell, 1977a:17), whilst one villager bought nine sacks of rice at \$4 each and complained that the main result of this was that his children then became almost addicted to it. There was also more hunting than usual.

Cocoa too was affected by defoliation, wilt and blackpod, and unripe pods fell from the branches; production declined and because of the destruction of several roads Siwais reverted to bush driers which then apparently resulted in a loss of quality (Arndt, 1972). Apart from this kind of dramatic destruction cocoa can easily tolerate high rainfall.

There is rather less information about earlier floods; the 1957 rainfall seems to have been rather less severe than the 1972 one. Nevertheless one patrol officer noted that 'in the mountain area the people have been spending much of their time huddling over fires, and no outside work can be done for days at a time'. There was a food shortage and an increased consumption of sago but he observed wryly that local concern was over the loss of tobacco crops rather than

tubers (PR Buin 3/1957-58). The 1965 flood seems to have been much the same whilst reports of the 1976 floods indicate that the main problem had become the disruption of communications rather than of gardens. Increasingly, as Siwai becomes incorporated into the outside world and time becomes money, floods have a greater impact on local life.

Temperatures are much the same throughout the year but the daily variations are often quite considerable. The highest temperatures are on rainless afternoons when the thermometer occasionally reaches 35°C; the highest temperature ever recorded was 36°C (97°F) on several occasions at Tonu but it is rare for there to be a cool day. In eight months in 1975 the lowest maximum temperature that I recorded was 25°C (77°F) but this was extreme; in four years at Tonu the mean maximum temperature was 32°C (89°F) a figure which is reached around midday before heavy afternoon rains which can reduce the temperature by as much as 6°C in half an hour. In the same four-year period at Tonu the mean minimum temperature was 21.5°C (71°F) but occasionally, just before dawn, the thermometer slumps even below that. These diurnal contrasts can be quite striking so that people typically keep a fire smouldering all night for warmth and old people especially prefer sleeping in their kitchen house rather than in the cooler, draughty stilt houses. At Tonu, in ten years, the temperature only once fell as low as 17.2°C (63°F). On the one occasion during my stay when the temperature fell as low as that I, like most Siwais, awoke shivering and more than willing to complain about the weather. All-night ceremonies too can be chilly events, especially in upland villages where there are always cool night breezes. In these upland villages the temperatures are generally cooler than at Tonu, in central Siwai, yet there is little evidence that, with the exception of taro, this has a significant influence on any local crops, although the temperature variations were considered by the *didimen* to necessitate coffee planting in a zone above cocoa (p.135).

Dramatic downpours and exceptionally cold nights mark the pervasive effects of the high relative humidity characteristic of so many tropical lowlands. As in neighbouring Nagovisi (Mitchell, 1976:19), the relative humidity falls as the sun rises and reaches around 75 per cent at midday; in the afternoon it rises again, usually reaching 100 per cent in late afternoon, and remains close to that level throughout the night so that leaves drip with dew in the mornings. Arduous physical activity is unpleasant and in these humid

conditions fungi abound, on clothes as well as on trees; it is also very close to the ideal environment for taro blight (Packard, 1975:57-8) and some cocoa diseases. Since relative humidity is inversely correlated with temperature, respite from the humidity and heat is rare; sweat, mildew and rust are familiar consequences.

The only note on insolation in Siwai is contained in a 1969 DASF (Department of Agriculture, Stock and Fisheries) Project Programme where it was estimated that there were on average 3 hours 25 minutes of sunshine a day at Konga. Records from Buin town, over a one-year period, show an average of 3 hours 35 minutes with no significant seasonal variations (Sumbak, 1970:4) and from Pomalate, Nagovisi, over a one-year period, the average was 5 hours 3 minutes (Mitchell, 1976:19). Superficial impressions of this kind of data are of little value, yet it may well be that the Konga figure is generally true of central Siwai; there is, of course, a considerable difference between the cloudy mountains and the coast. Coconut palms grow rather better nearer the coast where sunshine is greater; elsewhere they grow badly. By contrast, cocoa, a shade-loving plant, grows exceptionally well in Siwai (Sumbak, 1970). The earliest cocoa driers that were introduced into Siwai involved a combination of sun and fire for drying beans but insufficient sun and its irregular appearance resulted in their declining use; only the largest modern fermentaries, such as that of the Siwai Society at Konga, bother to incorporate sun-drying (since labour is always available to move the roof). Although garden shelters are essential, and umbrellas useful in heat as in rain, prolonged sunshine is rarely a deterrent to any kind of physical activity.

High winds are unusual since Bougainville is outside the usual path of cyclones; Cyclone Ida caused some damage to houses in 1972 but it is unusual for there to be more serious problems than the occasional strip of roofing thatch blown away. Falling coconuts are potentially much more lethal; earthquakes too are a greater hazard than winds.

Heavy rains and hot sun make expatriate researchers rather more grateful for shade and shelter than Siwais, yet overall there are no real climatic hazards in Siwai; the environment is one in which most tropical crops flourish extremely successfully. Rainfall and sunshine are sufficient and there are no extremes of temperature. Apart from a few irregular floods, the climate is predictable and regular;

Siwais are not subject to the climatic irregularities that trouble agriculturalists in less favoured areas.

### Vegetation and animal life

Much of the plain remains covered with rain forest; south of the old Buin road (through Ruisei and Haisi) and north of the upland villages some of this luxuriant and varied vegetation is almost untouched. It is still

an impressive sight. Each enormous buttressed tree-giant is a whole community of vegetation: numerous woody vines twine around the tree's aerial roots, and every limb is covered with luxurious parasitic growth. So thick are the branches that very few shafts of sunlight penetrate, and ground-cluttering scrub growth is seldom encountered in the forests' (Oliver, 1955:8).

In central Siwai too a little of this still remains and even around new garden sites there is always enough tree cover to prevent views of more than a couple of hundred metres, except along the roads. The landscape of Siwai is essentially introspective.

Apart from swampy areas close to the coast and the high unpopulated mountains inland the natural vegetation of Siwai is remarkably homogeneous through the area; the tropical rain forest is dominated by *Vitex* (*S-moikui*) and *Pometia* species. Although its composition is much the same throughout Siwai it is typically heterogeneous rain forest, containing about sixty common species of big trees with average girths of over six feet (1.8 metres) and some 250 species with girths of over one foot (Whitmore, 1966:1). Most of the main forest trees are over 30 metres high with scattered emergent species, such as canarium almonds (galips), reaching over 40 metres. Secondary forest regrown in old garden areas rarely has time to produce a closed vegetation canopy; where a canopy does exist it is no more than about 15 to 18 metres high. The most conspicuous of the larger species in this woody regrowth are *Kleinhovia hospita* and *Albizia* and *Althoffia* species; beneath these trees there is quite a dense shrubby layer dominated by gingers and a few scattered palms and wild bananas. Increasingly bamboo is becoming a part of this undergrowth, much of which is a valuable source of building materials and, particularly in the past, was the

source of timber for fence material (Oliver, 1955c:23-4). The secondary regrowth enables regeneration of the soils and the permanent vegetation cover assists in binding the soil surface to prevent soil erosion; both forest and regenerated bush remain a valuable reserve of timber, plant foods and, ultimately, garden land.

Siwai homes are made almost entirely from plant products although the use of nails is universal; a few ridge crests, which are difficult to weatherproof, are covered with iron strips. Roofing thatch is made from the sago palm, which is sometimes cultivated partly for this; sago palm or split bamboo forms internal and external walls. Floors are made from limbum (*Kentiopsis* spp); rafters, beams and also cord come from various forest species. Since the forest also provides food and medicine, wood for spears, slit gongs, cocoa fermentaries and so on, the consequences to the vegetation are quite considerable so that for a mile or more around any village there is what can be described as a 'depleted forest' (Whitmore, 1969:266). In these areas small trees, climbers and even fungi have been selectively removed and the forest takes on a more open appearance, with big trees standing over the herb layer and the lower part of the canopy having almost disappeared.

The diversity of fauna in Siwai is a truncated version of that on the islands west of Bougainville and on the New Guinea mainland. As hunting continues, the variety is decreasing. For example, there are no venomous snakes in Bougainville; nor are there leeches, cassowaries or birds of paradise. Even so there are still some species confined entirely to Bougainville, such as the giant tree rat (*Uromys ponceleti*), named after one of the earliest Catholic missionaries in Buin. The largest mammals are wild pigs, now in reduced numbers, possums (*Phalanger orientalis breviceps*), tree rats, which have now almost disappeared, other kinds of rat and many varieties of flying fox (*Pteropus* spp.), flying mice and bats (Troughton, 1935). There are also various kinds of frogs and land reptiles such as lizards and snakes. Toads are a recent post-war arrival into south Bougainville and are of uncertain origin. Snails are not common and the giant snail, probably introduced by the Japanese during the war, has not yet reached Siwai and is, at present, only a menace in east coast gardens.

Birds of many varieties occur in profusion; the largest of these, hornbills and eagles, are declining in numbers, but there are many kinds of pigeons, parrots, cockatoos and owls. Insects such as mosquitoes and especially the persistent sandflies, are a particular nuisance on the coast but apart from swampy areas they are rarely a problem inland. Cockroaches are an ubiquitous pest and the centipede, which occasionally grows to a length of over 50 centimetres, has a sting sufficient to cause severe pain for a couple of days. Lice too are a pest infesting the heads of most small children. On the other hand there are some of the largest and some of the most rare and beautiful butterflies in the world. Black beetles, and also baby flying foxes, can be attached to pieces of string to become diverting children's toys until they are worn out. Almost every living species had some role, positive or negative, in Siwai life.

Ecological diversity within Siwai is slight, apart from minor variations between high mountains and swampy coasts. The rivers and their immediate surrounds represent one area of ecological uniqueness but then no Siwai would live far from a river or stream, a source of water for drinking and for washing people and clothes. Here the fauna is more varied and the flora diversified; sago palms overhang the streams but rarely so densely as in mainland New Guinea and the pattern of riverine exploitation is rather different from that employed on the intervening ridges. The streams contain fish and eels, although it is only in large rivers like the Hongorai or Mivo, that they are large enough to justify fishing trips (Connell, 1977a:10). Prawns abound in most streams and rivers except for the small streams of Rataiku (Oliver, 1955:9). The moss forests of the mountains do not concern Siwais but the coastal environment sometimes does; here there is a slightly different vegetation (although the exploitable species seem little changed) and a much greater faunal variety, including crocodiles and, in the sea, a variety of fish and turtles.

### The environmental stage

Before the war Oliver found Siwai 'a remote and harsh environment' (1955:ix). It remains remote yet small aeroplanes fly to the centre of Siwai and remoteness is not a problem that Siwais often trouble themselves with. Oliver also stated (1955:453) that the physical environment of Siwai was 'deficient in certain respects' and that some Siwai illnesses, primarily colds, 'may be laid at the door

of their physical environment' (Oliver, 1955:11). In what ways it was a harsh environment and the extent to which disease was a direct result of environment rather than a product of cultural practices are left unexplained; if it was so then it did not seem that way in 1975. Nor does it seem that way to the Siwai themselves; Oliver records the nearest approach to a sentiment about Siwai, made by a man who had returned from work in the New Guinea mainland: 'Our own Siuai forests are good - the source of all desirable things: of food and game and building materials. Only madmen would choose to live elsewhere!' (Oliver, 1955:104). Nearly forty years later sentiment remained the same; like people everywhere the Siwai claim that their land is the best. Siwai is a highly desirable place in which to live: a pleasant environment for agriculture and life.

## Chapter 2

### The people of Siwai<sup>1</sup>

Every society tends to keep its vital processes in a state of balance such that population will replenish losses from death and grow to an extent deemed desirable by collective norms. These norms are flexible and readjust rather promptly to changes in the ability of the economy to support population (Bogue, 1969:51).

The most distinctive characteristic of Bougainvilleans is their blackness, unlike Melanesians to the west and east but together with the nearest Solomon Islands (including Choiseul and New Georgia) to the east. The physical anthropologist Friedlaender distinguished Bougainvilleans by 'their very dark complexion, frizzy hair, and generally African appearance' (1975:28). Yet there are also regional differences within the island; Friedlaender (1975:29) confirmed that the three divisions recognized in the early twentieth century by the first European observers as between the coastal peoples and the people of the northern and southern interiors, were recognized by some of his Bougainvillean informants, who talked about the long-headed beach people, the big, broad and heavy northern mountaineers and the small and short-headed southerners, and also eventually emerged from his own multivariate analysis of physical characteristics. In this context however Siwais tend to fit between the first and third groups. Indeed there are considerable variations in all physical characteristics within Siwai. Some Siwais have much lighter skin, a trait which Siwais believe to be more common in the Haisi area; some individuals have redder hair whilst there are even a few Siwais with almost straight hair. Bougainville is unique (amongst areas tested in this way) in its 'extremely fragmented' population structure (Friedlaender, 1971:24), a

---

<sup>1</sup>A more detailed version of this chapter, especially in its treatment of some of the more technical aspects of demographic change (and some of the correlates of the 1975 situation) is provided in a separate paper (Connell, 1977b).

social phenomenon which has tended to preserve or induce marked local differences in physique (and also blood types). Unlike Friedlaender's informants (from an unspecified part of Bougainville), Siwais did not conceive of their own physical uniqueness; they believed that it was generally impossible to distinguish Siwais from other Bougainvilleans in this way. Their uniqueness was a product of language and culture.

Historic separation and uniqueness were never absolute; genealogies from villages on the fringes of Siwai record marriages with neighbouring language groups at all periods of recent history, and there was trade rather than enmity between the language groups of south Bougainville. In the nineteenth century marriages were contracted at least as far as Nasioi in east Bougainville and with the islands of the Bougainville strait, and this was a pattern that has been maintained to some extent until the present day. But in the mid-twentieth century marriage links began to extend; if Siwais had contracted marriages with the 'redskins' of New Guinea or the central Solomons before the war Oliver does not record that fact and genealogies do not demonstrate it. Such marriages became a little more common as mobility increased and there are now a small number of permanent residents in Siwai born beyond the island of Bougainville and the Bougainville Straits. Even so most households with one partner from Siwai and one from outside Bougainville do not live in Siwai; none of the five Siwais who have married Europeans lives there. Marriages beyond the bounds of Siwai remain exceptional and are actively discouraged. Consequently fear and distrust of 'redskins' remains and the cultural significance of these marriages is slight. Indeed, as Chagnon argues, 'in tribal cultures the world over, there is a general attitude held by local group members that their neighbours, being remote spatially and genealogically, are therefore less moral or less human than themselves' (1974:77). Permanent migration into or out of Siwai has been almost non-existent and recent cultural changes in Siwai are primarily a response to universal western developmental changes rather than an incorporation of other Melanesian traditions.

Siwai has never been an entirely closed population yet Siwais regard themselves as a distinct ethnic community, although with recognizable similarities to neighbouring Bougainville populations. However this similarity is recognized primarily at the fringes of Siwai rather than at

the centre. Moreover at any given time all persons can be classified as either natives or aliens and, although an alien might be described as 'like a Siwai' the division is immutable. One is a Siwai only if at least one parent is a Siwai; one does not become a Siwai through marriage. Since this category covers almost all the population resident in Siwai, there being no adoption of aliens, the population is essentially homogeneous.

### Population history

The early history of Siwai population change is almost unknown. Oliver records that Siwai went through the critical initial contact period without suffering the 'customary decline' (Oliver, 1955:10) that was typical of so many other parts of the Solomon Islands and Melanesia. There is no subsequent evidence to suggest that this was not true and certainly Siwai had very slight contact with the trading and plantation world before the twentieth century. Nor are there oral accounts of epidemics or other dramatic influences on the Siwai population. Even so it would be improbable that the historic population of Siwai remained entirely stationary since populations do not remain unchanging in every respect for long periods of time; whatever fluctuations there were seem to have more or less balanced at least for about fifty years before the last world war.

The earliest government estimate of the population of Bougainville Island alone was made retrospectively by the Australian administration for 1914, when the island had an enumerated population of 9160 and an estimated population of 23,500 (PCA, 1923:134). The first estimate of the Siwai population was made for 1922 when a total of 3272 persons were enumerated (PCA, 1924:93). A year later the total was raised to 3713 and in 1924 it reached 4115 (Figure 3). By the late 1920s few new Siwai villages were enumerated and the rapid increase in recorded numbers began to level off; in Siwai the period of contact was over. The actual pattern of population change in this period is impossible to assess; there is no means of recording either natural increase or the number of absentee contract labourers on plantations (a figure which probably changed little during the post-war period) who were excluded from the census totals. The only complete pre-war administration censuses of Siwai that remain in existence are those for 1936 and 1938 (Oliver, pers. comm. 1977). These suggest that there was a slowly growing population at this time although the records themselves seem

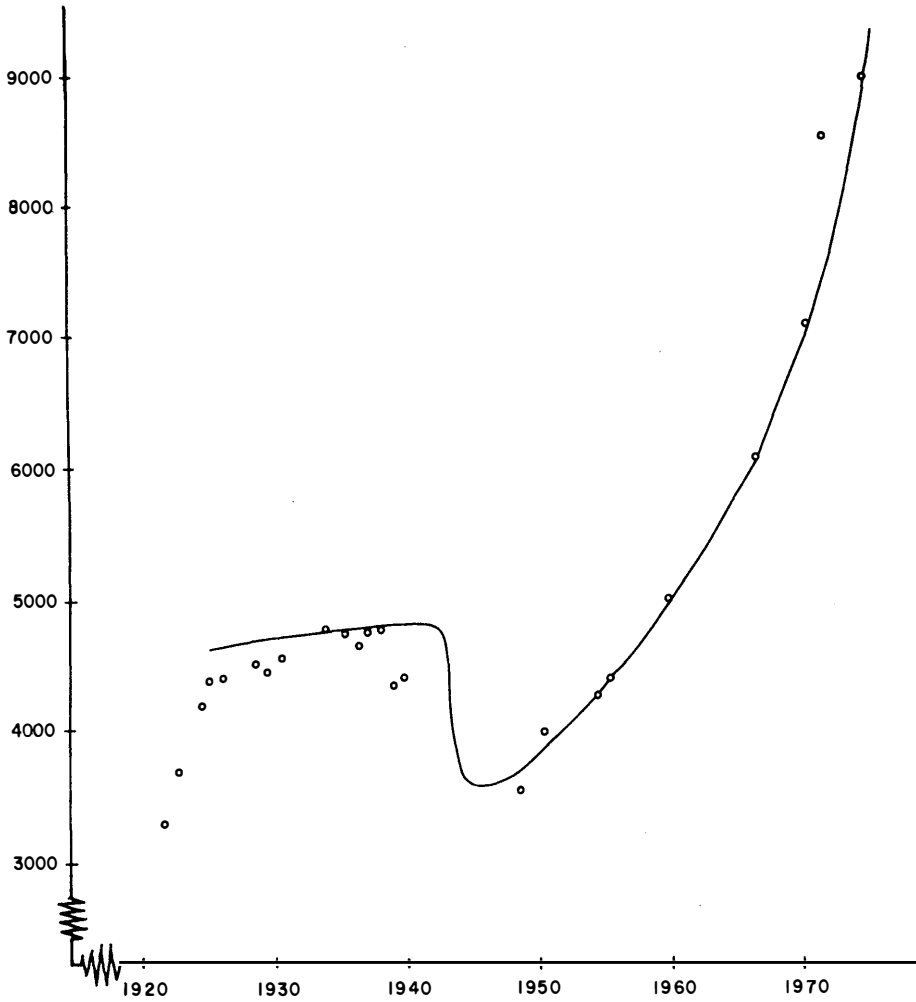


Figure 3. Siwai population growth

Sources: 1921-40 PCA Annual Reports  
1948-on Irregular Patrol Reports

unlikely to be accurate. Oliver recorded the Siwai population in October 1938 as 4658 (Oliver, 1955:9); however this included the principally Buin-speaking villages of Tarowa and Tupopisau and excluded all the villages between Muwoku and Misiminoi (both of which seem to have been entirely excluded from the census), Sininai, Horino and the Haisi area. By substituting all of these villages for the two Buin villages the 1938 population of the area that corresponds with the present Siwai area was slightly over 5000. This estimate is the only one that can be compared with post-war administration censuses.

Oliver reported of the 1938 population of Siwai (and also Nagovisi and Buin) that '... we believe that the average size of those populations were not markedly different in the period 1888-1938' (1954:17). There was good reason why this should have been so. Until the war the administration had had very slight impact in the area; medical services were available only from the missions but may have lowered the infant and child mortality rate to some extent (but the impact of this was reduced by the maintenance of infanticide and abortion) whilst the administration's movement of Siwais into line villages may have raised rather than lowered the death rate as it did in parts of the Solomon Islands. There had been no nutritional changes although there is no reason to suppose that the historic Siwai diet was in any way seriously deficient (Oliver, 1954:41). Nevertheless there are the slight indications from population totals and compositions that the Siwai population was already beginning to change in size and composition at the end of the 1930s.

The war had a devastating impact on the population of south Bougainville; the crude figures suggest that between 1940 and 1948 the Siwai population fell by around 1000 people. Censuses were carried out throughout Bougainville early in 1948 and Cole recorded that the Siwai population had fallen from 4613 to 3663, a drop of 20.6 per cent (PR Bougainville, 10/47-48). This was exactly the same rate of decrease as in Nagovisi; in Baitsi there was a fall of 22.7 per cent and in Buin an alarming 30.3 per cent. The population pyramids of Siwai indicate very clearly the resultant 'waist' in the wartime-born age groups, and although it is improbable that as much as a quarter of the Siwai population died during or soon after the war the actual proportion was probably not much less. Many Siwais, especially young children, died and there were few births to replenish the population. However, people suffered more

from malnutrition, lack of medical care and exposure than from direct military action. Moreover, towards the end of the war the staple food, taro (*Colocasia esculenta*) was virtually wiped out by taro blight (see pp.73-5), and during the year following the war, there were probably as many deaths as in the war years. During this time infanticide and probably also abortion were conscious and frequent choices of many Siwais. Fecundity may also have declined. The only presently available comparable data are from the Tolai of east New Britain; there the war history was not dissimilar to that of Bougainville and there too there is a clear 'waist' in the age-sex structures both in specific villages (Epstein and Epstein, 1962:77-8) and more generally throughout the whole region (Granger, 1971:110-1). In Bougainville Nash (1974:12) has observed a similar situation reflected in Nagovisi genealogies. Since Long (1963:90) estimated that some 16,000 Japanese died in Bougainville as a result of sickness, it would be surprising if many of the local population were not similarly affected. Siwais themselves think of the war years as being a time of exceptional hardship although they do not usually characterize the period as one in which many people died. Constraints on fertility were more important than deaths in causing the population decline. The decline was so severe that it took more than a decade for the population to reach its pre-war level.

After the war the Siwai population began to grow and there was a steadily increasing population; indeed the rate of population change has accelerated and there is no indication that this is changing. Present trends suggest that the population may double in less than twenty years, an extremely rapid rate of increase. Even so, Mitchell (1976:148) estimates that the population of neighbouring Nagovisi will double in less than fifteen years. The 1975 administration census, carried out in difficult political conditions, was incomplete and exists only for two-thirds of Siwai villages; however, in seven of these the census data were collected more carefully and in more detail than ever before. An accurate account of the Siwai population is made even more difficult because the 1972 census, which was quite inaccurate, recorded a total of 8559 thus giving an increase of 21 per cent in two years, a demographic impossibility (in the absence of migration). My own estimate of a total Siwai population of about 9000 in 1975 is based in part on the 1972 and 1975 censuses and in part on my own censuses of eight villages and hence on comparisons between these. The population trend line in Figure 3 is therefore highly generalized. Of this population

some 55 per cent are Catholics, 44 per cent United Church (including a small proportion of Evangelists) and less than 1 per cent Baptists or Seventh-Day Adventists.

Contemporary population data are inadequate for sophisticated demographic analysis, yet manipulating statistics compiled by missions, administration and myself enables some simple statements to be made. The composite age-structure of the Siwai population (Figure 4), which includes all migrants who have maintained village homes, reveals the still growing population of Siwai, which is not dissimilar to the rest of the southern half of Bougainville island (Friedlaender, 1975:54-8). The profile is typical of populations that have experienced a decline in the death rate whilst maintaining a high birth rate. Relatively few people are in the older age groups; both the 1971 and 1975 data suggest that only 15 per cent of the Siwai population were aged over 45, although this is actually a greater proportion than in eastern Bougainville, where there were only 11 per cent (Friedlaender, 1975:55), or in some other lowland areas of Melanesia, such as Karkar Island (Hornabrook, 1974:231) where this figure was 12 per cent. By contrast the 1971 and 1975 figures for the Siwai population less than ten years of age are 33 per cent and 31 per cent respectively. Although the Siwai population seems to be not quite so broadly based as these other two Melanesian populations it is still a broadly based pyramid and one that is steadily becoming even more so. The rapid expansion of the Siwai population has been a little delayed by war time deaths.

The post-war growth in population is reflected in, amongst other things, changing household sizes; on average, households are consistently larger than in pre-war years despite the reduction in the proportion of polygynous households. Households in Melanesia are always difficult to define adequately. Oliver refers to the Siwai household as 'the principal residential and subsistence unit. Members sleep together in their own house and preserve a high degree of privacy. Most households also act separately to produce and consume their own food and many other basic economic essentials' (Oliver, 1955:104). In recent years households have become rather more fragmented but, by defining contemporary Siwai households as all those who customarily eat in one place, simple comparisons may be made between the size of households now and before the war. Before the war adult males with four or more dependent children were excused tax payments; thus when the 1936 census was carried out only

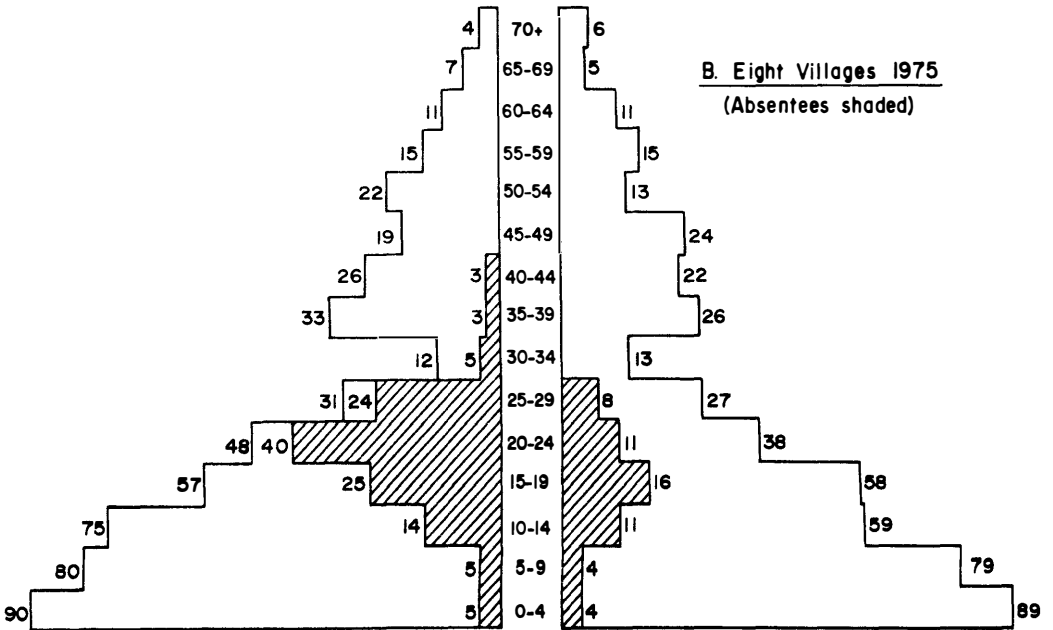
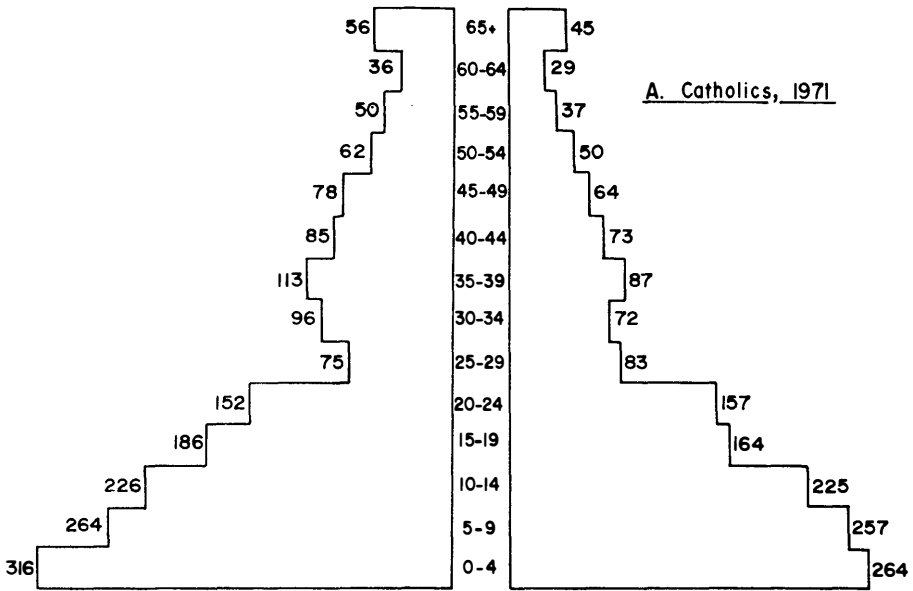


Figure 4. Age components of Siwai population

71 out of 1500 adult males were excused. Four decades later more than half the households (66 out of 122) in four random villages have six or more members although because of the absences of school children and migrant workers rather less than half (56) are likely to regularly eat together. Reapplying the 1936 tax demands in 1975 would have resulted in as many as 52 out of 163 adult males being excused taxes. By whatever standards households are defined their size has increased enormously since the war.

### Marriage and fertility

The changing relationship between factors encouraging or discouraging population growth can be briefly examined, especially as they affect changes in Siwai fertility and mortality. The most basic of these influences is marriage. Marriage itself is almost universal in Siwai although it is possible that this may not have been so in the distant past (partly because of the greater proportion of polygynous marriages); Oliver's investigations suggest that before the war marriage was as universal as it is now. There are a few unmarried males in their thirties in Siwai and a few more outside, often working in urban employment, but apparently not one unmarried healthy female. Males have a greater latitude for choice but there is no cultural provision for permanent celibacy. All Siwais are expected to marry and there are no restrictions on the remarriage of widows and widowers. Those who do not remarry are usually those beyond child-bearing age or, in some cases, those who have outlived several wives or husbands and are consequently feared by possible spouses. Before the war 'by the time Siwai men and women reach senility most of them will have been married more than once' (Oliver, 1955:220); the same is less true now as many couples survive to old age. Thus almost all Siwais marry and most remain married throughout their period of fertility.

The mean age of marriage has changed very little since the war (Table 2). In the last decade rising affluence has allowed brideprices to be found more quickly and men no longer migrate to contract labour; even so the age at which men marry has declined only slightly whilst for women it has not declined at all. Education has not delayed the age of marriage; rather a combination of affluence and the end of plantation migration have tended to bring the age of male marriage forward.

Table 2Siwai mean age at marriage

| Year    | pre-1944     | 1945-1954     | 1955-1964     | 1965-1975     |
|---------|--------------|---------------|---------------|---------------|
| Males   | 23.6<br>n=53 | 24.1<br>n=102 | 24.6<br>n=140 | 22.0<br>n=164 |
| Females | 17.9<br>n=52 | 19.0<br>n=103 | 18.6<br>n=138 | 18.5<br>n=167 |

Source: Field data

Because of all the changes that have followed contact, especially the arrival of two Christian missions in Siwai, reconstruction of traditional beliefs and practices relating to sexual activity is almost impossible. However, like many other societies in Melanesia (Bulmer, 1971:145), it seems certain that the single most important cultural factor affecting fertility was a postpartum taboo on sexual intercourse. In these, and in other attitudes to fertility, Siwai was certainly very similar to other Bougainvillean societies such as Nasioi and Nagovisi (Ogan, Nash and Mitchell, 1976).

Siwais have always appreciated the practical problems of providing adequate care for children born too close together, hence twins were a special problem. This was usually phrased in terms of this level of care being too demanding on the mother's health and preventing her gardening activities; it was less usually phrased as concern for the health of the child. In the past the postpartum taboo on intercourse was probably extremely long; thus in pre-contact Nagovisi and Nasioi it is possible that births were spaced around four years apart (Ogan *et al.*, 1976:535, 541). Blackwood (1935:156) considered that in north Bougainville there was then an almost universally observed postpartum taboo period of two to three years. This sort of period was probably also true of Siwai and there as elsewhere birth intervals have subsequently become rather shorter.

Siwais generally claim that a postpartum taboo on sexual intercourse should be maintained until the nursing child is old enough to walk properly, exactly the same claim made in other parts of Bougainville (Ogan *et al.*, 1976:536; Ring and Scragg, 1973:109).

suggest, much as they do in Nasioi, a taboo period of around fifteen months, somewhat shorter than in other Melanesian societies. If strictly observed such a taboo would result in births being spaced at intervals of at least two years.

In order to test the degree to which Siwais actually observed their stated postpartum taboo on intercourse, data was collected on birth intervals in contemporary Siwai (Connell, 1977b:18-21). The data show that there has been a decrease in birth intervals since the war (although the change is only just statistically significant) and is not apparently as rapid as elsewhere in Bougainville (Table 3). Comparison of the birth interval data also indicates that the areas of historically greater change and contact with western ideas (in terms of education, health centres, plantation establishment and so on) on the east coast experienced a rather earlier decrease in birth intervals. Siwais are still more or less observing the postpartum taboo, since there is no significant usage of non-traditional methods of birth control. Shame is still attached to those who depart substantially from this particular norm; Siwai attitudes are firmly opposed to family restrictions and generally consider a large number of children to be the ideal situation.

Table 3

Bougainville birth intervals

|         | Siwai | Nasioi | Nagovisi          | Buka              |
|---------|-------|--------|-------------------|-------------------|
| 1945-49 | -     | -      | 4.30              | 2.71<br>(1947-49) |
| 1950-54 | 2.94  | -      | 3.71              | 2.73              |
| 1955-59 | 2.87  | 2.98   | 3.68              | 2.46              |
| 1960-64 | 2.76  | 2.71   | 3.16              | 2.17              |
| 1965-69 | 2.90  | 2.75   | 2.68<br>(1965-72) | -                 |
| 1970-74 | 2.46  | -      | -                 | -                 |

Source: Ogan, Nash and Mitchell (1976:537, 543); Ring and Scragg (1973:100); Connell, field data.

By comparison with the Tolai of east New Britain, where women as early as the late 1950s were able to 'affirm that breach of the injunction no longer carries the social stigma that attached to it in former times, and is in fact frequent' (Epstein and Epstein, 1962:74), Siwai birth intervals are very long indeed and population growth is correspondingly rather slower. Nevertheless all the available evidence suggests that Siwai is moving slowly but inexorably towards the Tolai situation; birth intervals may be expected to decline further.

The significance of other traditional kinds of family limitation, contraception, abortion and infanticide, is less easy to interpret as evidence is somewhat ambiguous (Connell, 1977b:22-3). Traditional forms of contraception were certainly practised in the past and are still used by some; the efficacy of the plants that are eaten is unknown. Abortion may have been practised in the past and is certainly not incompatible with infanticide, which certainly existed before the war and was resorted to by some in the early post-war years. A nun, stationed at Monoitu in 1930, observed the cremation alive of a child with its mother who had died in childbirth and recorded that 'the people did not want this infant who had killed its mother' (*Catholic Action*, 1967). This was not an isolated occurrence yet more usually infanticide could be considered as selective neglect.

There is therefore an unresolved conflict between the existence of abortion and infanticide in the past with, at the same time, culturally sanctioned specific lactation and abstinence periods, intended primarily to ensure a minimum period between pregnancies which would improve the likelihood of the child surviving. However, very little is known about the cultural context of either abortion or infanticide and it is probable that both existed only in extreme situations, for example, in the case of abortion, where a conception had occurred which violated social norms or, in the case of infanticide, where it was considered that the child would die in any case because of the unavailability of adequate maternal care. How often these conditions might have occurred is impossible to say.

Since abortion and infanticide have now disappeared from Siwai, amongst a very few other cultural practices which have suffered a similar demise, it is possible that they were never particularly important (although, equally, missions would have reacted very unfavourably to them).

Moreover Siwai explanations for infanticide especially are so varied that it is difficult to believe that there was a straightforward explanation for the practice. Tentative explanations of infanticide were primarily economic; it was hard work to look after children and expensive in terms of funerary ritual were they to die. However, Siwais do not now believe that infanticide was practised at times of general economic hardship when adequate food was unavailable; they do not believe that there have even been such periods. This does not conflict with the view that pre-contact Siwai was a world of 'subsistence affluence' but it is possible that there was sometimes individual economic hardship, perhaps primarily a result of disease, that could only be reduced by resorting to the direct and dramatic extreme of infanticide. Alternatively infanticide may have been an example of what Douglas (1966:271) has called 'the oysters and champagne factor in population control' where population control occurs when a smaller family appears to have a relative social advantage. 'A small primitive population which is homogeneously committed to the same pattern of values, and to which the ladders of social status offer a series of worthwhile goals which do not require large families for their attainment, is likely to apply restrictive demographic policies' (Douglas, 1966:272). It would be dangerous to argue that Siwai leaders preferred rearing pigs to people yet it would not be going too far to argue that a climate of opinion was engendered in which some individuals would be willing to make that decision. It is probable that the decline in infanticide is partly a function of a change in attitudes to status and prestige.

Other measures that would have slowed long-term population growth, such as the direct encouragement of emigration, monogamy or late age of marriage seem never to have existed in Siwai. Ultimately too little is known about historic Siwai society to evaluate the extent of any of these cultural practices, their relative importance at different periods of time and in different households and therefore the balance between economic and cultural controls over fertility. It is evident only that every constraint to increased fertility has declined during the present century.

Fertility rates calculated from the data for eight villages (Table 4) from two separate years give results that (even from a small sample) are not greatly different from those calculated elsewhere in other similar coastal Melanesian environments, including Buka. The table covers all women; hence the proportions actually married are small in the

Table 4

Births and age-specific fertility rates

|                      | Siwai                     |           | Buka      | New Ireland | Karkar    |
|----------------------|---------------------------|-----------|-----------|-------------|-----------|
|                      | (Eight villages; 1970-75) |           | (1962-67) | (1962-67)   | (1968)    |
|                      | births/women              | rate/1000 | rate/1000 | rate/1000   | rate/1000 |
| 15-19                | 17 : 288                  | 59        | 135       | 170         | 56        |
| 20-24                | 68 : 206                  | 330       | 348       | 279         | 307       |
| 25-29                | 43 : 128                  | 336       | 383       | 258         | 335       |
| 30-34                | 37 : 114                  | 325       | 255       | 174         | 315       |
| 35-39                | 32 : 139                  | 230       | 320       | 121         | 248       |
| 40-44                | 16 : 125                  | 128       | 188       | 55          | 135       |
| 45-49                | 3 : 98                    | 31        | 7         | 14          | 71        |
| Total fertility rate |                           | 7.4       | 8.5       | 5.4         | 6.8       |

Source: Siwai - Connell, field data; Buka and New Ireland - Ring and Scragg, 1973:92, 94; Karkar - Hornabrook, 1974:232.

youngest age group. Siwai women are as fertile as Buka women only in the age-group 45-49. Since Buka has had a much greater exposure to western education and medicine whilst birth intervals are much smaller there, it seems probable that Siwai fertility will eventually rise to at least the same level as that of Buka.

As others have observed elsewhere in Bougainville it is not easy to assess changes in cultural practices affecting fertility. Missions have effectively eliminated infanticide and the Catholic mission has opposed both traditional and European methods of birth control; both Catholic and Methodist missions emphasized 'the joys of parenthood' (Ogan *et al.*, 1976:538), and to stress these attitudes the missions themselves frequently raised orphaned or sick children. This era has not completely ended and, as Ring and Scragg expressed it for Buka, 'the Christian church and government have been silent on the social pattern that should be adopted while they welcome the munificent increase in children' (Ring and Scragg, 1973:118). There may be differences between the attitudes of the two missions in Siwai but the results remain the same. Modern family planning is almost unknown in Siwai and there is no likelihood that its adoption will be more rapid in the next decade or so. In a climate of economic affluence (see p.46) Siwai attitudes have become more strongly in favour of larger families, an attitude fostered in part by missions and politicians. Only a tiny proportion of younger men, primarily in lineages with relatively poor access to land, have begun to query some of these attitudes. This has not yet had any effect on practice. Changes in Siwai have been towards a decline in customs and beliefs that maintained the birth interval; moreover the more recent exposure of women to the western influences that allowed these changes is resulting in further decline.

Labour migration, rather than changes in attitudes, has in practice been a more substantial influence on fertility and the process of population growth. Plantation labour disrupted family life for periods of at least two years; indeed one Siwai missionary has gone so far as to claim (Beaumont, pers. comm. 1975) that men designed their periods of absence on plantations to coincide with the difficult periods of birth and the following few months, but it may have been no more than an incidental result of conception following a man's return home at intervals between work periods which, for many men, were quite regular occurrences

following two-year work periods on plantations. During the 1960s the successful adoption of cashcropping and the construction of a copper mine at Panguma resulted in there being very few workers absent for more than a few weeks at a time hence the potential for sexual intercourse is now greater than before. The current permanence of families is much the best explanation for higher fertility. Ogan *et al.* (1976) have separately come to the same conclusion for Nagovisi.

### Mortality

Data for estimating mortality are more inaccurate than those for fertility. There are no estimates available for pre-war mortality rates but they must have been high in Siwai; in 1938 after a brief period of exposure to western medical practices there were still a number of potentially fatal diseases in peacetime Siwai. 'Malaria, pneumonia and pulmonary tuberculosis are prevalent and seem to be the principal killing diseases, but dysentery and filariasis are also common' (Oliver, 1955:10). Hookworm, yaws and leprosy existed then but since the war have largely been eradicated by western techniques. Nor are the other killing diseases apparently so prevalent now. Very few epidemics have ravaged Siwai since the war; that of January 1947, when there were thirty-five deaths from a meningitis-pneumonia epidemic, was probably the most lethal. Indeed Siwai generally has escaped serious epidemics and by 1948 it already had a reputation for being free of sickness and disease compared with other parts of south Bougainville, whilst in 1960 one *kiap* recorded that 'the general health of the Siwai people is I think the best I have seen anywhere in the Territory to date' (PR Boku 2/60-61). Other patrol officers too have obviously found Siwai health to be at least adequate. In 1956 one *kiap* claimed to have seen child malnutrition in Siwai but when this was investigated further from the Tonu Health Centre there was no evidence for the assertion. There has been no other reference to malnutrition within Siwai; even at times of heavy rain Siwais have always managed to find adequate food. By 1956 there were six aid posts throughout Siwai capable of treating primarily minor illnesses. The main diseases observed on one patrol in 1951 were yaws (10), tropical ulcers (79) and tinea (grille) (44), although conjunctivitis and dysentery have subsequently been more common in the sporadic references to health made by the patrol officers.

Between 1960 and 1972 causes of death were recorded with varying degrees of enthusiasm in Siwai Local Government Council records but no more than 130 deaths were actually recorded there. It is impossible to derive useful conclusions from these data, other than to note the consistent and general prevalence of such diseases as dysentery, tuberculosis, influenza and, in the earlier years, malaria. Epidemics of influenza and whooping cough have reached Siwai in the 1970s but western medicines have been able to prevent a significant increase in mortality. Although all the major diseases seem to have decreased in incidence in the post-war years, it is only for malaria that the decline has been substantial following a spraying campaign which began in 1960 (cf. Scragg, 1969:77); the main causes of the decline in mortality have been the greater availability of penicillin and anti-malarials, increased numbers of clinics and DDT spraying against malaria. Improved housing has reduced respiratory diseases whilst the disposal of garbage in holes and the almost universal adoption of pit latrines have each reduced illness. Throughout the post-war years health measures have gradually reduced the mortality and morbidity of diseases such as malaria, yaws and gastroenteritis and so far the more obvious western diseases, such as cardio-vascular degeneration, have had only the most limited impact in Siwai. Overall Siwais are now almost certainly healthier and have a lower mortality rate than at any time in the past. This improved health is reflected in the stature of the present population; Friedlaender and Oliver (1976:157) found that Siwai males were bigger than their fathers by at least a centimetre. Moreover before the war in the whole of northeast Siwai there were no cases of a child living at the same time as its great-grand-parent (Oliver, 1955:274). Now there is one in almost every village.

The administration censuses enable estimates to be made of the crude death rate at different periods in Siwai. With the exception of the last census in 1970-71 all these substantially underestimate the death rate because of their exclusion of infant mortality; even so they do indicate the fairly continuous decline in death rate since the war. Since 1971 the mortality rate has probably continued to fall. Even so it remains a high death rate compared, for example, with parts of eastern Bougainville (cf. Friedlaender, 1975:60-1) but one that is likely to continue to fall, especially because of the developing youthfulness of the Siwai population.

Table 5Death rates in Siwai

| Year    | All deaths | Population | Death rate<br>(Deaths/1000) |
|---------|------------|------------|-----------------------------|
| 1950-51 | 132        | 3919       | 34                          |
| 1954-55 | 225        | 4228       | 53                          |
| 1955-56 | 86         | 4291       | 20                          |
| 1960-61 | 101        | 4994       | 20                          |
| 1970-71 | 99         | 8559       | 12                          |

Source: Patrol Reports

It is even possible to calculate crude infant mortality rates from the pre-war administration censuses, but given that Siwais did not report births and infant deaths the rates have no real validity. Indeed inspection of the administration censuses would suggest a gradual increase in infant mortality since before the war: the exact reverse of the actual situation. It is impossible to determine what the true mortality rate is and it is primarily the consistent oral evidence of Siwais and local observers such as missionaries and health workers that permits the opposite conclusion to be drawn. The infant mortality rate is certainly falling but there are no measures of the rate of decline.

### The people of Siwai

The Siwai population is still growing fast and many of the influences on this growth are those associated either with the development of better health services, enabling people to live much longer, or with the decline of various kinds of social control applied to population growth, enabling the level of fertility to have risen rapidly. There is no evidence that rapid population increase itself has directly altered traditional practices, nor can it be correlated with the affluence that followed cocoa farming. Analysis of fertility suggests that the Siwai population growth rate is not yet at its peak whilst there appear to be no significant influences that will prevent a continuing

rise in fertility. Fertility decline would require community participation in child spacing to re-establish pre-war family-size levels; this would entail the establishment of modern techniques of family planning to fill the role previously taken by postpartum abstinence from intercourse and high infant mortality. There are now almost no socially imposed impediments to realization of maximum potential fertility; moreover at the moment there is almost no economic cost to high fertility. The pattern of mortality decline, followed at an early date by fertility decline, has not yet occurred in Bougainville; fertility is still increasing. The relative influence of cultural change, improved infant survival rates and improved marital health are impossible to distinguish.

The 1971 census indicated that the annual growth rate of the Bougainvillean population (within Bougainville) was 3.4 per cent; only three other provinces in the country exceeded this growth rate. The evidence from Siwai, and from Nagovisi and Nasioi (Ogan *et al.*, 1976), suggests that in these parts of Bougainville at least the population growth rate is still not as fast as it might be, especially when compared with areas such as Tolai in east New Britain where population and land problems are now critical (Granger, 1971). All available evidence suggests that the Siwai population, and that of the rest of Bougainville, will continue to grow at an increasing rate so that there, as in east New Britain, population density will become critical in some areas. Mitchell concludes for the neighbouring Nagovisi that there is an 'absence of realistic efforts to reduce the rate of population growth. The rate of growth is much too high. How can rural people plan their future when their population will double in less than fifteen years?' (1976:148). It is much the same in Siwai.

### Chapter 3

#### Traditional agriculture: development and destruction

Taro occupies so prominent a place in Siuai life that one might appropriately go on for pages describing the numerous varieties grown; ... the high value placed upon it as the vegetable food; the feelings of deprivation natives express when they must go without it; the frequency with which it enters into conversation; the numerous metaphors for it and its use in ritual ... Siuai natives spend more hours growing taro than in any other enterprise, ... the plant comprises 80 per cent of their diet, and ... it is the basis of their subsistence economy generally. If that is forgotten during consideration of more dramatic activities, then true perspective on Siuai life will have been lost (Oliver, 1955:26).

The prehistory of south Bougainville is as little known as any part of Melanesia. In 1973 it was only possible to suggest that 'on the basis of evidence from Australia and from other Pacific islands ... it would be reasonable to suppose that Bougainville-Buka began to be populated, initially by people speaking non-Austronesian languages [of which Siwai is one], several millennia ago' (Oliver, 1973:40). More recently Howells (1976:646) has suggested that man may have been on Bougainville as early as 30,000 years ago. The Austronesian language speakers were more recent arrivals in Bougainville, but could have been there as long as 5000 years ago. Much of even this limited account of Bougainvillean prehistory is based on no more than speculative interpretations of linguistic, physical anthropological and a thin scatter of archaeological data. All that is clear is that Bougainvilleans have been there a very long time and that the considerable genetic and also linguistic diversity on the island are a result of the long separation of quite small population groups which may have been assisted by the early adoption of horticultural techniques.

Siwai stories describe a mythical time in the remote past when there was no agriculture and no hunting in Siwai. The only food eaten was wild food plants gathered in the forest and cooked; Maker (*Tantanu*), fleeing along the coast, came upon these early gatherers and showed them how to cook taro, yams, *mami* yams (*Dioscorea esculenta*), bananas and other kinds of food that they had not known before. Other tree crops such as sago, almonds and coconuts grew as a shelter to Tantanu as he trudged along the beach; they too became part of the Siwai diet and pigs were incorporated about the same time. There are, of course, some inconsistencies in these stories (Oliver, 1955:41-4) but overall it is clear that Siwais believe they have a long-established agricultural tradition, which may indeed have been brought by the earliest human arrivals into Bougainville. Permanent agriculture undoubtedly has a long history on the island.

Between the time of the first agriculturalists and the immediate post-war period, described in some detail by Oliver (1955), there were naturally a number of changes in the agricultural system of Siwai, of which the most important was probably the introduction of sweet potato (*S-peteitas*; *NM-kaukau*; *Ipomoea batatas*) which subsequently became the most important subsistence crop throughout Bougainville. Since there are no mythical stories explaining the later arrivals of minor crops and there are many different versions of the myth of Tantanu, each of which credit him with a slightly different range of food crop introductions, it is impossible to do more than make certain assumptions about new crops based on what is known of the history of the limited contact between Siwai and the outside world.

New plants could have been deliberately brought to southern Bougainville before the nineteenth century although the direct historic trade links that are known were of limited extent (Oliver, 1973; Connell, 1977c) and apparently between areas with a similar ecology although this need not have precluded new introductions. Contacts with Europeans were non-existent. The sweet potato, possibly still travelling westwards through the Pacific (Yen, 1974:259), might have reached Bougainville before then but Siwai oral tradition at least maintains a more recent origin. A few crops have no recent origin in Siwai tradition yet they are not usually associated with the mythical times of Tantanu and hence with great antiquity; these include edible pitpit (*S-suri*; *Saccharum edule*), aipika (*Hibiscus manihot*) and tree crops such as breadfruit.

Siwai traditions attribute the earliest 'modern' crop introduction to migrant workers returning from various Pacific plantations, mainly in Samoa.<sup>1</sup> Since there were very few workers there, plants would almost certainly have travelled badly and migrants were quite likely to have been more interested in material goods, it seems most likely that some of these plants were introduced first to other Solomon islands, which provided many more migrants, and later to Bougainville, possibly picked up by returning migrants at some point in their journey. The number of plant introductions, if any, that came directly from Samoa is probably very few whilst there are others which must have originally come from there (or Fiji and Rotuma). Some of these are immediately identifiable from their names; one kind of banana is called *samo*a and another *fiji*. (A third Samoan kind is reported to be *kihiri*, the name of a coastal mission station in Buin). An early variety of Chinese taro was also called *samo*a. It was said that this was traded for *maruko*, a kind of banana that grew especially well in Siwai, suggesting that traders may have played some part in food crop diffusions. Later traders carried plants around for their own benefit. Richard Parkinson, who could have had Siwai servants,<sup>2</sup> introduced some of these food plants to New Britain. In 1884 he found plants, including cotton, that he had introduced a year earlier being grown in Tolai gardens (Salisbury, 1970:111). Other introductions from around Samoa may have been entirely new crops on Bougainville, such as sugar (*S-tongo*), pineapples and pumpkins, although even the last two of these may not have finally arrived in south Bougainville until the period of German administration. Sugar cane, which was an indigenous Papuan cultigen, may have come from the west but the reported Samoan origin of

---

<sup>1</sup> Experience working on plantations may have had some influence on migrants returning with new plant types yet it is probable that missionary influence was even greater.

During the last century the London Missionary Society in Samoa was an active centre of distribution of economic plants. As an indirect result of its action, today it is possible to find in the majority of South Pacific islands banana varieties called 'Samoa' or 'Hamo

a' as well as breadfruit and taro varieties (Massal and Barrau, 1956:16).

<sup>2</sup> Parkinson's grandson, pers. comm. 1975.

at least some types may reflect the lack of contact to the west during this period. Some Siwais also claim that the first short-nosed pigs came from Samoa.

One of the more recent introductions that definitely did not come directly from Samoa was the sweet potato. The first kind known in Siwai is generally considered to be *konua* which came to Siwai from Konua, on the northwest coast of Bougainville, and probably arrived there around the middle of the nineteenth century.<sup>3</sup> Some Siwais believe that it first reached there from Samoa and, since there were many more migrants from there than from south Bougainville, this seems possible. Another story, told in different parts of Siwai, relates how Tuhori, a Kaparo man who died about the time that Australian administration began, brought back sweet potatoes from Faisi in the Shortland islands. He did not really understand what they were so that the first Siwai leader who tried them, planted them beside sticks so that they might climb up them like beans. Only later did he discover that the food was underground (cf. Ogan, 1972:25). Many other kinds of sweet potato, including those introduced by the Japanese in the war (pp. 71), are named after their supposed place of origin or the place they had recently come from. In Siwai, there are amongst others *mabiri* (east coast of Bougainville), *honiara*, *bomboi* (a Seventh Day Adventist mission in the Solomon Islands), *tomeka* (or *tonga*), *buin*, *sinakot* (Tenakaut, north Bougainville); *paka* was reported to have come from Rotuma, but there are many more kinds of unknown derivation.

Chinese taro or Kongkong taro (*S-karahai*; *Xanthosoma*) may also have reached Siwai at much the same time as sweet potato; in the 1880s Guppy (1887:84) noticed one kind called *kalafai* grown in the Bougainville Straits. Like sweet potato its introduction into Siwai is recent enough and important enough for there to be disagreements over its origin

<sup>3</sup>There is little doubt that sweet potato is a very recent arrival in most parts of Bougainville, compared with most other parts of Melanesia. In Nasioi (Ogan, 1972:25) the account of its arrival is much as in Siwai but in Teop it appears to be even more recent; the Teop say that although they knew about taro in German times they did not plant it themselves until the 1930s. Some varieties were introduced from nearby plantations and others came from the Buin area. (Shoffner, 1976:271-2). The available evidence on the origin and spread of sweet potato in Bougainville is considered in a separate paper (Connell, 1978a).

and it may have reached the Pacific only in the nineteenth century (Keleny, 1962:12). There is no single Siwai tradition of its arrival; for example in Morokaimoro it seems to have come first from Tupopisau, the nearest Buin village, rather than from elsewhere in Siwai. This particular kind (*S-makona*) was at first feared, since it seemed like wild taro, hence it was first fed to pigs. (The same kind is known in parts of Buka as Samoan or mission taro.) Other areas of Siwai and Bougainville have different versions of its origin. Crops that Guppy observed around the Bougainville straits in 1884 probably existed in Siwai too. These included cucumbers, limes, mangoes and pawpaws, although the particular kind of pawpaw grown then may have been subsequently displaced by a later introduction. Tobacco was also growing, although it had only recently been introduced (Guppy, 1887:94), possibly from Samoa. Gorai, the Alu (Shortland Island) chief, was trying maize, apparently a recent gift from a European trader.<sup>4</sup> Between then and the arrival of the German administration in 1905, runner beans, water melons and tomatoes may also have reached Siwai. Crop introduction was a continuous process of experimentation.

The history of early plant introduction is necessarily vague and unsatisfying; the tentative outline above is from consistent accounts from at least two widely separated villages, but even so it is much too late to be confident about accuracy. Nevertheless, in an island chain where the fauna and flora are depleted eastwards, it is significant that most historic plant introductions seem to have come to south Bougainville from the east. Trade, especially the labour trade, directly or indirectly, was the means by which they came. Why they were introduced is less clear.

Everything that is known about nineteenth century Bougainville, and indeed its historical antecedents, suggests that Bougainville lived in a world of 'primitive' or 'subsistence affluence' which can be identified as conditions where

they are able to produce, from their own resources, as much as they can consume of the normal staple foods that they are used to, together with a

---

<sup>4</sup>At much the same time, around the 1890s, the trader Parkinson was introducing citrus fruits and other 'useful trees' into northern Bougainville (Blackwood, 1935:11) but there was probably very little contact then between the south and north of the island.

reasonable surplus for entertainment, display and emergency, and a standard of housing, clothing, and entertainment, requisites (e.g. kava) that is traditionally acceptable, with the employment of a relatively small part of the total potential resources of labour and land available to them. This means that within their self-subsistent, nonmonetary production system the productivity of their labor is very high, and it is still quite common in these regions [the larger Pacific territories] to find substantial groups of peasants able to sustain this level of consumption from their own resources at the cost of an average labor input of about three hours per man-day or less (Fisk, 1975:59).

In such conditions Siwais did not need new subsistence crops: they were not hungry and their diet was varied and easy to obtain even with stone tools. We can suggest that what they did receive from the tiny number of migrants, however, were rumours and stories that other people enjoyed different foods and that the migrants themselves had tried them and found them satisfying. New plants therefore were almost certainly not attempts to improve the diet or make life easier but interesting experiments that could easily be incorporated into the existing agricultural system. Several of these crops were simply different species of existing plants but others, such as sugar and tobacco, were of an entirely different kind. Some, like sweet potatoes, were planted with no knowledge of what to expect. One of these was a kind of grass (*S. NM-purpur*) brought from Alu because it made a nice decoration for the hair. The first patches were zealously guarded but soon afterwards it proved to be a particularly intractable weed which even smothered bananas. (It is still common in Siwai.) There is no other information on other possibly unsuccessful innovations. Siwai traditions record, again with unknown accuracy, that in these historical times leaders were more powerful and more aggressive; the leaders must have legitimized these changes and they may indeed have felt that successful introductions would give them extra prestige, or even assist them in producing the necessary wealth to ensure their eminence in competition with other leaders.

At some point, probably well before the end of the nineteenth century and possibly around the time of several new plant introductions, the majority of the Siwai population

began to make the transition from stone to steel tools. This was the major contribution of the workers returning from Samoa, although even so the vast majority of steel tools probably came from traders and especially the whalers who by the mid-nineteenth century were using Mono (Treasury) Island as a regular base (Corris, 1973:7-8). No Siwai can now remember stone tools being used although in 1939 'many natives' claimed to have remembered using them (Oliver, 1955:11). Mitchell (1976:11) places the introduction of steel tools into Nagovisi around the 1880s whilst the Eivo, who seem to have received most of their steel tools from the Nagovisi, probably had them in common use by 1900 (M.P. Hammett, pers. comm.). Steel tools probably reached Siwai a decade or two before they reached Nagovisi and were accepted extremely quickly by Siwais; for a taro growing population, occasionally extending gardens into dense tropical rain forest, this is not surprising. Bush knives however were at least as important as axes. Around the upper Sepik river, an area probably not dissimilar to south Bougainville in the nineteenth century, Townsend (1969:204) estimated that steel tools had a 4.4 to 1 time advantage over stone tools in clearing an area of mature forest. The quantitative data that exists on the implications of stone to steel transformation for the use of labour in agriculture is also somewhat arbitrary yet much the same was probably true in Siwai;<sup>5</sup> for labour saving and prestige, steel tools were essential. The time saving could have encouraged experiments in crop innovation but these were probably independent and there is no reason to correlate the arrival of new tools with new crops or even necessarily with new techniques. Their impact is impossible to assess.

In the Bougainville Straits islands in 1884, 'yams, sweet potatoes, two kinds of taro, cocoa-nuts, plantains, and sugar-cane form the staple substances of the diet' (Guppy, 1887:84). In Siwai it seems that sweet potatoes

<sup>5</sup>Lea (1972:254-5) argues that estimates of time savings such as this, although probably accurate for cutting activities, may overemphasize the time gained since cutting was only one of other activities where the time saving may not have been so great. In Bougainville cutting was probably more important than in the other activities mentioned by Lea; moreover these latter activities were often predominantly carried out by women. Since fallowing did not take place until undergrowth had died the most substantial time savings were those in cutting. Other agricultural activities may have gained very little from the transition.

were less important and taro much more dominant, but this was the combination of crops that became important. Sugar and sweet potatoes were new introductions and although they could not rival taro they were significant introductions, a clear indication that even in a remote area in conditions of subsistence affluence agriculture was quite capable of change.

### The era of administration

The influence of the Germans in south Bougainville was, at most, minimal. Their plantations on the east coast introduced new crops into Bougainville (including cotton and rubber) and although they may have brought new food crops there is no evidence for it. Although some informants claimed that Germans encouraged Siwais to plant coconuts as administration policy in Bougainville, this was almost certainly not true.<sup>6</sup> It would have assisted German traders who were visiting most parts of the island's coastline but conversely it would have slowed labour migration to the new plantations in Bougainville and New Britain. Independently trade probably encouraged increased coconut planting in this period but it can have been very slight.<sup>7</sup> If there were agricultural changes in the German era they have gone unnoticed.

The Australian administration effectively reached south Bougainville in 1919 when a police post was set up on the Buin coast at Kangu. Improvement of agriculture was necessarily not the primary interest of the new administration although, as the first Report to the League of Nations, which covered the seven-year period from 1914-1921, recorded:

<sup>6</sup>Ogan (1972:79) was equally uncertain about effective German policy even in the areas closest to Kieta where their only station was established. Rowley (1958:241-3) maintains that, unlike British policy in Papua, the Germans did not force villages to plant coconuts and Salisbury (1970:113-8) implies that there were no forced plantings. In Samoa the Germans certainly forced village chiefs at least to plant coconuts (Pitt, 1970:24).

<sup>7</sup>Thurnwald (1936:348, 351) implies that even in Buin there was no copra trade at least until 1909 although returned labour migrants had carried out more extensive coconut planting. On the other hand Ribbe described a quite extensive copra trade on the Buin coast by 1894-5 with some of the trade goods being bartered from tribe to tribe and ending up in distant mountain villages (Ribbe, 1903:90-6, cited by Oliver, 1973:21-3).

The efforts of some District Officers to promote native plantations, thus encouraging natives, lately taken from a life of tribal warfare and strenuous hunting and agriculture carried on with primitive implements, to occupy themselves in industry useful to themselves and helpful to the material development of the country, deserves special mention (PCA, 1922:14).

None of this was apparent in south Bougainville. Even so, as early as 1923 it was reported for Bougainville that 'Except in areas where the altitude prohibits bearing, the natives have their own coconut groves and have been regularly instructed as to the measures necessary to combat diseases and pests' (PCA, 1924:62), but this almost certainly meant only the area immediately around the Kieta station. Two years later, 'Many of the native coco-nut groves are now coming into bearing, and the policy of regular annual planting of additional coconuts has been continued (PCA 1926:39). Little of this influence had reached south Bougainville where the Administrator commented on his return from Buin in 1928 that 'more work of a penetrative nature [is] to be carried out in this portion of Bougainville' (PCA, 1929:83). The next report pointed out that 'even in the "uncontrolled area" of Nagovisi the natives have been induced to plant, and 2900 new palms are being cultivated there' (PCA, 1930:48). Elsewhere, presumably around Kieta, 'many of the plantations will soon be in full bearing, and will be a source of wealth to the owners' (PCA, 1930:48). It is universally believed by Siwais that early in the period of Australian administration a law was passed that ten coconuts should be planted for each child born (Oliver, 1955:28). Although there seems no trace of such an ordinance, it probably existed.<sup>8</sup> The 1933 Report did note that 'as in other districts the village groves are communal though lines of palms are allotted to families to maintain and to harvest nuts' (PCA, 1934:71). Which parts of Bougainville this was true for is unspecified. The Australian administration were undeniably interested in

---

<sup>8</sup> J.P. 'Fred' Archer has stated that Captain Henry Clair Cardew, the District Officer, ordered the planting of ten coconuts per head soon after the start of the Australian administration (pers. comm. 1976). Blackwood recorded that the administration was encouraging coconut planting by 'requiring trees to be started for every child born' (1935:310). Oliver also calls this an 'administration prescript' (1955:527).

encouraging copra production, thereby continuing the general German policies for New Guinea. Indeed throughout the two inter-war decades they took little interest in other kinds of agricultural activity.

Although there were occasional inter-war agricultural patrols there are no records of their activities other than Chinnery's observations in 1928 that 'almost any of the known tropical economic crops should do well - a fact to which the attention of the natives is being constantly drawn by travelling instructors of the Department of Agriculture' (Chinnery, 1924:87). The inter-war Siwai leader, Kope, who became a paramount *luluai*, organized the people of Unanai to plant ten coconut trees each. Since he had, at one time, ten wives and he planted more than ten coconuts himself, he must have had something approaching a tiny plantation. The Annual Report for 1922 has a mysterious reference to two Siwai 'plantations', owned by *kukerai*s Kobi (clearly Kope) and Angus, who was presumably Aĩkes, the *luluai* of the coastal Buin village of Riorio (cf. Oliver, 1955:319). The mystery is the extent of these plantations; that of Kope, the largest of the two, was recorded as having 2500 coconut trees bearing, 2530 trees not yet bearing, 2469 acres of 'native foods planted', 454 pigs and labour reserves of 724 males and 714 females (PCA, 1923:112). How these enormous developments escaped earlier notice may have puzzled critical readers of the Annual Reports. Assuming, perhaps unjustifiably, that the number of trees, pigs and gardens was the total stock of some 300 households that might have been dominated by Kope, this would give a plausible level of pig and coconut (if not garden) ownership for 1921. It probably represented the situation over the whole area of Siwai, excluding the eastern part under Aĩkes, that was then influenced by the administration. If these 'plantations' were ready bearing then there had indeed been some early influence of either traders or German administration. Certainly by 1929 copra was available for sale from Siwai. 'One firm which had a pedler's [sic] licence in the Buin sub-district reported that during the year it had purchased 2775 bags of copra from the natives in that area' (PCA, 1930:48), and there were the first reported indications that prices were affecting production; the 'low market price of copra has adversely affected native trading' (PCA, 1930:48). Even in that year of poor prices 59 copra-trading licences were issued on the island, probably mainly to east coast plantation owners. One of the areas most suited to indigenous coconut production must have been north east

Bougainville where traders found ready anchorages and European plantations were nearby.<sup>9</sup> However, in 1930 copra production had become almost non-existent there:

... now that the copra market has fallen upon evil days, it is becoming increasingly difficult for the natives to get a price for it in any way commensurate with the labour involved, and there seems but little future for the industry, as far as they are concerned ... Once in a while, especially after a reprimand from the District Officer, there is a sudden burst of activity, in which everybody sets to work cleaning away the undergrowth which covers the roots, and tearing down the parasitic and other creepers which festoon the branches. The casual way in which the native treats his coconut palms is all the more noticeable in contrast to the meticulous care which is lavished on the taro garden (Blackwood, 1935:310-1).

Since the people of Kurtatchi village, described here, had no sources of cash other than those available to Siwais it seems highly probable that coconut plantings in Siwai were in even worse condition than those in the north of the island.

In the 1930s the price of copra fell drastically (Table 6) so that for at least two years after 1930 there was only a small trade in copra over the whole of the island whilst in 1931 'there was a revival in the collection of ivory nuts' (PCA, 1932:56), the seeds of the sago palm that were sold for button manufacture. However annual administration reports covered the whole island and rarely distinguished different conditions in different areas. Thus in 1931, when the price of copra was already less than half what it had been a decade earlier, only a small part of Buin was under 'complete government control'. Almost all of Siwai was merely under 'government influence'. (Nagovisi was at best under 'partial government influence' and the mountains inland were only 'penetrated by patrols'.) Most

<sup>9</sup>What little evidence there is suggests that the east coast was the main area of pre-war coconut growing in Bougainville. Extracts from apparently the only surviving report of a pre-war agricultural patrol to northwest Bougainville show that there were very few coconuts in either Konua or Hahon (Gilbert, 1939).

Table 6  
Copra price 1913-1940

| Mean price per ton (Rabaul) |           |         |          |
|-----------------------------|-----------|---------|----------|
| 1913                        | £21.12.9  | 1929-30 | £13.10.0 |
| 1917-18                     | £18.15.4  | 1930-31 | £11.10.0 |
| 1918-19                     | £16. 8.3  | 1931-32 | £10. 8.0 |
| 1919-20                     | £32.16.3  | 1932-33 | £ 9. 4.3 |
| 1920-21                     | £27. 0.2  | 1933-34 | £ 4.11.0 |
| 1921-22                     | £18. 6.2  | 1934-35 | £ 6. 8.6 |
| 1922-23                     | £18.19.8  | 1935-36 | £11. 4.6 |
| 1923-24                     | £19.12.7  | 1936-37 | £16. 2.4 |
| 1924-25                     | £20.19.10 | 1937-38 | £11.10.0 |
| 1925-26                     | £22. 3.6  | 1938-39 | £ 9.18.6 |
| 1927-29                     | n.d.      | 1939-40 | £ 8.10.0 |

Source: PCA Annual Reports 1922-1941.

of what trade there was in the south, and hence most of the coconut production, probably came from Buin<sup>10</sup> with the Siwai villages that were closest to the coast contributing a part of the total. Almost certainly the local price was much less than the official figures suggest (cf. Salisbury, 1970: 50). Voyce (pers. comm., 1975) believes that in the 1930s coconuts were sold at 100 for a shilling mainly from the coastal areas, although Ebery, the owner of Toiumonapu plantation south of Kieta had set up a trade store at Tonu around 1931 which survived for perhaps half a decade or more. He may have traded goods for copra as was certainly the case in early stores in northeast Bougainville (Blackwood, 1935:44-6).

There may have been stores or trading posts of some

<sup>10</sup> Since Thurnwald (1936:351) notes only that 'some of the natives were selling coconuts or copra to traders' in Buin it seems that many of the Annual Reports may have been exaggerations based on the enthusiasm rather than observation of district officers.

kind on the Siwai coast during the period of German administration; the oral evidence of coastal Siwais suggests that stores were there but available contemporary documentary evidence provides no corroboration. Certainly traders occasionally picked up labour and copra on the coast and may well have traded intermittently in other commodities but it seems probable that the first store buildings did not exist until the period of Australian administration. During this later period there is ample evidence for the existence of stores at Mamagota on the coast and others built by European and Chinese traders in association with the two missions. Purchases could be made with either cash or shell money (*S-mauai*) and the contents of the stores were reported to be quite similar to those of present-day stores. If coconuts, which were the main source of cash income, were sold at around 100 for one shilling it is unlikely that there was ever much cash available for purchases from trade stores. They must have operated at best sporadically and although one or two Siwais were taught to look after the stores and count money they were in no way responsible for their management. The stores were, in a sense, simply the first tentative physical penetration by the commercial world.

Writing some three decades later, Father Lebel recalled how the price of copra in Bougainville from 1930 to 1935 was around £15 to £20 per ton, but how it had fallen to £3 by 1940, whilst at the same time the price of a bag of rice had risen from 10 shillings to £1 (*Catholic Action*, 1960a). This comment, although almost certainly in error over the prevailing copra prices, indicates the way in which the terms of what little trade existed and moved rapidly against local copra producers. In Siwai there had probably been no more than minimal incorporation in this cash economy, especially since the highest copra prices more or less coincided with their own initial plantings, so that by the end of the 1930s there was effectively no copra being traded. By 1939 'the sale of coconuts and copra to outsiders had ceased' (Oliver, 1955:347). Even so, in the period until the war, coconuts were the only crop that Siwais had planted for sale and, even in upland Rataiku, where Oliver estimated that each family had twenty-two palms, this number was increasing so much that 'coconut plantations will probably become important factors in land use' (1955:479-80). Hot air driers that could have produced more valuable copra never reached south Bougainville, hence the bulk of copra production in Bougainville was from the east coast. Plantation labour was the usual source of cash income and in the 1930s the first, and

last, European plantation in south Bougainville, began at Toboruai, just inland from Kihili and the port of Buin.

The 1924 Annual Report on the Territory of New Guinea recorded that in Bougainville (and apparently only in Bougainville): 'Fruit and nut trees have been planted along the patrol routes, in accordance with a general scheme whereby it is proposed that every patrol route will be lined by trees of some economic value' (PCA, 1925:51). Coconuts, and in a few cases betel nut palms, (which the administration certainly did not encourage) are the only planted trees that presently line the roads of Bougainville but there is a hint that the administration were beginning to look beyond coconuts. The 1924 Report expressed concern; 'in some parts of the Territory the natives neglect to make gardens of sufficient area to supply the needs of themselves and their families and prefer to sell their copra, which, in many instances, is made by their womenfolk, for rice and tinned meat' (PCA, 1925:19). This was most unlikely to have been true of south Bougainville but it is an indication of the change in administration attitudes so that they were considering 'proposals ... for the stimulation of native agricultural production' (PCA, 1925:19) which would assist them 'in the growing of economic crops for their own benefit' (PCA, 1925:19) through consumption rather than through sale. The administration intended to start by encouraging corn production and by 1926 had published leaflets on 'The Ground Nut' and 'Additional Crops for the Territory (Castor, Ground Nuts, Maize, Sesame and Tobacco)' but emphasis remained firmly on the planting of coconuts for copra production even though it was becoming apparent that coconuts were not everywhere being rapidly assimilated into the agricultural system. This was blamed on the 'system of agriculture, known as shifting cultivation' which was only practised by 'uncivilized races' (PCA, 1929:22), but the Director of Agriculture, G.H. Murray, was cautiously optimistic:

Most natives are, to a limited extent, agriculturalists, and our aim should be not to destroy but to modify and improve their system of cultivation in such a way that will be understandable to them. In future, therefore, natives will not only be trained to space their coco-nuts more widely, but will be taught the necessity of using cover plants (leguminous weeds) or the cultivation of food plants like tapioca, taro, maize, between the coco-nut lines so that the land may be fully

occupied, which is but a modification of their own methods (PCA, 1929:23).

Consequently an agricultural school was set up at Keravat in New Britain, but throughout the inter-war years there seem to have been no more than a dozen New Guinean students each year, most of whom probably came from New Britain. A rotation cycle of rice, maize and peanuts was taught there and also in the villages of New Britain where there were limited successes (Salisbury, 1970:49-50). In 1936 Bougainville too had some sort of school; 'a native foods experimental garden has been started at the Government station at Buka Passage by the Agricultural Inspector and Instructor and has acted as a centre for distribution of seeds and for demonstration of methods of cultivation to natives in the district' (PCA, 1938:84). There are no other accounts of this garden; it is not known what seeds were distributed and what methods were shown to which Bougainvilleans. It can not have been important. The administration had definitely become interested in food crop production, especially in their official publications, but there is no evidence that south Bougainville was even influenced by this change; there, as elsewhere, copra production remained the main concern of the administration.<sup>11</sup>

The most important source of new plants in the pre-war years were the two Siwai missions. The Catholic mission had

---

<sup>11</sup>In south Bougainville the mission teacher J.H.L. Waterhouse (who was also a spare-time plant collector for Kew Gardens) made his own assessment of the situation following a year's stay at Tonu mission in 1930. It was reported that 'he came across a very primitive race at Siwai' but nevertheless he 'was impressed by the excellent roads which are maintained by natives throughout the coastal areas. He considers that sugar-cane, kapok, pineapples, limes and peanuts would grow successfully for the soil is wonderfully rich and deep. The country is well-watered, which would make it ideal for cattle-farming and pig-raising' (Anon, 1931a:7). Waterhouse was also optimistic about the commercial possibilities of the massive wild bananas that were similar to Manila hemp and, on his return to Siwai, he intended to carry out experiments on 'maize and various tropical product'. Implicit in this proposal was that the organization would necessarily be by Europeans, hence the chief drawback was considered to be the lack of shipping facilities; Siwais never learnt about these particular development strategies.

no more than slight influence. Fr Schlieker is reported to have introduced one kind of *Xanthosoma* taro to the Laku area of eastern Siwai in the 1920s and he was also known to have distributed seeds and to be keen on growing various kinds of plants, yet there is no evidence that these demonstrations encouraged Catholic Siwais to accept new crops. Nor is there any evidence that most of the Catholic missionaries were particularly interested in encouraging agricultural change. The Methodist Mission however had a much greater influence, partly through the influence of the first Methodist missionaries, who brought at least one species of taro from Roviana (New Georgia) in the 1920s, but mainly because of the presence at Tonu from 1926 to 1936 of Mr A.H. Voyce (who subsequently worked at Kihili in Buin and, after the war, returned to Tonu). He grew a range of new crops in his own garden, which he intended to expand for agricultural training, but was unable to obtain land in Siwai so moved to Kihili on the Buin coast. Despite this initial rejection many of the crops that he first planted in that decade eventually became regular components of Siwai gardens. Voyce brought in anything that took his fancy rather than anything that might become a cash crop or have a particular nutritional value, and he reached an agreement with the Botanical Gardens at Rabaul to trade Bougainvillean orchids for anything they thought he might like. Consequently almost all his introductions came directly from New Britain, although the plants might not have been native to there. In no more than a decade he introduced over fifty new plants to Siwai.

Cocoa, brought from Vunakambi, Rabaul, was planted by him in 1928 and a few trees, still bearing, remain at Tonu. (Later he planted it for commercial purposes at Kihili, Buin and it was just beginning to bear when the war started and destroyed the experiment.) The original cocoa became no more than an unusual decorative plant. Some of these food plant introductions were new species of already existing crops: King coconuts, Queen pineapples, *kuma* sweet potato (from New Zealand), Tongan yams, sword beans, wing beans, *mamioko* pawpaws and new kinds of aipika and tomatoes. Others were apparently entirely new: guavas, peppers, sweetsops, soursops, European potatoes, lemons, oranges, limes, pomoloes (pink and white), mangosteens, Madagascar plums, avocado pears and possibly mangoes, ginger, nutmegs, custard apples, the tulip tree and okra. His other plant introductions included a variety of flowering plants and shrubs, including Bougainvillea, which is not a native of Bougainville, a miscellany of potential cash crops such as coffee, oil palms,

rubber and cotton (both of which latter two had been grown on the earliest German plantations in Bougainville), and miscellaneous trees such as Kapok, Indian teak and Klinkii pine.<sup>12</sup> Later, at Kihili, he began rice growing; some Methodist Siwais took rice back to Siwai and before the war a very small amount was being grown there and milled at Kihili.<sup>13</sup>

The majority of the food plants were eventually incorporated into many Siwai gardens although few ever became valuable food crops. Nevertheless all could be grown with apparent ease, especially rice and the several cash crops. Almost all, except English potatoes, can still be found and several are now regular components of Siwai markets. No deliberate attempt was made to encourage Siwais to grow these food plants but Methodists tried them and liked most of them enough to adopt them in a small way; the decade that Voyce stayed in Siwai was a minor period of local agricultural experimentation. He is remembered for several successful introductions and individual Siwais often attribute recent plant introductions to his efforts. Peanuts and onions are sometimes claimed to have been introduced by him but corn, also sometimes attributed to him, had certainly arrived

---

<sup>12</sup>A.H. Voyce (pers. comm. 1975). He listed a total of fifty-six species, plus other unnamed shrubs and flowers, that he claimed to have introduced into south Bougainville.

<sup>13</sup>The benefits that might have then accrued to Siwai and the potential of south Bougainville for agriculture are more than reflected in Luxton's account of Voyce's work or Kihili before 1936:

... agriculture and animal husbandry were now introduced on a scale not possible hitherto. In a very short time the jungle area was transformed into a fine mission station with the appearance of a well-tended park. In less than three years ... there were nearly three hundred acres under cultivation, and over three hundred varieties of plants were growing on the station - coconut palms, various nuts and fruit trees, root and grain crops, vegetables, shrubs, flowers and grasses. Hill rice was introduced and grown successfully, and a rice mill was installed to husk the rice. Cassava flour and corn meal were made experimentally. Peanuts, a wide range of varieties of bananas, and other foods were introduced. In the livestock area there were fowls, ducks, geese, pigs, and a few goats (Luxton, 1955:137-8).

The nearest turkeys were on the Shortland Islands.

beforehand. Others learnt from him different ways of cooking cassava (which already existed in Siwai) and also ways of milling it; today a line of kapok trees is a definitive marker of a United Church village where kapok seeds still provide pillow filling.

In Siwai, as amongst the Tolai of east New Britain,

there exists an extremely large number of plants that have become indigenously cultivated after being introduced in European gardens ... Only a few have become economic crops, either for consumption or for sale, but they are familiar and have been tested by native plantings. Among them are the various anona fruits - soursops, custard-apples ... and sweetsops - teak and ficus rubber trees, garlic and capsicum, kapok trees, dry rice, giant varieties of coconut, tobacco, citrus and guava ... Those that have been accepted as important in native production are few - peanuts, manioc, pineapples, rubber beans, tomatoes, cacao (Salisbury, 1970:111).

It is not surprising that both Tolais and Siwais should follow the same pattern of innovation; nor is it surprising that it was also a famous Methodist missionary, George Brown, who introduced many of these crops to the Tolai. The number of crops that became widely planted may have been few; they were certainly important.

Crops that are of uncertain origin but probably arrived during the time of the pre-war Australian administration (and possibly through their efforts) include peanuts. Cassava, definitely in Bougainville in 1921, may have been a rather earlier introduction. The administration made few introductions, and the banning of trade with the Shortlands and central Solomon Islands meant that most of the new introductions were those of the missions. Nevertheless new kinds of plants were always being brought into Siwai; migrant workers would often try something new, find that they liked it and bring it back. In this way a scatter of new crops emerged in single villages whilst some of the very early introduced species were edged out by subsequent competitors; *konua*, the first kind of sweet potato, is no longer grown nor are the earliest pineapples and pawpaws. One change in this early era of administration was that, perhaps for the first time for centuries, the new plants that reached Siwai were coming from the west and not the east.

Some new animals had also been introduced into Siwai but their history is even more uncertain; the most important of these were different varieties of pigs, some of which came in the nineteenth century, which were twice or even four times as large as the existing pigs (Oliver, pers. comm. 1977). Chickens (*S-kukulaku*; NM *kakaruk*) had also probably appeared well before the end of the nineteenth century and, despite their local name, may have been contemporaneous with pigs. There were also different kinds of dogs; one kind at least came indirectly from Samoa. Some new species reached Bougainville in the twentieth century but most never left the missions; Voyce introduced cows, goats and ducks to Tonu and the Catholic mission also had cows (which were eaten by the Japanese during the war).

Overall the remoteness of Bougainville, and especially of south Bougainville from the centres of Australian administration meant that inter-war agricultural planning was almost totally absent. The administration were able to do no more than encourage the planting of a minimum of ten coconuts, which meant that there was little copra for remote traders. The existing horticultural system was more than adequate for Siwai food requirements and markets for potential food surpluses were quite inaccessible. The policy in the Madang area of the north coast of New Guinea of developing 'large communal vegetable or rice gardens usually involving more than one village' (Morauta, 1974:31) would have been pointless in south Bougainville.<sup>14</sup> There was nowhere to sell any surplus production. Nor were there the compulsory village group plantings of coconuts, rubber and citrus trees that took place in the Northern District of Papua (Crocombe, 1964:4-5). The little commercial agriculture that had succeeded in Bougainville was mainly very close to government stations and required constant supervision; it had little to do with local conditions and demands and nothing to do with south Bougainville. The Siwai contribution to the economy was in the passive role of providing labour rather than in active production for the trading world.

---

<sup>14</sup>Evidence from around Madang indicates that pre-war agricultural policy there was little different from that around Rabaul, and possibly other towns in New Guinea. Rice was being planted in indigenous gardens there in the 1930s and between 1936 and 1938 *didimen* had introduced coffee, cherries, rambutans, avocados, soursops, mandarins, mangoes, lettuces, cabbages and tomatoes (Marr, 1938:30-6).

Before the war the bulk of what little evidence is available suggests that cash came into Siwai either from returning wage labourers (almost all of whom had been on plantations) or from a small number of sales, mainly of copra, but occasionally of ivory nuts and other commodities. However other goods were bought and sold essentially within Siwai; Oliver observed that cash was used 'by some individuals to purchase pottery, lime, and even foodstuffs. In such cases, the vendor usually accepts it, instead of shell money, in order to raise money to purchase western goods or to pay his head-tax' (Oliver, 1955:515). The shilling was the main unit, rarely divisible, in such purchases and Voyce (pers. comm. 1975) observed how before the war one span of *maui* shell money, or a shilling, could be used to purchase a plot of taro, although sales of taro were only made on 'rare occasions' (Oliver, 1955:25). Although cash sales were relatively rare there were considerably more exchanges using traditional shell money which, as has been argued elsewhere (Connell, 1977c), then performed a function that was almost identical to that of cash. A substantial number of transactions, especially for the products of specialists (such as pottery and bows), were carried out through one or other of these two forms of monetization. Cash exchanges with the world beyond Siwai may have been rare but they were not something that was novel and unusual; they could be incorporated relatively easily into the traditional social and economic organization of Siwai society.

Before 1939 there are only the briefest overall accounts of Siwai agriculture; Chinnery observed in 1924 that 'the Siwai people plant taro, yams, sweet potatoes, sugar cane, bananas, and other native foods, and have domesticated pigs and dogs ... certain European vegetables have been introduced and these are planted in many of the villages. The ground is fertile, and there always appears to be plenty of food' (Chinnery, 1924:99). A plant collector who had spent some months in south Bougainville in 1930 commented:

A strong tropical sun, a genial climate with no great extremes, bounteous rainfall, and rich soil enable them to produce all the food they require with little effort. The gardens are primitive affairs, with no attempt at serious cultivation. The only great effort is to erect pig-proof fences, for all the pigs, although native-owned, run wild and depend for their livelihood upon their foraging propensities.

The staple of the native diet is taro, and as the native eats but one regular large meal a day he has to plant about 500 taros for a food-supply of six months to one year (Kajewski, 1946:303).

Ten years later the basic system was exactly the same and few of the new plants had been successfully established; Oliver observed that 'few Siwai have yet acquired tastes for the recently introduced maize and tomato' (1955:26). Of the newer introductions only rice had fared much better. Despite several kinds of encouragement and demonstration, cash crops had not become a part of Siwai life, whilst the basic horticultural system still remained much as it had been at the end of the nineteenth century.

### Taro culture

Until the war the Siwai horticultural economy was dominated in every way by the production of taro (*S-hame*; *Colocasia esculenta*); Siwais recognized more than fifty different kinds differentiated by size, colour, flavour, texture and so on (Oliver, 1955:492) whilst Waterhouse found considerably more than 200 named varieties of taro (Anon, 1931b:5). Sweet potato took its place soon after the war and now dominates the present subsistence economy. The system of growing *Colocasia taro* that existed then has disappeared; the little taro that is still grown is not grown in the same way and the organization of taro growing is not now paralleled in the cultivation of sweet potato. The subsistence economy of Siwai underwent an exceptional transformation.

Before the war taro gardens were

laid out on well-drained terrain where the soil is deep and free of sand. Another technical requirement is that gardens be located in areas of secondary growth ... Taro gardens are laid out in patches fenced in to keep out pigs ... Very rarely does one see isolated patches; they are generally arranged in sequence ... The gardener's ideal is to have several contiguous patches in various stages of growth (Oliver, 1955:22-3).

Such a linear system might consist at one time of five or six garden patches, each containing taro at different stages, with the sequence ideally continuing in a more or less straight line as long as there was land available

(Figure 5). In Rataiku such linear systems were unlikely to progress far because of the shortage of suitable flat land, hence a single household might have a couple of systems, whereas in central and southern Siwai there was normally no need for more than one. Finally, after the first patch has lain fallow for some six or seven years the system begins again; however, 'such an ideal is seldom realized' (Oliver, 1955:24) and the situation was much more complex with each household owning up to three or four gardens.

The linear sequence appears to have been imposed on Rataiku gardeners by the topography of long and narrow ridges; it would have been impossible to cut across these ridges whilst the streams in the valley bottoms were often lineage land boundaries. The system that existed in central Siwai (Oliver, 1955:24), where the ground was level, was much less regular and the direction of gardening was probably much more random than is implied by Oliver's model, which is not a Siwai model.

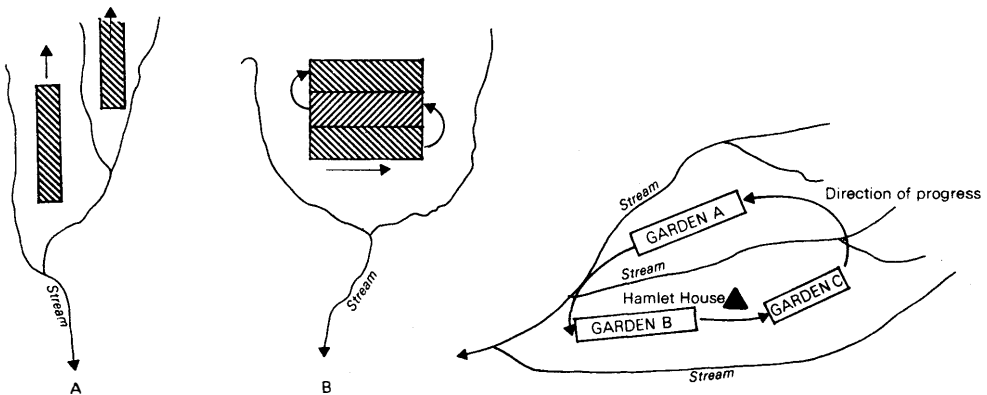


Figure 5. Pre-war garden sequences.

Source: Oliver, 1955:24.

Garden fences varied in height and strength according to the location of the garden. Those near busy paths were high enough 'to block out the stares of strangers' (Oliver, 1955:25); near houses the fences had to be strong enough to withstand hungry domestic pigs. (Wild pigs were smaller and weaker.) The taro garden was divided into plots (*S-nopu*), 10 feet by 45 feet, marked by logs and with pathways left clear alongside the fences and between every two or three plots. Each plot contained about a hundred taro plants; although the unit of sale for taro was a plot-full and the plot was also a basis for compensation in the event of pig damage, it is not absolutely clear why Siwais planted in plots. Oliver (1955:25-6) suggests that delineating plots with logs saved the effort required to drag the logs clear; although this is true it does not explain the apparently regular layout of the plots. There are two other possible part-explanations. Firstly in the Rataiku area, where this practice seems to have been most common, logs would have also minimized soil erosion in the sloping gardens. Secondly, this kind of organization enabled the planning of a subsistence enterprise. A regular layout of squares enabled an exact account to be taken of the amount of food being produced at any one time; moreover this was a system that could easily be extended for extra feast requirements. This kind of strategy existed elsewhere in the Pacific and is still maintained in some areas, including the To'ambaita coast of north Malaita.

The apparent simplicity and regularity of the taro gardening system was disturbed by a certain diversity.

In most taro patches natives also grow some tobacco, a dozen or so plantain and banana plants, and several yam and gourd vines trained up along the fences. Now and then one comes across a patch containing a few stalks of maize, some tomatoes, and a bush of tiny red [chilli] peppers which are used as condiments. Few Siuais have yet acquired tastes for the recently introduced maize and tomatoes. Yams sometimes reach lengths of three and four feet and are pointed out as curiosities, but no special effort is made to produce or display them; because of their coarse, fibrous texture they are not rated highly as a food (Oliver, 1955: 26).

The gardening system therefore was still a conservative one; taro provided 80 per cent of the Siwai diet and other planted species merely gave a little variety. Although Oliver apparently did not see rice being grown in northeast Siwai in 1938-39, some small-scale planting may have begun around the Tonu area at about this time, following the return of Siwais educated at Kihili. Much later Haling reported that 'since 1938 the rice crop has been playing an increasing role in the subsistence pattern' of the Rataiku area (Agricultural Patrol Report [APR] Eastern Division, Siwai, 1960). Even so few new crops had found a niche in the garden system; neither Chinese taro (*Xanthosoma*) nor cassava, each of which give a greater yield per unit of time than *Colocasia* taro, had found a significant place. The innovations of the previous century had diversified but not substantially changed the agricultural system of Siwai.

However, the introduction of sweet potatoes had resulted in changes. Although their use was then expanding, and potato acreages increased in the eighteen-month period of Oliver's stay, older people were contemptuous of them ('children's food; not solid, strength-giving food like taro') and they were important only in the diets of households with mission-trained members (Oliver, 1955:27). They had however some advantages over taro since they grow in poorer, sandier soil, require little care after planting and produce a higher yield per acre and per unit of time. A disadvantage was that sweet potatoes were more tempting to pigs, hence sweet potato gardens were made in the valleys of streams, some distance from settlements and hence from domestic pigs (Oliver, 1955:27).

The only other regular component of Siwai diets was coconuts which although planted, and occasionally cared for, were not part of the gardening system. Breadfruits too were planted, but there were few of them and, like coconuts, the long period before maturity meant that they were distinct from the gardens. Indeed breadfruit trees belonging to one individual Siwai owner often occurred in the garden of another.

Technology was uncomplicated; there were only four implements: axe, bushknife, wooden rake and digging stick. Oliver suggested that 'it would be difficult to devise a more efficient procedure' although a steel-bladed hoe would probably have reduced the time spent weeding (Oliver, 1955: 25. The first stages of garden preparation were men's work:

cutting down small trees, strip-barking large ones and building the garden fence. Meanwhile women carried taro plantings there and made sago-palm thatch sheets for the garden hut. After fencing and burning were over men arranged logs to demarcate the plots and the major part of their contribution to garden work was completed. In sweet potato gardens men worked even less since the ideal sites were sandy flood plains and shorter fences were used there.

Women worked in the gardens four times as long as men; nearly every morning women went with their children to the gardens and remained until mid-afternoon, planting with a digging stick, weeding by hand or harvesting. Oliver suggests that 'most women regard gardening as a fixed part of every day's life routine, an end in itself; whereas for many men it is a rather onerous but necessary job to be completed as quickly as possible in order to move on to other activities - or lack of activities' (Oliver, 1955:131). There was therefore a distinct division of labour in garden work, where women, with their Siwai tools and large amount of time-consuming hand activities, work for longer hours than men and become much more experienced in growing food plants. Nevertheless some men did spend nearly as much time as women in the gardens and were noted for their fine taro, their straight sturdy fences and their carefully aligned patches. It would have been unusual for even the most industrious woman to spend more than about seven hours a day at garden work, including the time spent going to and from the garden (Oliver, 1955:132-3).

The final input into taro cultivation was garden medicine, or magic (*S-maki*); each household made their own arrangements for magic although some did nothing, relying on their own skills to produce good taro. The same principles were used, but less frequently, for the protection and growth of sweet potatoes, coconuts, sago, almonds and breadfruit (Oliver, 1955:135, 498). Magic was men's work.

At the start of the 1940s, before the Pacific war extended out towards Melanesia, Siwai agriculture was almost entirely oriented towards the subsistence production of taro; the new introductions of the previous century, especially sweet potato, had taken a small place in the system but it was taro that dominated in diet and ceremonial. Although small quantities of food were occasionally sold within Siwai; this was invariably the result of exceptional circumstances; there were no households that were not dependent upon their

gardens. The only crop that had been planted for money was coconuts which were still far from extensive; although the earliest returned wage labourers were enthusiastic enough to plant them on their return, their own enthusiasm was not then shared by other Siwais. Despite the need for money for taxes and despite the encouragement and insistence of administration officials, other factors such as the unpredictable fluctuations of copra prices, the distance of Kangu on the Buin coast, the irregular visits to it of European traders and the relative ease of obtaining wages in plantation employment were more than sufficient to check the need for money and hence coconuts.

The Siwai agricultural economy, as it had been half a century earlier, remained a world of 'subsistence affluence'. There was no indication that there had ever been a period of shortage; there were apparently always food surpluses, beyond domestic requirements, even with relatively small inputs of labour. Nevertheless fundamental changes were in store; the taro gardening economy described here survived as such for no more than five more years until around the end of the second world war.

### The war economy

The war had an enormous impact on the lives and economy of Siwai; 'the shock waves ... convulsed Bougainvilleans at the time, and continue to do so today' (Oliver, 1973:124). In March 1942 Japanese troops moved into south Bougainville and remained there for over three years until after they surrendered in August 1945; the long Japanese presence in the area resulted in several changes, the most important of which, in terms of lasting influence on the Siwai economy, were agricultural. For the first year the Japanese seem to have had only a limited influence in Siwai, concentrating their forces in Buin, but, following their evacuation of the Solomon islands of Munda, Kolombangara and finally Vella Lavella in October 1943, there were over 60,000 Japanese troops in Bougainville (Campbell, 1946:2-3). At the same time communications beyond the island were almost cut off and the Japanese were more or less forced to spread westwards into Siwai. At this time

certain fresh vegetables were already being grown but now a scheme was designed whereby it was considered that a state of full self-sufficiency for army troops would be reached as quickly as

possible. Greater areas were placed under cultivation and approximately 40 per cent of all troops were detailed for gardening duties (Campbell, 1946:3).

Light vehicle transport was possible as far west as the Puriata where a group of troops were stationed since the Japanese feared an American invasion in Gazelle Harbour, near Motupena Point. In Siwai troops were stationed close to the Mivo (at a camp called Sisikatokoli), near Musiminoi, at Hari, Monoitu, Miheru, Ru'nai, near Tokonoitu and in smaller detachments elsewhere as far north as Mosigeta (Baitsi).

No merchant ships were able to supply the Japanese army after January 1944 although submarines delivered small amounts of food for about another six months. By then the Japanese program of self-sufficiency was well under way and from about March 1944 they were able to live almost entirely on their garden produce (Campbell, 1946:10). Even so there was a certain amount of malnutrition which, together with dysentery and malaria, produced a high death rate. During the latter half of 1944 35 per cent of the troops were engaged in gardening duties; although this was still not enough for total self-sufficiency food reserves could be conserved, new gardening areas were opened up and there was even enough fishing (presumably in rivers) to enable officers' messes to have several fish meals per week (Campbell, 1946:11). Campbell's interviews with Japanese survivors from the Siwai area provides a useful account of Japanese agriculture.

The gardens were well-tended and producing large crops of sweet potatoes, corn, eggfruit, beans, peanuts and green vegetables. Tropical fruits such as pawpaw, pineapple and bananas were also plentiful. Very little rice was cultivated owing to the very arduous work that is necessary. Chickens and eggs were in every unit's lines but the fowls were of poor quality and eggs small ... No fresh meat was tasted after March 1944 (Campbell, 1946:13).

There were also melons, pumpkins and marrows in gardens as large as 600 yards by 400 yards (Long, 1963:151). In northern Bougainville coconuts formed a considerable portion of the army diet. At this time it seems that the Japanese had relatively little contact with Siwais; there was no

warfare in Bougainville and the Siwais themselves continued to maintain their own gardens. There was, of course, no external trade but some produce was traded with the Japanese; Japanese obtained tobacco leaves, coconuts, pawpaws and sweet potatoes from Siwais and in exchange gave lime (which they had made themselves on the coast) and especially salt, yet at the end of the war many Siwais were complaining that their 'payments' were quite inadequate (Anon, 1945). Probably towards the end of 1944 Siwais were increasingly drawn, or rather dragged, into the agricultural labour force. Siwais from the Toitoi area stated that they were called upon to supply labour for the gardens for two days each week, but generally the enemy troops worked their own gardens and lived in 'grass huts' on the edges of them (Anon, 1945). For the Japanese 'the situation in Bougainville was not unpleasant, morale was high and a state of resigned contentment existed towards the end of 1944' (Campbell, 1946:13). The mounting of the Australian offensive in December 1944, that followed the American occupation of Torokina, destroyed any trace of normality.

The necessity to defend their positions and prevent the Australian advance meant that the Japanese had to withdraw many troops from gardening duties with the result that although the remaining gardeners were never allowed to relax, Siwais were increasingly forced into gardening activities and also had to instruct the Japanese in the preparation and cooking of local 'vegetation'. Even so food production declined through 1945. Consequently the Japanese were forced to demand food and to steal it from Siwai gardens; meanwhile most of the Siwais themselves had withdrawn into the mountains to avoid Australian bombing raids plus Japanese aggression and the physical labour of maintaining their gardens. The Australian airforce were systematically bombing Japanese camps and gardens and in the confusion many Siwai gardens were also destroyed. Although under cover of darkness Siwais occasionally returned to harvest their gardens, cultivation was impossible except in the most remote upland villages. For more than half a year Siwais were forced into at least partial dependence on a hunting and gathering economy; there was some malnutrition and a very high rate of infant and child mortality (pp.27-8). The Japanese too were starving and many were dying from malnutrition; there were not even any fish since all the grenades were being used in military operations. Consequently the Japanese were desperate; near Kumuki a Japanese officer supervising sago manufacture, presumably with Siwai assistance, told the *luluai* of Ru'nai

that he was endeavouring to supply sago to 500 men (Anon., 1945). Depletion of garden resources meant that the Japanese also ate what local animals still remained, including the dogs, to the extent that in some parts of Bougainville (PR Buka Passage 1/45-6), probably including Siwai, there were not even enough dogs after the war to allow wild pig hunting. Moreover reports from the Sininai and Monoitu areas seem to confirm that in some exceptional circumstances some Japanese were reduced to eating Siwais (cf. p.77). Finally during the last retreat, even in the Buin area which the Australian forces never reached, the Japanese made systematic efforts to destroy their own gardens and therefore any planting material that might have been salvaged from them. (This was not entirely successful since Australian troops later harvested some Japanese gardens in Siwai.) Moreover Japanese cultivation had become both so intensive and extensive that European agricultural officers, after the war, were describing the Buin coastal plains as 'over-cultivated' (Anon., 1947a).

At the end of the war Siwai was largely devastated; between April and June 1945, at the height of the Australian offensive, 769 tons of bombs had been dropped on 140 targets between the Hongorai and Mivo rivers, in part aimed at Japanese military installations and troop concentrations but also intended to clear timber and undergrowth from roadways. Before this offensive, during the American presence at Torokina, American planes dropped 2500 gallons of diesel oil aimed at Japanese gardens in various parts of the island. Apparently it was not a success and the pilots had difficulty in differentiating between Japanese and indigenous gardens, many of which were probably also sprayed with oil (Packard, 1975:81). Despite these uncertainties the Australian forces maintained this policy, and from February 1945 onwards they were making strikes, using incendiary gelatrol, against crops and gardens, to simultaneously reduce food supply and morale (whilst also driving away the Bougainvillean labour force and clearing jungle cover). In July 1945 to meet initial requirements some 22,000 gallons of gelatrol were supplied to the Australian forces, some of whose leaders were unsatisfied with this and continued to press for napalm which may have been, but probably was not, used in Bougainville (Anon, 1947b). In any case, in military terms, it was a successful bombing; in the area bordered by the Hongorai and Mivo rivers and the two Siwai east-west roads few trees or gardens survived the war. Coconuts and sago palms were destroyed and gardens

torn apart; animals and villages almost disappeared from central Siwai and elsewhere the situation was only a little better. Siwais were confused and demoralized.

The subsequent agricultural impact of the Japanese occupation followed from two kinds of introduction: new food plants and new techniques of cultivation. Some of the plants that they brought with them such as squash, cabbages and eggplants may have been entirely new to some parts of Bougainville and others were varieties of existing species. Although it seems that they introduced no new varieties of taro (Packard, 1975:48), they introduced several species of sweet potato, including *trimun*, (which matured in three months, probably faster than any species then present in Siwai) and also *tokyo* and *tokuhama*, which were also fast maturing varieties apparently imported from Japan.<sup>15</sup> Haling (1960) estimated that they introduced about seven sweet potato varieties to south Bougainville. They brought their own varieties of rice and, for unknown reasons, the milk thistle (*Mimosa pudica*), now a major pest in all types of gardens, and also the African snail which seems to have been important only in Buin.

It was, however, the techniques of cultivation that most impressed Bougainvilleans. Apart from minor changes such as different techniques of planting cassava and transplanting pawpaws, which may not have been important in Bougainville, but have been recorded in east New Britain (Leadley, 1976), the Japanese also used human excreta on their gardens, a technique which certainly did not impress Bougainvilleans. What was most impressive was the scale of Japanese agriculture; both the cultivated acreage and the size of individual gardens were extremely large. Since in 1944, when the self-sufficiency program began, there were perhaps as many as 30,000 Japanese troops in south Bougainville (which compares with a local population, including women and children, of around half that), the extent of cultivation was obviously phenomenal compared with what had gone before. Moreover, although there was probably no mechanization of agriculture on Bougainville, although small tractors were used by the Japanese on Kolombangara island (Oliver, pers. comm., 1977), some new agricultural implements

<sup>15</sup> *Trimun* seems to be what the Japanese called *Taiwan Gogo* (Taiwan Number Five), a variety developed by the Japanese in Taiwan and flown to Bougainville during their occupation (S. Lincoln, pers. comm., 1977).

were introduced such as the large rounded hoe (S, NM-*baila*), now used in Siwai sweet potato gardens, and extensive labour lines were organized. Langtry (pers. comm., 1976) observed groups of seventy to eighty Japanese working in a single garden. Most of the labour was Japanese but Siwais were also incorporated into the labour force and, in Buin but probably not in Siwai, captured Chinese prisoners were drafted into Japanese gardens. It was a much more intensive agricultural system than Bougainvilleans had ever seen before; furthermore it seemed to be supplying the whole Japanese army on the island more or less adequately with only a minimum of local trade, food imports and stealing.

Only small quantities of rice were grown in Siwai because of its heavy demand on labour but this seems to have been the crop that most impressed Siwais both at the time (Anon, 1945) and much later in their recollections of the war years. (The basic ration of the Japanese soldiers was also, of course, rice and, in their turn, Siwais stole rice from Japanese stores.) For most Siwais, especially adult males, rice was already known as a popular food but for many this was the first time they had seen it growing in Siwai. The rice that was planted may have been a wet rice variety since it was planted in trenches. In Buin there was probably rather more extensive rice cultivation, following from the longer stay of Japanese forces there, since the Japanese operated a rice mill somewhere near Tabago mission. For the first time in Bougainville there was at least mechanized preparation of a food crop and it was a crop that was already becoming popular there.

The Japanese usually grew sweet potatoes in long, straight ridges, as at Monoitu (Long, 1963:92f), but sometimes these were broken up into the small heaps that are now common in Siwai potato gardens. Deep hoeing of weeds was also practised. Throughout Bougainville both deep hoeing and mounding were learnt from the Japanese; neither were techniques that were known previously. Although the 1940 Annual Report for the Territory (PCA, 1941:82) stated that 'the general method of planting sweet potatoes in the Territory consists of making small, low hills and ridges', this must have been a reference to the newly-discovered New Guinea Highlands. There were few lowland sweet potato cultivators and where sweet potatoes were a crop there seems to be no reference to mounding (e.g. Oliver, 1955; Blackwood, 1935; 312). It was a technique that was particularly appropriate to the heavy rainfall of south Bougainville and one that

became particularly useful with the extension of sweet potato gardens away from sandy, alluvial areas. (There is no clear evidence, although it seems probable, that, other things being equal, mounding actually increases the productivity of sweet potato gardens.)

At Torokina on the west coast of Bougainville there were also large gardens, begun by the Americans and extended by the Australian forces and ANGAU. In June 1944 115 acres were planted there in an attempt to give the troops something to do and also provide them with some fresh vegetables (Bowman, 1946:427); these U.S. Board of Economic Warfare gardens contained tomatoes, lettuce, canteloupe melons, corn and probably also radishes, cucumbers and squash. Unlike their Japanese counterparts the American cultivators had tractors and trailers and used groups of Bougainvillean women working under white supervision. Although Siwais were necessarily less familiar with these, until the very last stages of the war when some were evacuated to Torokina, this kind of agricultural development reinforced their opinions of what they had already seen of Japanese gardens in the south. Large gardens, cultivated by labour lines and organized with military precision, were something that it might be extremely worthwhile to try themselves especially for rice, a new and desirable food and a potential source of cash income. The war totally disrupted the Siwai economy yet it gave some promise of a rather different future.

### The death of taro<sup>16</sup>

Where the taro Blight (*Phytophthora colocasiae*) originated and how it arrived in Bougainville is likely to remain a mystery; it may have been present in Bougainville just before the war, intensified during it and afterwards spread to almost all of the island. Throughout Bougainville the almost unanimous view of the local people was that the disease appeared towards the end of the war and had never been known before that. The effect of the blight was devastating; throughout lowland Bougainville *Colocasia* taro was eventually completely wiped out; not even isolated stands would grow. The low-lying plains of Siwai and Buin provided optimum conditions in which the disease could flourish; like the blight of the same genus that caused the Irish potato famine in the nineteenth century, it spread most

<sup>16</sup>A more detailed account of the replacement of taro by sweet potato both in Siwai and Bougainville is given elsewhere (Connell, 1978a).

rapidly during periods of continuous rain (Packard, 1975:62) and south Bougainville was an ideal environment.

Almost inevitably Bougainvilleans mainly blamed the Japanese presence for the introduction of the disease; the association was clearest in the south where there had been bombing and a long period of Japanese occupation.<sup>17</sup> Although a small minority of Siwais now believe that a disease killed the taro the standard explanation remains that the heavy bombing of the plains poisoned the soil to the extent that taro would no longer grow. Others believe that it came with Japanese plant introductions. A slightly different version (related to Packard by Laisi, of Hari) was that petrol and oil had remained in the ground (from the aeroplanes of the American Marine Corps which dumped 2500 gallons of diesel oil on Japanese gardens (Sherrod, 1952:210) so that it was too contaminated for taro cultivation. Both versions accounted for the survival of taro in the mountains where there had been little bombing and where there were plenty of incised streams in which the poison could drain out. It was usually said that sweet potato did not die because 'it was just like a bush vine'; Siwais told Packard in 1973 that 'sweet potato was only a vine but taro was a tree' and 'taro was like a man; it could feel sick whereas sweet potato was just a vine' (Packard, 1975:82). Taro had a soul and was not just another plant, like sweet potato or the other crops that survived; it was the absolute basis of the subsistence economy. Its absence was almost impossible to contemplate, still less to reorganize life around.

The initial Siwai response to the blight was to continue the garden magic which had hitherto ensured good taro crops (and, to a minor extent, also produced good yams). None was successful; their cures were considered to be insufficiently powerful against a disease whose origin was alien (Packard, 1975:84).

Siwais soon realized that taro could still be grown at higher altitudes but high mountains were many miles away and even at isolated Iru, the highest village in Siwai, success was not great. Repeatedly taro was brought from different mountainous areas, where fighting had been less, but nowhere in the plains could it be persuaded to grow.

---

<sup>17</sup> This paragraph is derived partly from accounts given to me and partly from Packard's analysis of accounts he collected (Packard, 1975:79).

Throughout south Bougainville continued attempts were made; continually they failed with the taro dying well before maturity. In the early 1950s a different planting strategy was attempted with small isolated patches of taro being planted, often mixed with sweet potato; occasional patches then survived to maturity. Some Siwais, including those at Kapana (Packard, 1975:89), tried planting taro under the eaves of their houses but without much success. Spaced planting seems to have been the most successful strategy tried anywhere in Bougainville; the administration produced nothing better. Even so by 1960 *Colocasia* taro would still not grow; Haling observed in eastern Siwai: 'Original native taro ... is almost extinct in this area, only two small gardens were noticed. No disease resistant strains were noticed' (APR, Eastern Siwai, 1960). Siwais have continued to make experiments, mainly with taro brought from upland areas, but so far with little success. There was no shortage of possible solutions to the problem but there were none that was successful; the tenacity and versatility of the local response were never rewarded. (Although a few varieties of taro with lower yields have been established in Buka none has really been successful in Siwai.)

#### Development and destruction

Siwai agriculture has probably always been changing. The subsistence economy that existed centuries ago gradually incorporated new crops and new animals as rare travellers beyond the island brought their discoveries to the shores of Bougainville. Until the nineteenth century there is almost nothing known of whatever changes took place; few can have been significant compared with the changes that followed. The affluent economy of the nineteenth century began to incorporate new plants, the most important of these eventually turning out to be the sweet potato. When labour migration eventually began from Bougainville towards the end of the century the pace of change increased: a new technology based on steel tools enabled time savings and therefore a greatly increased capacity to experiment with new conditions. There was no internal demand for change, merely an interest in experimentation.

The first half-century of colonial administration brought little change; German interests were focussed elsewhere and their economic policies had little impact on Bougainville. Australian administration, likewise, was concerned with law and order rather than economic development. However their

pacification program ended local warfare and again released more time for experimentation; the cash that plantation labourers earned enabled them to obtain better tools. They had also seen new techniques and new crops. Yet it was the missions, between the wars, which most encouraged change. Missionaries were rather more familiar with the local conditions that administrators rarely saw more than once a year. They proved that both new food and cash crops could be successful in south Bougainville but markets were remote and transport to them almost non-existent. Siwais occasionally sold copra to traders in the inter-war years but it was not a source of income that could be depended upon so that until the war the whole sequence of agricultural change in Siwai had simply improved upon an already satisfactory system; steel tools had replaced stone tools, sweet potato had proved an easier crop to grow for pig food and other new crops and possibly animals had diversified the diet.

The war and the coincident taro blight killed off the old system but brought with them the seeds of the new. The extraordinary labour intensity of Japanese gardening, and the ability of the Japanese to grow rice, had been observed well by Siwais; some, indeed, had been forced to try their own hand at it. Rice was a new and exciting possibility. Taro blight totally removed *Colocasia* taro from the subsistence system; sweet potato, perhaps the easiest and most productive of all the food crops that could be grown in lowland Melanesia, was its obvious successor as the main food crop.

The slow evolution of Siwai agriculture that had gone on for centuries had been completely disrupted; the staple food crop had gone and in less than a couple of years the agricultural economy had been diverted onto a completely new path. It was, effectively, almost the end of a long period of agricultural history in which production was aimed towards subsistence requirements. The war marked the start of a new phase of incorporation into the international economy yet Siwai still remained, in many ways, a world of its own.

## Chapter 4

### Agricultural recovery: the rise of rice<sup>1</sup>

The Siwais are an eager people, keen to better their villages, their children's education and, of course, their financial position (Giddings, 1957).

... the [Siwai] native is not over fond of hard labour (Boag, 1960).

The first patrol into Nagovisi towards the end of the war, which was carried out literally within earshot of the battle soon after the Japanese retreat, noted that, 'During the retreat to Buin ... the Japanese ravaged every garden in their course and even ate two or three natives' (PR Nagovisi, 1945). They also ate or destroyed even the taro stalks that were necessary for replanting. Although there were small sweet potato, cassava and yam gardens secreted

---

<sup>1</sup>Sources: Apart from a few published sources cited in the text and a few typescript reports that may be available outside Bougainville (such as the Bougainville District Annual Reports and the Buin Sub-district Annual Report, both of which apparently start in 1958-59 and end in 1970-71, and Patrol Reports) and apart also from oral data, this and the following chapters are based upon brief reports and letters generally not available outside Bougainville and most not available outside south Bougainville. Some of these, including those at Siwai L.G.C. and Buin Sub-district Office, have now been burnt and access to most of the remainder would be quite difficult. Consequently they have not been cited in the text, which would have then become almost unreadable, but are listed separately in Appendix IV. However, comments are attributed to *didimen*, *kiaps* and other outsiders, and, as far as possible, where I have considered these observers were particularly conversant with conditions in Siwai, they have been identified. Similarly, the most important of these reports have been cited in the text.

in the hills these were often spoilt by wild pigs. People were short of food and forced to eat immature sweet potato. There was insufficient taro planting material for replacement of all the diseased crops and there were definite food shortages. The same was true of Siwai where the war was still going on and where the Japanese were even more desperate.

At the end of the war the agricultural economy of Siwai was in total disarray; lowland gardens had almost disappeared: coconuts, sago and many villages were destroyed. It was not then known that taro would not grow, hence the early attempts at re-establishing food gardens concentrated on taro and were all failures; there was some starvation. Siwais were confused about the whole sequence of events and shattered by some of its effects. The first year of the post-war era saw the economy at its lowest ebb; there were few thoughts to be spared for cash crops and none for migration as plantation labour. The task of Siwais and administration alike was to restore a war-damaged agriculture, as rapidly as possible, to self-subsistence.

#### Government intervention

The earliest administration responses were dramatic; the Sydney Morning Herald reported in November 1946 that 'A government food ship is hurrying to Bougainville, where 20,000 natives are facing hunger' (Packard, 1975:14). At the same time a government official flew from Port Moresby to Queensland to buy pigs, chickens and even dogs (but for all these there was no transport available to Bougainville for a whole year). There were further reports of starvation and in 1947 the Administrator of the Territory, Colonel J.K. Murray, led a party across southern Bougainville; they found that although a few people had managed to redevelop the Japanese rice plots, after the war there was still insufficient food to eat. They did however find that health was, on the whole, very good with only 'tiny signs of diet deficiency'. A survey team in 1947 that followed the Administrator's party found it necessary to make several basic recommendations including those that fifty pounds of seed yams and Chinese taro (*Xanthosoma*) suckers be given to each village in south Bougainville, there should be two distributions a year to every household of one pound of corn, two pounds of peanuts, an ounce of pumpkin seeds and one gramme each of tomato and chinese cabbage. Planting of a quarter of an acre of good quality tapioca (cassava) per house as a reserve food supply should be enforced immediately and, as soon as possible,

program; since DASF employed only thirty-five staff throughout Papua and New Guinea this was not entirely surprising. Moreover the administration were far from enthusiastic about their pre-war success in encouraging local agriculture: 'the native peoples, due to their disinclination to adopt new methods or ideas, are at present in a primitive stage of agricultural development' (PCA, 1947:13). Despite the pressure that was placed on the administration by the Catholic mission in the years immediately after the war, policies were apparently never refined or further elaborated. The administration reacted rather than initiated. Eventually in 1956 it seems that there was some move towards establishing at least a plan for Bougainville; the Buin sub-district agricultural officer, K.I. Tomlin, submitted his own ten-year plan to the District Commissioner. He was clearly not optimistic about either finance or staff support and the plan (Appendix I) is of more value as an account of south Bougainville in 1956 than as a contribution to a not yet emerging agricultural policy.

By the 1950s the national administration was beginning to formulate rudimentary policies towards agricultural change; the stated aims, which in 1952 were novel and innovatory, were 'to improve the Natives' methods of producing their present crops, and to improve existing varieties, and secondly, to encourage the development by both Europeans and Natives of new agricultural industries' (PCA, 1953:61). The 1951-52 report also included a lengthy account of the 'bush fallowing rotation' system and, perhaps for the first time, there was no longer even an implication that this was a wasteful and inefficient system. Research continued to concentrate primarily on cash crops but without establishing crop or regional priorities. Nevertheless the shift in orientation had immediate results; in 1950 it was already possible to observe 'a quickening of the tempo of native development and an awareness in the more advanced people that their labour is not the only thing they have to sell' (PCA, 1951:23). Nevertheless in the first quarter of a century after the war it remained impossible to detect the crystallization of a consistent administration policy on rural development.

Bougainville, and especially south Bougainville, was always remote from administration interest and concern. Thus in 1952 when the administration were making concerted attempts to develop rice farming in Papua and New Guinea a team of experts visited twelve different areas in the country,

that sweet potato is now generally accepted by the natives as the staple and the desire to return to taro growing on a large scale is much less frequently expressed than was the case formerly'. There is no evidence that Bougainvilleans lacked this desire to return to taro despite the hopes of administration officers who were losing interest in experimentation and who saw little difference between the two crops. The Acting Director of the Department of Agriculture, Stock and Fisheries (DASF) stated in 1954 that 'there is no reason why taro cannot be superseded by these crops ... yams, kongkong taro, sweet potatoes and tapioca' yet at the same time 'all over the island ... people ... were bemoaning the loss of their taro and having to eat what they regarded as 'pig food' - sweet potato' (Tomlin, pers. comm., 1974; cited by Packard, 1975:72; cf. Connell, 1978a). For a decade there was no more research on disease-resistant taro yet for two decades *kiaps*, *didimen*, missionaries and Bougainvilleans enthusiastically 'discovered' disease-resistant strains of taro, none of which ever survived for long.

The first agricultural extension centre on Bougainville was built at Sohano, Buka, in 1946 as a response to the food shortage on the island and by 1948 both cotton and jute were growing there successfully. This was of no use to the south (or indeed any other part of Bougainville), where they were concerned with the basic food crops that the Sohano station had not developed. In early 1948 preliminary work began to set up a sub-centre at Kangu on the Buin coast which was intended to provide facilities for distributing pigs in south Bougainville and to serve as a base for extension work. The Buin station lasted only two years and closed in March 1950 because of staff shortages; pigs were still urgently required. Siwais often observe, with the wisdom of hindsight, that Buins rejected the agricultural station whereas they had insisted that one be built in Siwai.

Despite these changes, dramatic by the standards of the pre-war era, no consistent agricultural policy emerged either for the country or for the district. The newly-created Department of Agriculture, Stock and Fisheries (DASF) through its director, W. Cottrell-Dormer, had announced that its aim was to 'build up a community based on a type of rural peasant proprietorship, for nutritional improvement as well as for economic purposes' although at the same time, 'technical assistance would also be provided for European settlers'. During the first year almost nothing was accomplished towards implementation of an announced extension

suggested that new planters could be a great help in opening up the sparsely populated, high quality cocoa areas of Bougainville and New Britain and therefore that the establishment of two to four new European estates annually over the following five years, 'could provide a most valuable stimulus and demonstration to indigenes' (IBRD, 1965:97). Why these two areas then needed stimulus is not clear. Siwai response to such moves, had they been aware of them, would have been predictable. Unlike the Gorokans of the New Guinea Highlands, Siwais had no interest in having settlers in their midst and they were certainly not seeking buyers for their land. The administration policy of partnership never had any significance in south Bougainville.

This and the following chapters seek to analyse the process and pattern of post-war agricultural development and the role of Siwais and others in these changes. The following section attempts to describe briefly some of the earlier historical sequences as Siwais recall them whilst the subsequent sections discuss these changes in the extended context of existing written records which, without exception, consist of the reports and analyses of European administrators and observers. This therefore also contains my own assessment of these changes.

### Siwai perspectives on agricultural change<sup>2</sup>

Before the war Catholic villages did not have rice

---

<sup>2</sup>Inevitably it is impossible that this account accurately portrays Siwai judgements of their recent history; there are many Siwais and almost as many versions of history. Moreover almost all these accounts were collected within the framework of my own questions. They are not what any single Siwai would write although the judgements are all those of individual Siwais. Maverick perceptions have been excluded. Hence it is a composite and therefore rather unsatisfactory view of history. Most of the collected accounts recorded here come from the villages around Amio and Konga. The area around Konga was in the forefront of some agricultural changes whilst the villages around Amio followed in much the same way and at much the same times that other areas followed. The stories were those of young men and old men, some of whom were prominent in these changes, and the dates are those that could later be verified. It cannot be the complete story but then nor is any version, even with its complement of recorded dates and data.

although a few Methodist villages had obtained seeds from the Kihili mission and begun planting. But everyone liked rice and during the war they saw that it grew well and the Japanese had shown them how to plant it. Soon after the war Rangai (from Panake village) got other Siwai leaders together to try and start something new. Kuiaka (Kapana village) wanted to plant rice, since he had eaten and enjoyed it but Dio (Panake) thought that they didn't know enough about rice planting to start it themselves. Teremo (Amio) spoke out strongly arguing that they could plant it themselves and the Buin Assistant District Commissioner, Mr Cole, thought that this kind of leadership would enable success and encouraged them by bringing seed from Kihili for them to plant.

At about the same time four leaders, Dio (Panake), Hianu (Unanai), Piruruho (Musiminoi) and Ariku (Laku), again from both Siwai religious groups, collected a small amount of money as a token gesture and went to the Methodist Minister Mr Voyce, at Kihili to ask him to help them start up some kind of business activity. He was not particularly interested whilst Bishop Wade claimed that it was not mission work to set up businesses; consequently they then went, at Mr Voyce's suggestion, to the Buin ADC, who had begun the agricultural station there, but this was not successful since the administration had no ground in Siwai. He however retained their cash which caused considerable resentment. The vision of Siwai leaders was responsible for this change in attitude to development; nevertheless the first developments within Siwai were a result of local initiative rather than administration assistance. The first village that tried communal rice gardening was Panake, using some of Rangai's ground on the road to Rabaulu. Kuiaka, the Kapana leader, was not keen to join together the villages of Kapana and Panake (as other villages had done) and, although he was willing for there to be a communal rice garden, Panake began their own garden first so that Kapana joined with Kinirui, Munnu and Sikurai villages to establish a rice garden at Konga. Around 1948 this group were working a garden of about three acres and were considerably assisted when in 1949 the government put a rice mill at Konga; it had been located there since this was about the best rice project in Siwai. The villages of Ieku and Turugum began a garden at much the same time and when Kaparo saw that the Panake garden was successful they too began one of their own. The area around Konga seems to have been ahead of most other parts of Siwai at this time.

Mikompi, a leader who had been one of the earliest catechists in Siwai and who 'liked looking after money', organized the rice cultivation at Kaparo. A field was cleared south of the village line, probably about 400 yards by 150 yards, and subsequently another field near Hire of about the same size. In this they planted a 'strong' kind of rice, like that of the Japanese, until the *didimen* later introduced an improved kind of white rice (from Mekeo) which replaced this.

The rice was winnowed on banana leaves when there was a wind, and threshed by a machine constructed from a bicycle bought from the Chinese trader Ton Lep in Buin. It was milled either in old cartridge cases (which could be operated like a mortar and pestle, a smaller version being used for betel nut) or in a turtle shell. It was smoked and dried in a 'haus sun' so that it could be stored for sale.

The first rice produced was sold to villagers, especially returned plantation labourers, and also Monoitu mission, and the money was collected by Teremo (Amio) and looked after by Tom Sipana (Unanai), then an administration clerk in Buin town. Some of the early rice production was also carried to the port of Kangu, where Buin town then was, nearly 50 km away, where it was sold to the administration, Buin missions and Ton Lep, the first of a number of Chinese traders in Buin, who paid a penny a pound. Not many people carried rice this far and some of those who did were paid not with cash but with 'cards' (credit notes) which were useless after Ton Lep died. Some coconuts remained from before the war but new plantings were not encouraged because the administration felt that the soil was unsuitable; the little copra that was produced also had to be carried to Ton Lep in Buin. Eventually enough money was collected from rice sales, mainly to returned plantation labourers, to establish a store and a small bakery near Monoitu which Tom Sipana organized, although he remained in Buin. Goods were obtained from Ton Lep's store in Buin. Various people looked after the store at different times, including Summa (Amio) who was able to write, and Motoi (Kaparo), who could count on fern leaves. This was one of the first post-war stores in Siwai.

Some time in the early 1950s Teremo heard that Bishop Wade, the Bishop of Bougainville, was visiting Piano mission in Buin so he walked there, a distance of about 20 kilometres from Amio, and asked him for a better rice mill. He did this

because, without rice sales, the old men and women had no money, unlike those young men who had returned from the plantations. He pointed out that since the people of the Monoitu area had built the church for no cost, this was a fair deal. Soon afterwards a mill was provided and installed at Monoitu and a third of the revenue from rice milling there went into church funds. This generated new enthusiasm for rice growing and Amio and Siroi villages joined with Kaparo to develop a new and larger area. (Siroi later began their own communal garden but this only lasted a short time because many villagers wanted to begin their own gardens.) Amio and Siroi received their money separately and each village had a savings bank account where the money stayed. The administration rice mill at Konga and the mission mill at Monoitu appeared to have been two separate and similar foci for rice growers in the early 1950s.

Rice however grew badly in many parts of Siwai or died from a disease which caused the base of the stem to go black. Consequently Mikompi told the Kaparo people to grow peanuts, which he had learned how to grow when he was a mission catechist in Buka. Previously some people in many Siwai villages had grown a few peanuts in their own gardens but this was the first time peanuts had been grown communally with the intention of earning cash. The Kaparo villagers also tried corn.

The revenue continued to go into the village store (although in other villages there were different systems of distribution) but this suffered from a problem which became quite familiar for Siwai stores. Too many people looked after the store and some of the money disappeared; *'ol i kaikaim mani bilong mipela'* (literally, 'they ate our money'). There was no one with enough knowledge to run a store and those who looked after it became worried; *ol i seksek long bikpela mani i kamap long stoa* (they were scared of the large amounts of money that were made from the store)'. Since the rice garden money disappeared in the same way, enthusiasm for communal work faded rapidly and neither store nor communal work was still going in the late 1950s.

In Buin the local people did not appreciate the possibilities of agricultural development and would not give the *didiman* land so he left and first came to Siwai in 1950. Although a house was built for a *didiman* at Konga, Siwais too would not at first provide land for an agricultural station until the District Commissioner arrived in 1952 and

asked them again. The Konga station was then built on Keheno clan land provided by Kuiaka, who was an older man and spoke no Pidgin English but nevertheless appreciated the possibilities of cash crop development. The first two *didimen* spent most of their time operating and repairing the Konga rice machine, which Soiri of Kapana looked after, but they also started off corn and peanuts. (Peanuts had been grown before but never for sale; the changes in communal gardens followed these recommendations.)

The name of Kevin Tomlin inevitably emerges from any discussion of the start of cocoa growing in Siwai; moreover his is the only European name that emerges in discussions of recent agricultural history and he is as respected and revered as any of the handful of Europeans who have been closely associated with Siwai life in the past. Consequently it is not always easy to separate man from myth.<sup>3</sup> Tomlin was the first agricultural officer to be permanently posted to Siwai where he established himself in July 1956. Work on the Konga Agricultural Station began soon afterwards and a house was finished there a year later. He was a man of firm opinions and of considerable energy, almost all of which was directed towards agricultural improvement in Siwai. When his motorbike was out of order he would borrow a bicycle to travel around. (On one such day in 1956 he travelled from Konga to Iru and on to Kimaku, Hiru Hiru, Usokoli and Tonu, a distance of about 40 miles, at each of which places he inspected possible cocoa plantation sites.) He is remembered for the blitzes he carried out on untidy coconut plantations, his insistence upon cocoa being the best cash crop (and that those who were foolish enough not to plant cocoa would have their heads beaten together by him) and for his total absorption in Siwai life (on one occasion dispersing the last known voluble dispute between Catholic and Methodist factions near Siroi, tipping a blackboard in the river and telling them to go and do something useful, like planting cocoa). During the first three years that he lived in Siwai Tomlin was single so spent many of his evenings discussing agricultural developments with Siwai leaders and their supporters.

<sup>3</sup> I was often told that Tomlin was well over six feet tall; when I eventually met him he proved to be no more than about five feet, ten inches tall. Tomlin tells a story of his own return to Siwai in 1969, after a decade away, when he overheard a youth, who had never known him earlier, remarking 'Is that really Mr Tomlin; he seems quite human' (Tomlin, pers. comm. 1977).

Indeed he appears to have acted according to Siwai tradition by operating through the supporters, rather than going directly to the leaders, but ensuring that the leaders were carefully informed about his proposals. This made him extremely popular, especially by contrast with his successor who 'expected the atmosphere of a country golf club'. His own demands on labour were therefore tolerated even when he doubled the traditional government work day hours from 9 until 2 to 7 until 5 in an effort to provide access roads for tractors, and continually supervised the work to the extent that when adult Siwais, who for any reason were not working at any time, encountered him they were filled with a sense of shame. When Tomlin finally left Siwai, for a posting in Papua, he was given a large number of shillings by many individual Siwais. He donated the whole lot to the Rural Progress Society.

When Tomlin proposed a Rural Progress Society, Siwais responded quickly; some of the money that allowed them to set up the Society came from the sale of pigs. Teremo believed that it was time to stop money, especially war damage money, being hidden in the bush and time to do something useful with it, so that all the early members were asked to contribute £1 each. Haranu (Miheru) believed that several *mumis* contributed £25 each towards setting up the society whereas ordinary men contributed £5. Whatever the balance in funding it is apparent that the leading supporters of the Society were the Siwai leaders.

The first communal cocoa was planted mainly by Kapana, Kinirui and Sikurai villages with the assistance of men from many parts of Siwai on Kuiaka's ground near Konga, at the suggestion of Mr Tomlin. There was a Kapana Company which looked after this plantation but it was believed that Kuiaka and another leader 'ate' all the money so that too disintegrated. Little of this cocoa now remains since it grew badly on poor soil, although it was used by the *didimen* as a demonstration plot. At least half the villages of Siwai began village companies: a new idea of unknown origin. Their aims were fundamentally the same as that of Kapana; village leaders would provide land for planting cash crops and the money from this would go into a single fund which would enable some equalization of incomes within the village. Almost all of these companies have now finished although some, like those of Usokoli, Kumuki and Siroi linger on (cf. Chapter 8).

In most villages, since the *didimen* had recommended it, the earliest cocoa plantations owned by individuals were planted by all the village men; in Siroi, as elsewhere, the village bell was rung and all the men had to turn out for work. Three plantations were planted like this in the village and then, like the earlier communal rice gardening, the idea fell through and later planters had to plant their cocoa using household or hired labour. The early planters, there as elsewhere being mainly leaders, had been given an advantage. One other plantation had been planted communally: that of the Siroi Company on the edge of the village line and a little later a Company copra plantation was started on the beach near Aitara. The two plantations were on the land of the two most important lineages in Siwai.

Thus, early interest in cash cropping began with the communal planting of rice; this was initially successful but declined with the onset of disease, the inability to organize communal work (and the stores that followed from them), and the lack of an assured market. Much of the rice produced was eaten within Siwai. Consequently Siwais were always interested in new cash crops; corn and peanuts were tried but again it proved difficult to sell these crops and the low return often made the effort scarcely worthwhile. Cocoa was initially grown in the same way as rice, in communal plantations, but these were more difficult to organize than rice gardens, since there was a lack of interest in cocoa and many Siwais thought that it too would be unsuccessful. Some individuals showed that cocoa could be successful and after that interest in other possible cash crops faded as almost every Siwai began to plant cocoa.

### A cash crop emerges

A few Siwai villages, but probably only those close to the Japanese camps, grew rice after the war and it continued to grow well so that administration patrols met constant requests for assistance in rice growing, husking and marketing. In March 1948 the sub-district officer, Mr Cole, found that at Ruisei

the officials were very anxious to grow rice but refrained from doing so in any quantity as they had no husking machine. They suggested that they would provide the cash if I would undertake to send to Australia on their behalf and purchase a suitable rice-husking machine. They also appointed

two young men who were to be sent to any school or plantation to learn how to operate the machine so that they could train others in the village on their return (PR Bougainville, 10/47-48).

By the middle of 1948 garden cultivation had been successfully reorganized; although taro would not grow and the administration was still distributing various kinds of seeds to the people, the gardens were already producing enough food to feed the local population. The evidence of the patrol reports of this period is that Siwais were no longer concerned about their gardens and were interested in expanding rice growing entirely because of its known value as a cash crop.

It is not always and everywhere clear why post-war enthusiasm for rice cultivation was so great. Certainly it had been a prestige food in Siwai before the war; Oliver has described how for large feasts in 1938-9 someone would go some fifty kilometres to Buin and purchase a sack of rice which would be consumed by various leaders in the men's club-house (pers. comm. 1977). At least as early as 1923 it was part of daily police rations and was also regularly eaten by plantation workers. In the war it was a basic staple for both the Japanese and Australian troops and it was known to grow well locally. The association of rice and European affluence that had already been fostered by plantation labour experiences was therefore emphasized during the war. Meanwhile the environment had changed; respect for the technological achievements of Europeans had grown and coupled with it was an admiration for the effectiveness of co-operative organization in agricultural production. All of these however seem necessary but insufficient conditions. Moreover the emphasis had shifted dramatically from the production of rice for consumption, as it was from the few individually owned pre-war rice gardens, to the production of rice for sale from large communal gardens. Participation in cash cropping was avidly sought in a way that it had never been even a decade earlier.

Elsewhere in New Guinea the same movement towards the communal cultivation of rice was common in the post-war years, with the distinction that in a number of areas, especially around the Madang coast, it was encouraged by the administration rather than being a local demand. The Garia only planted rice because they had been told to do so (Lawrence, 1964:269) whilst in Tangu it had actually been

the administration who had insisted on the communal organization (Burridge, 1960:260). Nevertheless there, and also elsewhere (cf. Crocombe, 1964:29-30), there was a strong association between rice cultivation and cargo beliefs.

The requirement, from the administration, that in order to cultivate rice the community should be organized as a whole, devoid of sectionalisms, is clearly reflected in the arrangement for the cult rituals. Like cargo, rice pertains to the entire united community, and not merely to parts of it (Burridge, 1960:226).

The difference between these communal rice gardens and otherwise 'rational' agricultural activities was commonly identified, as it was in the Orokaiva area, by the belief that 'mere participation ... would, magically or mystically, quickly raise their status in all respects to that of Europeans' (cf. Crocombe, 1964:29). Despite these associations rice cultivation was carried out in much the same way in Tangu as it was elsewhere in New Guinea; the problems were also much the same (Burridge, 1960:260-1, 280-1) eventually foundering on the problems of labour organization and the distribution of returns.

It is now impossible to assess the extent to which there was a cargoistic element in Siwai communal rice cultivation or even that expectations were in some sense 'irrational'. What evidence there is suggests that although Siwai expectations of the various returns to rice-growing were extremely high, they were not unreasonable and they did not incorporate elements of cargoism (see Chapter 8). They expected that their status would indeed be improved by rice-growing and that they would be able to produce as much rice as they had seen the Japanese produce.

The administration attempted to respond to the requests for assistance with rice growing; their interest was, in part, a result of concern over rice prices since the price of Australian rice rose 278 per cent between 1945-6 and 1953-4 (Jeffreys, 1971:15). The concern was both that the price of rice would raise costs in the plantation sector to an uneconomic level and also that supplies would actually become non-existent, irrespective of price. Import replacement appeared to be a necessity. Late in 1948 a survey was

carried out to assess the possibility of growing rice in south Bougainville; it seems that emphasis was placed on Siwai since the requests had come from there. The first report cautiously emphasized the commercial possibilities of large-scale rice production centred in the area between the Mivo and Hongorai rivers and south of the old Buin road that went through the villages of Ruisei and Ru'nai. 'Since the land is all heavily timbered the initial clearing required to bring it to a state where tractors, multi-disc ploughs, cultivators, seed-drills and harvesters could be used would take some considerable time'. Access was expected to be through Mamagota which was still the main landing place for missionaries and occasional traders. Initial response to the report was to propose an experimental station at Ruisei, where both wet and dry rice cultivation could be tried. Mechanization was deferred for future consideration and the idea of wet rice was abandoned when no water retaining soils could be found. At the same time that large-scale mechanized rice-growing was being considered by the administration, they were also starting to assist with the small village developments that Siwais had begun themselves.

The first government effort at agricultural extension in Siwai, and the first activity of the new Buin agricultural station, was the supervision of rice planting in September 1948 on two patches of land at Rabaulu and Mamagota villages which were intended to be used for seed production. A patrol into half a dozen western Siwai villages found rice planted at Kumuki. 'Rice had also been planted at other places and seems to be doing well. All the natives of the area are keen to grow rice; all that stops them is the absence of a rice-huller' but the Bougainville District Officer had already recommended that their enthusiasm be restrained until proper provisions could be made by DASF to give them instructions on planting and harvesting and to give them machinery (PR Boku 1/48-49). Nevertheless planting went ahead rapidly. In August 1949 fourteen acres were being prepared for rice planting at Konga and already an area of about one and a half acres had been harvested there. At Ruisei eight acres were being divided into blocks for planting. At Morokaimoro there was 'a nice crop of rice about 2 feet 6 inches in height' and further clearing was in progress. Many other villages wanted to start big blocks of this kind. Siwai was already well ahead of other parts of south Bougainville in rice planting and almost every village had experimental rice crops (PR Boku 4/49-50).

The most outstanding characteristic of rice farming was the emergence of communal organization, essentially a new form of organization in Siwai agriculture. Before the war production techniques did not require large-scale teamwork. Although Oliver notes that the village of Moronei had a gardening team, even this was unusual and only a very small proportion of total production came from teamwork, whilst even the Moronei team seems to have existed primarily to clear and fence land which was subsequently divided between individual village households (Oliver, 1955:309-13). There was no communal work or production of the kind that later characterized rice growing although there was an increase in communal work for 'modern' activities such as road maintenance (Oliver, 1949b:59). After the war the administration in some other parts of New Guinea had encouraged farmers to develop jointly a single area of cash crops in the village, in preference to individual plots, but it was not a whole-hearted policy, being merely the extension of a pre-war policy that had only limited success. In Siwai communal organization was inspired from within. When the officer in charge of the new Buin agricultural station made what was probably the first full reconnaissance of Siwai in May 1949, he became aware of the emergent co-operative spirit. Villages, some of which had tentatively grouped together into larger villages after the war (cf. Connell, 1978b), were attempting to make joint village gardens; other villages were simply making one for the whole village. Thus in Ruhuaku the Buin *didiman* Dornan found that Ruisei, Hurai and Musiminoi had begun one large garden which was well under way; one acre was planted and about ten more acres partially cleared. Piruruho, of Musiminoi, 'a very able man', was in charge and 'with strict supervision by a European this group will do well'. Kutin and Kohkui villagers had begun one small garden. Kunnu (which had incorporated Kereiso village) wanted a garden of its own but had not yet started. In other parts of Siwai the pattern was much the same; Konga had the best established rice garden in Siwai. Two and a half acres were almost ripe and a large area was cleared for further plantings. Under the leadership of the *luluais* of the villages of Kapana (Kuiaka) and Kinirui (probably Pakanu) six villages including Kapana, Kinirui, Munnu, Sikurai and Ieku had worked on a single garden. Eleven villages at Morokaimoro and seven villages near Monoitu had combined to develop one garden but usually no more than one or two villages worked together. Dornan makes no reference to any individually owned gardens, although a year later there were some. Later the *didimen* themselves began to encourage these communal gardens, partly

as a response to very scattered individual plantings; in April 1951 the *didimen* assisted in clearing two of an intended four clan areas near to Konga. The Poporu clan had an area of 1.6 acres and Huhu had 0.8 acres. In September 1951 they estimated that there were 10 acres actually under communal rice farming. The very large areas that were cleared seem to confirm that rice was intended to be sold rather than eaten; it was separate from the subsistence economy in almost every way. The emerging distribution of rice growing can be partially traced from Dornan's reconnaissance of Siwai in 1949 (Figure 6) although it is an incomplete picture. He may not have visited some areas, notably Mokakuru, and in some cases all the villages participating in communal gardens were not named.

Like other subsequent attempts at communal forms of work organization, it is impossible to identify the most important factors that prompted the adoption of this absolutely new form of organization. Clearly significant was the observed success of the large Japanese communal gardens that flourished in Siwai during the war years. Allied with this was the intention that this should be a business venture to produce money and that the way to achieve success was by mobilizing as much labour as possible. Moreover, as in the early communal rice-farming ventures of the Orokaiva (Crocombe, 1964:30), it was not even realized that cash crops could be grown by individuals. The basic Siwai model was the European plantation system, modified by the Japanese food gardens into more manageable proportions.

As was apparent to all concerned the main constraint to greater rice production was milling machinery. The Kangu station at Buin had a rice mill in the middle of 1949 but there was no adequate transport from Siwai to Buin; in March 1950 about a hundred drums of paddy were at Konga waiting to be milled and some was germinating. Some Siwais had been trained to operate a rice mill, but instructions had been issued that there should be no more planting until a mill could be obtained. In April 1950 a mill was unloaded at Mamagota and carried to Konga where it was installed and where at least five tons of paddy rice were then stored.

In 1950, with the rice mill installed at Konga, the Buin *didimen* was attempting to establish a commercial organization that might eventually become the basis of a Siwai Rural Progress Society. The initial charges for milling would be 1d. a pound. (It was estimated that 100 pounds of

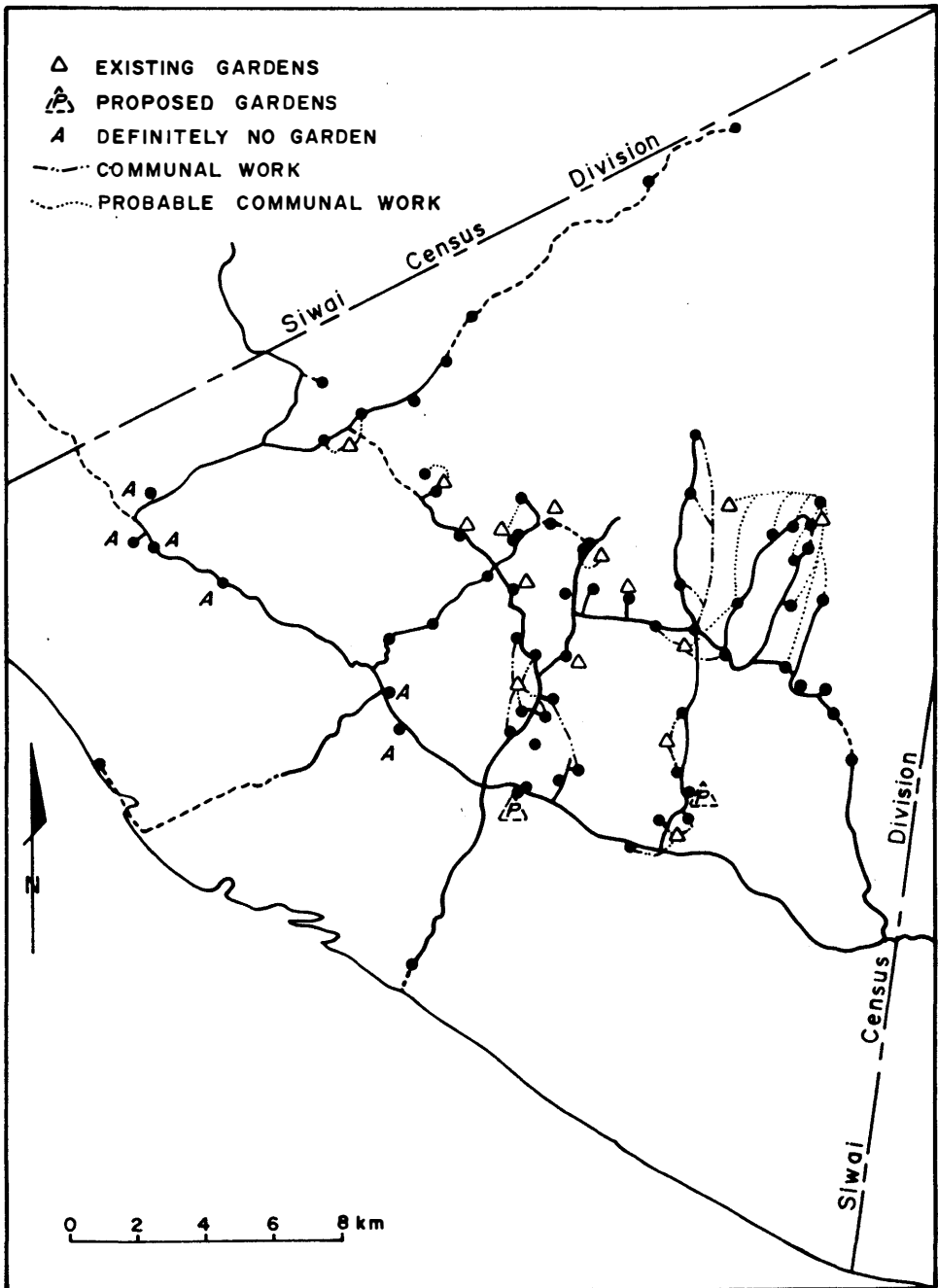


Figure 6. Rice gardens 1949

Source: Dornan 1949

paddy would give about fifty pounds of commercial rice.) Siwais would therefore pay 1/2d. per pound of paddy rice or leave part of their own rice of equivalent value. When a Society emerged it could purchase paddy at 2d. per pound and commercial rice would be sold at Konga at 4d. per pound and at Buin at 5d. (This 1d. per pound differential represented the estimated cost of transport either by carriers from Konga to the coast at Mamagota, and then on by trawler to Buin, or by carriers to the trucking point which was then seven hours walk away on the Silibai river, but was soon expected to reach Aku village in Buin.) The solution to the transport problems, recommended by the *didiman*, was the introduction of beasts of burden, such as horses, bullocks or oxen; now that the milling problem had been solved marketing was the next bottleneck. The Buin *didiman* C.S. Franke, who had already had a couple of years experience running the Mekeo rice scheme in Papua, pointed out, 'it is no solution to colonial agriculture to simply induce natives to grow crops unless we provide him with all the organization required for marketing his produce'. The administration hoped that an organization might follow along the lines of the Mekeo Society of Papua when a Siwai Rural Progress Society could be set up, but it was expected that this would be difficult 'since few villages are conversant with money'. By then this was probably a doubtful judgement but apart from the beasts of burden this was more or less the commercial organization that did emerge a few years later.

The *didimen* felt that the seed remaining from the Japanese period was inferior. This and both white and brown rice seed supplied by the Methodist Mission at Tonu were the two post-war seed sources until the government began in 1948 to distribute some Mekeo rice from Papua. This was initially little improvement, being weak in straw and uneven in maturing and in 1950 an experimental plot of Borneo rice was tried at Konga, but the problem of quality was never entirely solved. A Japanese salvage team in Buin in 1958 did not like Siwai rice and Ton Lep, the leading Chinese trader in Buin, considered the rice grown at Mogoroi in upland Buin to be vastly superior to that grown in Siwai (PR, Buin 2/58-59). Rice was planted by hand and gardens were divided up by fallen timber; the usual method of planting was for one man to use a digging stick and dibble whilst another followed behind placing seeds in the hole and covering them over. In smaller gardens there was transplanting of rice from large gardens (APR, Buin 1954).

Threshing was done in the villages; most had constructed their own rice-threshing machines from a wooden barrel, studded with staples. These were hand operated but geared by the sprocket, chain and driving wheel of old Japanese army bicycles; they were, in fact, copies of the machines that the Japanese themselves had used. The only limit to their development was the availability of old bicycles and the performance of this particular piece of intermediate technology seems to have been always superior to that of the modern rice mills. Hand rice hullers were sold by DASF for £10 each.

By 1950 rice was available in commercial quantities; in the two months of September and October one ton of commercial rice was produced and in the next five months there was another one and three-quarter tons. In this second period one ton was sold at 6d. per pound to the administration, a Siwai trade store and Europeans stationed in Buin; the rest (1609 pounds) was marketed within Siwai at 4½d. per pound. At the same time only 277 pounds were retained by Siwais, after milling, for their own consumption. The early problems seemed to have been solved, cash was at last coming in and Siwai enthusiasm was enormous. Early in 1951 it was reported that 'small plots of rice may be seen in all gardens. However production is almost entirely for sale and not consumption. Threshed rice is carried from the villages to Konga Agricultural Station where it is hulled by the Administration machine there. Quality is excellent but grain size is uneven therefore some grain gets broken during hulling. It is considered that they will readily change over to production solely of Mekeo rice when the order is given'. The same *kiap* commented: 'From time to time, it appears, the people have grasped upon one of several ideas by which they hope to secure their commercial salvation. The most prevalent of these ideas is the large-scale cash production of rice. As Father Barrett, stationed at Monoitu in Siwai for several years, expressed it, the Rice has become their scriptural Golden Calf, the panacea for all their money-hungriness' (PR, Buin 5/50-51). Rice had become a cash crop and Siwais wanted to go much further; all villages requested that the *kiap* pay 30 per cent of their war damage compensation into a common Siwai fund for the purchase of agricultural implements, including a tractor, a plough, a circular saw and rice hulling and threshing machinery. It was a request that was never met.

After the war the colonial administration agreed to make compensation payments for death or injury and also damage to property (including crops and traditional valuables), that had been sustained in the war; it was intended that the local population throughout the war-affected areas should be enabled to return to a physical condition comparable to that of 1941. It took more than five years from the end of the war for anything to happen so that its intended aims had long been met or bypassed. Siwai claims were mainly for houses or coconut palms and, by March 1952, most of the war damage claims had been paid out; £17,843 was distributed and £17,675.13s. was received back as deposits into Savings Bank accounts rather than being immediately spent as it was elsewhere (cf. Leadley, 1976:200-7). Most claims under £5 were paid in cash; in some cases, where the recipients were old, sick or crippled, more than £5 was given out in cash (PR, Buin 4/51-52). Since there were 630 claims the total compensation paid was about £30 per household. Clearly, Siwai demand for rice was not the result of any local cash shortage. Although much of the war damage money eventually went towards establishing the Siwai Society it is equally clear that it was not the payment of what was, by previous standards, a huge sum of money that fostered the drive towards cash cropping. It is almost a paradox that cash cropping apparently emerged essentially independent of a demand for cash.

The single year 1950 was the zenith of the Siwai rice economy. In 1951 the Buin agricultural station was closed down, at exactly the moment when a milling and marketing organization had become established, and a cash crop had at last emerged. Between 1951 and 1955 there were, at best, irregular patrols through south Bougainville. Rice continued to be grown, a little was sold to the missions and the rice mill at Konga continued to run, manned by Soiri of Panake. The absence of *didimen* means that records are sparse but it seems that for about four years very little rice was taken as far as the government station on the Buin coast at Kangu. Marketing and milling were difficult but there were other problems throughout south Bougainville; in the Kono area of Buin, much nearer than Siwai to a market, rice was only being produced for home consumption by 1952 (PR, Buin 1/52-53) and by 1955 there was no interest at all since it was apparently dying before maturation. Three years later it was still often diseased and grew best in the drier years, of which there were very few (PR, Buin 3/58-59), although the climate of south Bougainville is suitable for optimal rice production in all months of the year (Hale, 1975:206). Whilst the Buin

station existed, rice had also been encouraged at Mongontoro in the Kieta sub-district; this too was abandoned during the period of decline and replaced by coconut groves. A further factor in the overall decline was the return to rice-growing; rice is very demanding of labour, especially for weeding (compared with traditional root crops) and, in addition, it seems that the larger communal gardens, unlike household gardens, were rotated less frequently hence soil productivity was likely to fall after a couple of years. This, especially, discouraged communal gardening.

By March 1954 there were about twenty acres of rice in Buin sub-district; at Sininai and Musiminoi there were two clan gardens, each about four acres in extent, but all the remaining rice was grown by individuals (APR, Buin 1954). There was however a later revival in communal growing, especially in the Korikunu area, following the establishment of a rice mill at Monoitu in 1955 (and the restoration of a market for the rice). Later again Haling observed in 1960 how some clans had banded together

in a joint enterprise to plant an acre of crops within a defined clan area. Gradually however the clan as a whole lose interest in the venture and the bulk of the work falls to one or two individuals. On maturity of the crop the clan still claim a high percentage of the returns (APR, Eastern Division, Siwai, 1960).

Although the rice growing groups often came from individual villages, each village was divided between lineages and there were frequent disputes over ground; the members of one lineage did not like planting cash crops on the ground of another lineage, since they only had rights to use such land for food crops, hence several village schemes eventually became lineage schemes. Moreover the traditional work groups that had existed earlier were always for activities of short duration, rarely more than two or three successive days. Groups were quite unused to working together at irregular intervals at all the stages of production over a long period. There were no traditional (or administration) precedents for sanctions against those villagers who were not interested in continued participation in communal cash cropping. Finally there was also the venality and inexperience of some of the leaders of these ventures; there was no traditional basis for distributing cash in Siwai so that when returns were low and profits dwindled enthusiasm for communal cash-cropping naturally melted away.

When the disadvantages of communal cash cropping had become more apparent, especially elsewhere in Papua and New Guinea, the administration emphasized the role of individual families in cultivating separate plots of cash crops. By 1960 communal cash crop planting was being strongly discouraged by the district authorities, although group work on individual holdings was encouraged. This emphasis became clearly established throughout the country and in 1961 the Minister for Territories, Paul Hasluck, stated

... the big majority of the present population are likely to find their advancement in changing from village subsistence to cash cropping, forming a native peasantry that ... will not be a major employer of wage-earning labour (Cheetham, 1963:69).

This became established administration policy although much later some attention was also given to introducing new food crops into traditional agricultural systems in order to improve nutritional standards.

After only one year of real success, three or four years of failure were a bitter disappointment to Siwai hopes. As rice sales declined so Siwais switched their attention to other cash-earning alternatives; even so in 1955 the *kia*p still detected great enthusiasm for rice-growing 'although they couldn't explain why the Agricultural Officer started them off and left them to it'. The same *kia*p also noticed some rice rotting in houses and attributed this to 'the laziness of the natives' even though he simultaneously recorded that people from villages near Unanai and Tonu had formed a savings bank account, and deposited £100, so that they would be able to purchase a rice machine (PR, Buin 1/55-56).

Throughout the early years of rice growing there was a contrast between, on the one hand, the enthusiasm of Siwais and local *didimen* and, on the other, the caution of the district office at Sohano who were arbiters of the development effort and financiers of new ventures. There was no official administration interest in the general expansion of rice growing in New Guinea until after 1952 although there were then odd pockets of development in Madang and Sepik. Paul Hasluck, the Minister for Territories, notes how he was then aiming at making the Territory self-sufficient in rice but, in the end, problems of administration and a decline in the cost of Australian rice prevented import substitutions (Hasluck, 1976:133-5, 306-7). The DASF headquarters in Port

Moresby were therefore uninterested and at one point the Buin *didimen* angrily complained that the office sent them copies of *Australian Goat World* but seemed unable to provide literature on either rice or tropical agriculture. Although a Rice Project Manager was stationed at Buin for two years, and in 1950 a local materials house was built for him at Konga, he was rarely able to leave Kangu where station administration tied him down. It was a frustrating period for Siwais.

There was also a conflict of ideas between Siwais and *didimen* although this made little difference to the expansion of rice farming. Although, to some extent, rice had also replaced taro as a subsistence crop, it was the intention of Siwai growers that rice be the basic cash crop. Indeed, as in East Sepik (Allen, 1976:207), although villagers did eat much of the rice, there is no evidence that they were at all interested in rice as a subsistence supplement. Rice was for money. (Throughout these early years Siwai and apparently *didiman* interest in copra production was totally absent, primarily because many of the coconut palms had been destroyed in the war.) Despite the optimism of their first proposals the administration never expected south Bougainville to export rice, hence their lack of interest, and local officers, although keen to encourage rice, considered that it would be used almost entirely to improve the local diet; '... at all times it was stressed that the first object of the project was to supply the natives with a good grain which could be stored for emergency and that the commercial side was only a secondary consideration'. Again, exactly as in East Sepik, *didimen* assisted the villagers with rice as a cash crop whilst, in correspondence with headquarters, criticizing them for this approach, arguing that cash cropping of rice was impossible there. The main difficulty preventing commercial rice production was transport; there were at least five major rivers between Siwai and Kangu, the only possible port, and almost no transport in the area. In 1950 one Buin man owned a war-disposal truck; any other transport was government owned and almost impossible to hire. Moreover in 1951 the Mivo river was 'a more or less permanent obstacle to transport' with rice having to be offloaded on one side and carried over to the other. Some Siwais intended to buy trucks with war damage payments but they had no driving or mechanical skills, war damage payments were insufficient and the administration discouraged them. They also observed the difficulties that the administration had with their own transport. Even after the limited success of rice growing,

Tomlin still considered in 1955 that rice should not be a cash crop since cocoa, coffee and peanuts offered better opportunities and, since rice could be stored, it was a good insurance against food shortages. Siwai produced 5 tons of rice in that year.

What is most remarkable about the Siwai experience with rice growing is the way in which it duplicated and in its turn was duplicated by rice projects in other areas of Papua and New Guinea. Allen's summary of the reasons for the failure of rice-growing in the mid-1950s in parts of the East Sepik province is, in almost every detail, the same as that of Siwai:

People believed the mere growing of rice was enough. Their expectations were very high, and when no radical changes occurred in their villages after one or two years they were disappointed. The returns from rice growing per family were very low. Areas planted were small, and large groups of people cultivated one garden. When their rice was sold and the money distributed to all who had participated in the garden, each family received only a few shillings, when they had been expecting much larger amounts of money. Nor had they taken into consideration the costs of carrying rice harvested to the mills ... Lack of working capital meant that sometimes when rice was brought to [the mills at] Supari or Brukham, growers could not be paid. Many people complain that they were never paid for some harvests and for this reason they decided to discontinue growing. Many accused the *bisnis* men of embezzlement, but this almost certainly did not happen. Lack of technical skill in managing and running the mills resulted in increasing mechanical breakdowns. Rice was stockpiled in inadequate storage, and the weather, rats, poultry and people caused a deterioration in the stockpile and much rice purchased was never milled (Allen, 1976:204).

In a nearby part of the East Sepik Province Tuzin (1976:37) observed that ecological degradation followed the communal cultivation of rice since both the desiccation of the garden centre and the greater distance between it and the surrounding vegetation retarded reforestation during

the fallow period. It is possible that this also occurred in Siwai. Two separate accounts of the Mekeo rice project in the Gulf of Papua illustrate the similarities in greater detail.

Environmentally it [the Mekeo area] was unsuited for upland rice growing. At the time the project was developed infrastructure was insufficiently developed. The financial and staff resources of the Administration were insufficient to enable adequate capital support and supervision of the project. The project was beset by a number of technical problems relating to production, milling and marketing of rice and these should have been ironed out before extension work proceeded ... From detailed enquiries it seems certain that the attitude to rice growing as a means of economic progress had been completely irrational - the people had regarded rice growing ... not so much as an economic activity, but more as a pattern of behaviour which, if followed, would automatically accomplish their transition from their existing economic level to the superior economic state enjoyed by Europeans ... The people reasoned that if the government went to all the trouble of sending officials and police to supervise the planting and harvesting of the crop, then it must be very valuable indeed and that the small monetary return they had received in pre-war years ... must be only a fraction of its real value ... The land tenure system in the Mekeo was neither oriented to extensive cultivation nor did it adjust to this need (Jeffreys, 1971:16, 22-3).

While the failure of the government's schemes cannot be attributed to the Mekeo's lack of support, it is obvious that their responses were often negative and obstructive, if unintentionally so. People's distrust of the administration and of their own leaders would have created serious obstacles to development even in the absence of all other practical and administrative difficulties. Field staff also had cause to complain of villagers' apparent inability to work together at the village unit, and below ... Villagers were as unaware of the results of their own negative responses as they were of the effects of high transport costs ... They had wanted the rice scheme and the co-operatives

to succeed - their perseverance over more than a decade attests to the truth of their statements ... they believed they had carried out their part to the best of their ability: they had planted rice, made copra and joined whatever societies the government had seen fit to devise ... People had begun to realize that they need not be dependent on the government for the things they wanted: they could earn money for themselves, start their own business ventures (Stephen, 1974: 305-7).

The same kinds of conclusions could certainly have been reached from the other rice growing areas in Papua and New Guinea, and especially those around Madang and in East New Britain. Local people expected too much from rice cultivation and did not always appreciate the high labour requirements whilst the administration never gave sufficient assistance to ensure that problems of milling and marketing could always be solved. In Mekeo, just as in Siwai,

Whatever the immediate cause of the collapse in 1956, it stemmed not from the Mekeo's refusal to grow enough rice, but from an administrative failure to dispose of what they produced: in 1959 field staff could barely contain their impatience with the few obstinate villagers who still wanted to plant rice (Stephen, 1974:280).

Much of this impatience may well have also resulted from the fact that the import price of Australian rice finally stabilized in the mid-1950s, and subsequently declined, whilst supply appeared to be assured. This removed much of the incentive for the administration to develop a local rice industry whilst declining prices also discouraged the local producers.

Communal organization was generally characteristic of the early post-war rice schemes although everywhere problems resulted from this. As McAuley argued from his observation of the Mekeo scheme:

While the new enterprise remains thus marginal to the subsistence economy this [communal organization] may seem appropriate; but the situation is very different if the new form of commercial production becomes more and more central in the village economy; the social and economic consequences are then far-

reaching, for good or ill ... Should collectivised production become dominant in the economic life of a New Guinea community it will be necessary to solve the problem of communal land tenure. In the initial stage of group enthusiasm and goodwill, while the communal rice-field remains something exceptional and marginal, yielding only a small cash return, individuals are content to lend their land to the Rural Progress Society; but this will not do in the long run (McAuley, 1952:279).

Communal organization proved even more inadequate in the Gona area where the people looked upon the harvested rice either as an inessential by-product of the grand business of group activity and ceremonial or as having a purely symbolic value. Initially they made little move to either eat it or sell it (McAuley, 1952:280), and communal rice cultivation soon failed there for the same complex of reasons as it had failed elsewhere (Dakeyne, 1965:118-9). Since the Mekeo were able to satisfy their cash needs in other ways, by wage labour, copra manufacture or selling betelnut, they had less incentive to take part in communal agriculture than Siwais whose alternative sources of cash were limited. Since the organizers of rice gardens had traditional status as leaders, these communal enterprises were an integral part of Siwai society. They broke up because of internal pressures that arose from new considerations; as in Mekeo (cf. Stephen, 1974:357) and East Sepik, ignorance of business principles gave rise to suspicions that members of the group were not receiving a fair share of the profits, which in at least some cases was true, and the venture was abandoned in an atmosphere of dispute and intrigue. This was essentially a new problem, the conflict of business principles with traditional principles of exchange and distribution, but it was one that recurred within Siwai and indeed throughout Melanesia during the post-war years.

### Diversity and diversification

Although the administration expressed their view that rice should be a subsistence crop they took little interest in other subsistence crops; the station in Buka had no success with taro and there was no evidence of interest in other crops there or at Buin. The only reference to sweet potato in the monthly reports of the Buin station is in 1957 when there was an increasing food shortage because the ground was too wet to plant sweet potato. Then there was

some official encouragement of mounding. Some *didimen* were impatient with what they saw as the inefficiency of agricultural methods: 'while cultivation is carried out with a digging stick little progress will be obtained ... oxen are the only solution to the problem'. Not surprisingly oxen did not arrive in Siwai and subsistence agriculture changed only as new introductions were tried and mounding of sweet potatoes became more common.

Although post-war enthusiasm for rice growing was enormous, peanuts, another crop introduced and widely grown successfully by the Japanese, never met quite the same response. Both Siwais and administration considered that its commercial possibilities were slight. Marketing problems were worse than those for rice since there was little demand for domestic consumption within Bougainville. New varieties, mainly Virginia Bunch and Spanish Red, were introduced to Siwai but they were simply incorporated into domestic gardens. Distribution of improved peanut varieties, and the testing of sweet potatoes, sorghum and other food crops, were all official aims of administration policy in the 1950s, following the assumption that there would be a rapid population growth in the Territory (Hasluck, 1976:135). Apart from the improved peanut varieties very little of this development reached Siwai and, indeed, the rest of Bougainville. Peanuts were widely grown in the 1950s, both alongside and as an alternative to rice, but it was not until the Rural Progress Society began that commercial marketing became successful.

The same crops were familiar almost throughout lowland New Guinea; rice and peanuts were invariable post-war developments with additional emphasis being placed on sweet potato as a cash crop in areas accessible to European settlement. In specially favoured areas, like the Gazelle Peninsula of east New Britain, they had been planted much earlier; in 1927 Keravat Agricultural Station proposed a rotation cycle of rice, maize and peanuts and both rice and peanuts were cash crops there in the 1930s (Salisbury, 1970: 50-1). Siwais (and also missionaries and administration officials) had seen something of these successes and this may have influenced their own post-war strategies.

Another alternative to rice was one that Siwais had long been familiar with. During the war, damage to the coconut groves was substantial, so much so that there was no copra production for nearly a decade afterwards. Immediately after the war ANGAU forces brought many thousands

of nuts from the Shortland Islands and dumped them on the beach to be carried away to the gardens. Few ever got to the gardens; characteristically Tomlin stated that this was 'mainly through laziness' although there were only a few villages within eight kilometres of the coast. Whatever the reason neither the Siwais nor subsequently the administration were at all interested in copra until after the prospects of rice farming began to fade.

Restoration of the coconut groves only generally began around 1953, coinciding with a significant rise in copra prices, although a year later a small amount of copra was being produced in Tonu and Ruisei villages. Tomlin estimated that total production was less than 10 cwt per month. Many areas still had very few coconuts and nuts for planting were extremely scarce. In some areas they were being sold for 3d. each, although a very few Siwai copra purchasers were buying them for 1d. The coastal villages could produce copra but inland only one Siwai village had enough coconuts; most were being eaten and for feasts villagers had to store nuts for 'quite a few months' (APR Buin, 1955) until there were enough. Inland therefore 'where very little area has been planted, villagers are being encouraged to plant ten palms for each member of the family, all in one continuous block close to the village ... It is also desired that more palms be put in along the roads'. The oldest administration policy for agricultural development had been resurrected. Inter-planting with peanuts and sweet potato was being encouraged so that the groves would be well-maintained in their early stages; even so, only six months later, Tomlin was conducting 'a blitz on untidy coconut plantations' (APR, Buin, 1956). The copra was of poor quality; it was usually dried unevenly by roasting on arc mesh trays (made from army refuse) over 44 gallon drums, but it often rotted before it could be sold; moreover even when it was carried to Buin the price was only 3d. per pound. Siwai copra traders (see p.107) were purchasing coconuts at ten for a shilling and selling the copra to Ton Lep in Buin. Sometimes they returned with the money but more often Ton Lep retained it as credit; the *kiap* explained that this practice was to encourage businessmen to open bank accounts in Buin. Many Siwais had less laudatory explanations of the practice. Emergent entrepreneurs had to cope with many disincentives in these early days. Total production was increasing but local enthusiasm continued to be directed to the promise of other crops. The price paid for copra and the difficulty of carrying it to Buin were considerable deterrents.

A third possibility was cocoa. It did not immediately attract Siwai growers and was first grown elsewhere in south Bougainville. Early in 1952 a Banoni man had requested information on cocoa planting from a passing patrol but the *kiap* had discouraged him (PR, Buin 3/52-53); later that year a group of Nagovisi leaders travelled to Buin with a scheme to grow cocoa in the Baitsi and Nagovisi areas. Subsequently two Nagovisi went to Aropa plantation, near Kieta, and one went to the agricultural station at Sohano, where cocoa was then being tested, to obtain the necessary practical experience to establish it themselves. The first man to grow cocoa in south Bougainville was Widokuma of Mosigeta, a village on the borders of Baitsi and Nagovisi, who planted a thousand cocoa trees in March 1953. He had previously worked on a Rabaul plantation, and possibly also at Keravat agricultural station where the cocoa seeds came from.

One year later there were three blocks of cocoa planted in south Bougainville: that of Widokuma and two at a single village in Buin. Almost all the others who had cleared sites had previous experience on plantations. None were Siwais, who were still more or less committed to rice and no suggestion was made to them that they should develop cocoa. Following patrols into Siwai in 1955 and 1956 it was simply noted that 'cocoa has been introduced and more could be planted if there were no doubts about transport and market'. There were other problems too; Tomlin observed in 1955 that land disputes had caused a lot of prospective cocoa growers to lose interest after their rights to plant on land they had cleared had been disputed (APR, Buin, 1955). A year later the *kiap* patrolling Siwai reported the increase in the 'number of disputes over the ownership of coconut palms now that they realise the value of such palms for copra'. He thought that these disputes would be more numerous when the Rural Progress Society got going and copra was produced there. Each *luluai* was therefore instructed to go over every piece of land in his control together with a literate native and the owners of the land and write down the total number of coconuts owned by each native on each piece of ground (PR, Boku 3/55-56). This attempt at recording was not a success and there are no known records of the results. In 1960 too Haling claimed that the main reason for the slow rate of permanent crop plantings was 'due solely to the reluctance of the individual to plant crops which will be literally taken from him by the clan' (APR, Eastern Division, Siwai, 1960).

Apart from the issue of land acquisition and tenure there was also a second problem. Although cocoa (and, later on, coffee) were recognized to share some of the similarities of the old tree crop, coconuts, especially in respect of land alienation, there was one major difference. Unlike coconuts cocoa beans could not be eaten; if they did not become a good cash crop there was no chance of their being a useful food. Those who had not worked on plantations where cocoa was grown were particularly conscious of this; they queried 'can you drink water from cocoa?' and were sceptical of a crop like this whose food value was generally outside their range of experience. For cocoa more than any other previous crop Siwais needed a demonstration of its profitability.

During the early 1950s, then, cocoa was not encouraged in Siwai but around 1954 the administration's attitude began to change. Cocoa had been recognized as successful at Keravat; indeed it had been successful on plantations both in New Britain and Bougainville before the war and in New Britain a few Tolais had planted their own cocoa (Epstein, 1968:61). By about 1953 it was being grown successfully on the Tolai Cocoa Project and was being sold as wet bean to the administration; cocoa was also spreading extremely rapidly elsewhere in east New Britain where there had been few previous problems with other crops. Attempts were being made in 1954 to develop cocoa on settlement schemes, such as Silanga in New Britain (van Rijswick, 1966:19), and it was at last recognized by DASF as a viable 'crop for the owner-manager' (Henderson, 1954:45). The annual report on the Territory of New Guinea for 1953-4 provides the first indication that encouragement was being given to cocoa planting in suitable areas, with emphasis being placed on plantation-type developments rather than sporadic cultivation in village gardens. In 1954 experiments on cocoa growing began on the Sohano experimental station at Buka Passage (PCA, 1955:49). In the following year a Cacao Action Plan was formulated, which recommended the expansion of cocoa planting on all suitable areas, including interplanting with coconuts if possible. The principles adopted were that cocoa should be planted in blocks of 500 trees (to prevent indiscriminate planting since it was felt that small areas would be forgotten and become harbours for pests and disease), all areas must be registered and processing was to be carried out in central fermentaries (PCA, 1956:49). These changes in policy and practice had not become apparent in Bougainville, although by 1955 there were 'many cocoa groves' on Buka and 'many others wanted to plant cocoa' there

(PR SOH 3/55-56). In Nasioi too several plantations existed and some were coming into production (PR KIE 2/55-56). Southern Bougainville, remote from administration influence and interest, was not yet near this stage.

By the middle of 1955 two cocoa plantations in south Bougainville were bearing; both of these were in Baitsi (including that at Mosigeta) but there were many other new plantings. The first plantings had been made in Siwai; 580 trees had been planted by Kepoama near Musiminoi and others were ready to start at Konga. Some of the seed came from Kieta plantations and some from the Sohano station but most came from Mosigeta. At Konga about 400 trees were planted in that first year; the cocoa seeds were supplied by the manager of Aropa plantation, south of Kieta, who had recently visited the area, and temporary shade had been planted by DASF *didimen*. It was not a smooth start. Tomlin noted the 'indiscriminative [sic] planting of cocoa ... All badly-planted and ill-tended blocks have now been destroyed and the natives concerned have been told to clear the land properly' (APR, Buin, 1955:6). He was then encouraging one individual in 'each of the villages which are fairly concentrated' to start a demonstration plot.

After 1951, the one year in which rice production and sales satisfied everyone, rice production began to fall off and Siwais at least, somewhat reluctantly, began to consider other possibilities. Peanuts, copra and, to a much smaller extent, cocoa were the main alternatives. Overall there was an interim period of experimentation in diversification which lasted four or five years; it was a period of uncertainty. External assistance was almost non-existent, markets were absent and the potential of crops such as cocoa was little known. Consequently enthusiasm for cash cropping was no longer as it had been in the first post-war period; migration to work in plantations restarted and there was a measure of disillusionment with the low cash returns that followed greater incorporation in the market economy. The agricultural economy had made a spectacular recovery from wartime devastation but had not begun to provide the rewards so anxiously sought after.

## Chapter 5

### Siwai Rural Progress Society: the organization of diversification

The first post-war decade was a period of abortive promise for Siwai commercial agriculture. Enormous local enthusiasm had resulted in no more than a single year of success where the cash returns to rice growing seemed to have genuinely justified the enormous expenditure of time and effort. But 1951 was a deceptive year and the success could not be repeated; rice planting began to decline and new crops appeared, yet despite the attempted diversification away from rice, there was still little hint of a successful economic future for Siwai agriculture. Rice was dying and unsaleable, the returns to copra were tiny and cocoa was almost an unknown crop at village level. However during this period of quiescence Tomlin had been appointed *didiman* for the Buin area and had made patrols into Siwai where he was most impressed with the agricultural potential of the area and the willingness of the people.

Tomlin recommended that an agricultural station be set up at Konga, to replace the one that had closed at Buin, and this was agreed. Following this success, and before the station had started, he set about establishing a Rural Progress Society. His own enthusiasm for Siwai and its development prospects is apparent in extracts from a report of February 1956 which neatly summarizes the existing economic situation:

There is no form of organized marketing in existence anywhere in the sub-district at the moment. Haphazard attempts have been made in the past by various trading interests to build up their trading with native produce but they have not provided producers with any real service, have not paid competitive prices and were not generally reliable.

At present there are two Chinese traders operating giving the only market outlet to native produce.

The activities of these individuals are not very extensive and are mainly confined to retail stores. They do not indulge much in copra buying and do not provide any transport for produce.

#### Present attitude of natives towards production

This could be described accurately by the word frustrated. There is no transport provided; they themselves are not sufficiently well off financially or educationally to be able to purchase a vehicle or to be capable of running it without assistance. Should transport be provided they could produce much more in the way of cash produce. They have the potential of big areas of particularly fertile soil and the labour force to handle it. They do not entertain the thought of carrying bags of copra to Buin over miles of first class all-weather vehicular roads and should not be expected to do so. They have been caught too many times. They have grown peanuts and watched them go bad in the store, made copra and seen the same. Some grew rice at Siwai two years ago, about two tons of it, and it hangs here today. Some native businessmen have on odd occasions bought nuts with the intention of making copra and have produced small amounts but never of any quantity or quality.

#### Production possibilities

... the area has a great potential. As this officer has strayed further away from the main roads he has found more and more coconuts hidden in pockets by rivers and near old gardens and village sites. The carrying out of a mild blitz on the cleaning of groves has brought to light many more native palms than were imagined in our records, and a far greater number of young palms which were previously covered with secondary growth. With the provision of motor transport and the erection of two communal driers the Siwai people themselves could produce at least 5 tons of copra per month.

Of cocoa there are over 5000 trees planted and preparation for further planting is being made on much more ground. I feel sure that a goal of 50,000 trees can be reached within 4 years. A block is being prepared for coffee in the mountains above the cocoa line. This will be the forerunner

of coffee growing in that particular area; all the produce from here will go to Taruba [in Nagovisi], the proposed site of one of the five cocoa fermentaries.

Peanuts are being grown fairly widely. There are about four tons awaiting purchase now but there is no transport to get them to Buin.

### Transport

It will be possible once a few bridges are repaired and some cuttings made to drive from Jaba to Buin, via Taruba, Sovele, Mosigetta, Tokonoitu and Aku ... this should be possible in 18 months to 2 years.

### Proposed form of organised marketing

A Society could be formed to handle copra, peanuts and any surplus rice and in later years assist in the marketing of cacao. The society could provide transport for coconuts to two native-material built Ceylon driers located at central points in Siwai and likewise in the Buin area. Transport could be provided again for cured copra to the shipping points. Once Society copra is collected at shipping points it can then be shipped to Buin by local small ships, collected again there and cleared by MVS Polurrian which makes regular six-weekly trips direct to Rabaul. Copra should be marketed under the Society's own brand.

I estimate that of 4,291 natives in the area about 3,500 could be members ...

The wholehearted cooperation of the people is assured once we can provide the ways and means to market their produce. To date DASF has been held in high regard by them and the assistance given them has been really appreciated. Once we have ventured into this next stage of development I feel sure that the area will never look back. (Tomlin, 1956a).

Following a meeting in Siwai 'at which hatmen and headmen from almost all Siwai villages were in attendance' he expanded on some of the reasons why such a society should be based in Siwai. Siwais 'have shown repeatedly to be the most progressive' people in south Bougainville; they were entirely a rural people who had 'not been spoiled by payment

of exorbitant war damage claims'. There was a good internal road system (because of Monday work), an excess of local building materials and they were 'generally much more willing workers' (Tomlin, 1956a).

The meeting itself in February 1956 passed a number of resolutions which summarized Siwai demands at that time, although these were heavily dependent upon Tomlin's advice. Obvious requests were that a society should be set up, with a truck, a driver and a clerk; building labour would be supplied free and all costs would be met by society members. Siwai requests centred around growing copra and rice. They resolved 'that copra be produced on a communal basis'; coconuts from all villages would be made into copra at three society driers to be built at Konga, Hari and Kuhino. 'Where roads permit; the society would provide transport to those driers. The copra was to be shipped direct to Rabaul and marketed under the society's registered brand'. It was resolved that 'rice return to the status of a cash crop where natives occupying and using ground do not have title to it and hence cannot establish permanent crops'; a bigger rice mill would have to be built at Konga, and the old one transferred to Sininai, and an engine-driven thresher constructed. Otherwise 'all crops can be expanded, especially cocoa' and a peanut sheller would be purchased to increase the income from peanuts. The resolutions concluded with Tomlin's observation that the demand to set up a society was best summed up by the remarks of one Siwai leader:

*Pastaim mipela i laik les long ol wok long wanem mipela i no gat rot bilong salim ol santing. Tasol sapos yumi kirapim Rural Progress Society yumi gat rot bilong salim ol santing na yumi i ken strong tru long ol kain wok bilong winim mani na yumi no ken rabis moa. (First we became tired of working because there was nowhere to sell anything. But if we set up a RPS we will have somewhere to sell things and we will work hard at many kinds of money-making enterprises so that we won't be poor any more.)*

No Siwais knew anything about organized marketing, although some may have seen early developments in east New Britain, but they needed little convincing that this was a good idea. The ills that the Society might cure were those that they were entirely familiar with. The drive came from Tomlin and local response was overwhelming.

Following the enthusiasm of Tomlin and the Siwai people DASF must have been convinced since only four months later Tomlin reported that all was now ready for the official registration of the Society. For the first time there was a visible agricultural organization in Siwai: an institution that had been set up by the administration in response to the Siwai wishes that Tomlin had articulated. Although the organization itself was exactly what was required to realize these aspirations the initial problems were considerable. Inevitably a new rice mill had not arrived (and the existing rice mill was producing very unattractive rice); nor was there any sign of the peanut sheller but purchasing had begun and expanded rapidly with the second half of 1956. Rice was being purchased, direct from gardens, at 3d. a pound; coconuts were being bought for 1d. per pound of broken husked nuts (collected from the roadside) which was an improvement on the 1d. per whole nut that had been paid by Siwai copra purchasers in the early 1950s. In June peanuts were being purchased at 4d. per pound (in the shell, at the garden) and in October at 6d. per pound. Parts of Baitsi and Buin were also selling to the Society and planting of peanuts was 'going ahead rapidly'. More baskets were being purchased than had been expected; they had 'proved to be a lucrative business' and were being encouraged. (This is the first record of basket sales in Siwai.)

Apart from the lack of machinery there were the inevitable transport problems; rice was being purchased in the gardens but could not be brought to the Society. In October no copra had yet been cured although a Ceylon type drier had been completed at Hanong and work was going ahead on others at Konga and Hari. Moreover the Society had purchased 33 bags of smoked copra from Siwai 'businessmen' at 3d. per pound. A more unusual problem was the somewhat improbable competition from a different market; the Methodist Mission at Kihili was also buying produce. It was annoying to Tomlin that 'the character concerned is outwardly using his "divinity" to extract from the natives any sort of produce that he can get his hands on - at very nominal prices'. This practice did not last long so that overall he concluded that, with 214 full members (at £5 each) and 414 contributors, all was going well. 'Petty jealousies which previously existed among different factions are becoming a thing of the past and all are working together fairly well ... gardens seem to be getting bigger and better as more and more natives join in the race to see who can produce the most'. After little more than half a year it was an encouraging start.

This was the first stage in the emergence of a marketing system in Siwai; the prices were initially extremely generous, particularly since in several cases some of the produce, for example peanuts, may never have been sold before. At the start of 1956 the price that Chinese traders paid for copra was only 3d. per pound; at Konga the Siwai Society was giving exactly the same price. Inevitably much of the operation was artificial; the Society was buying peanuts at 6d. per pound and selling them shelled to DASF at Konga, for a shilling a pound, who then had to market them. Purchasing was designed so that the producers would have the least possible difficulty.

Milled rice was sold at £75 per ton in Buin, and it was not enough to meet all the requirements of the sub-district. Copra went to the Marketing Board in Rabaul but baskets were the most successful; there was a great demand for them and they were sold at 20 per cent above the purchase price in Rabaul, Sohano and Kieta. Possible future marketing problems were being recognized; peanuts went to a totally artificial market. (It is not clear if the peanuts purchased by DASF then were ever resold by them. Peanuts may have been sold by DASF from the beach at Mamagota to Chinese traders; if this was their only market it could not have been important.) It was also very difficult to find markets for stockfeed (a combination of corn, rice, peanuts and also sorghum) and it would soon be necessary to find external markets for the rice. Tomlin also estimated that about £20 a year could be made from selling potatoes, sweet potatoes, eggs, poultry and fresh vegetables to Buin town residents. This strategy, totally dependent on transport availability, never seems to have been carried out which is scarcely surprising if Tomlin's estimate of the possible annual income is accurate. Transport indeed made all marketing a problem. Until February 1957 some Buin-owned trucks could be chartered; by mid 1957 they were all broken down and the only transport was the Siwai tractor, which spent 40 per cent of its time going to Buin.

The implementation of the Rural Progress Society meant that the administration had effectively changed their minds on the possibilities of commercial agriculture in south Bougainville; once again they had begun to believe that rice, this time with other crops, could be profitable. In 1957 one *kiap* noted how the District Commissioner had earlier stressed that rice was introduced to the area as a consumption crop and not as a cash crop but now he was himself disappointed to observe in Siwai that 'the fact that only 350 lbs.

a week is being sold seems to indicate that the people are marketing only the surplus' (PR Boku 7/57-58) so that Bougainville alone 'could absorb all locally produced rice for a long time to come' (PR Buin 1/58-59). Tomlin too had changed his mind; in 1956 he noted that despite the original administration aim of subsistence production rice had risen to be a cash crop and had then fallen back to its intended range. He wanted commercial production to go ahead again. Paradoxically, when the administration eventually recognized the possibilities of commercial rice production in south Bougainville, Siwais themselves had almost given up hope of it ever providing much cash. Yet once more rice production was increasing; a market had been resumed.

During that first important year Tomlin himself had gone to Wewak and Madang to study the operation of Rural Progress Societies there but even more important he had organized a visit by seven Siwais, the first directors of the Society, to east New Britain to see the Native Cocoa Scheme, Local Government Council organization, Vudal Land Settlement Scheme and anything else of interest. Tomlin wrote to the District Commissioner of east New Britain:

It is requested that the Department of Native Affairs, the officers of the Native Cocoa Authority and officers concerned with Local Government Organization give their co-operation to ensure that these natives return to their villages, well and truly indoctrinated on the subject of economic development and what is entailed in bringing it about.

The visitors were expected to stay in New Britain for a couple of weeks but seem to have stayed much longer. Tomlin had held meetings throughout Siwai and in each district one man had been selected by the people in that area to become a director of the Society. They were Anthony Potungah (Kapana), Hinna (Ieku), Musireu (Morokaimoro), Sawang (Purikoli), Siwa (Tonui), Kuipuru (Amio) and Kupoama (Musiminoi); each of these was a prominent man but none was then a Siwai leader or big man, in the sense that he might be referred to as *mumi* (cf. Oliver, 1955). All had some experience of work outside; some, like Kuipuru, were involved in mission work and others, like Kupoama, had already demonstrated their interest in cash crops, including cocoa.<sup>1</sup>

<sup>1</sup>

I interviewed all these directors apart from Siwa of Tonu.

The seven directors stayed for perhaps three months in east New Britain; they visited Keravat agricultural station and saw how cocoa should be planted, and the way group work could do this best, and inspected various Tolai gardens. They were also taken into the upland Bainings area, which was a much poorer inland area where there were no cash crops, apparently to demonstrate how much more progressive and successful the Tolais were. Drying of cocoa and fermentary construction were demonstrated (although there were then only sundriers in Tolai). They saw cattle at Vunakakaul but they were not taught anything about them since they were still only on the agricultural station: '*bikpela samting bilong gavman tasol* (an important government development only)'. They also saw two co-operative societies, one at Vunamami, and saw how their co-operative stores operated. At the same time they visited some of the local government councils in the Gazelle, although they had expected that the trip was only to be concerned with agriculture, including at least two visits to Vunamami council to observe the kind of discussions and the manner of voting.

On their return the directors toured their own parts of Siwai, explaining the advantages of planting cocoa and how it should be done and promising to check subsequently that they were doing it correctly. They also told the people that they should work in groups, so that the village men would first establish one man's cocoa and later another until eventually every family would have cocoa. Almost everywhere this particular strategy was eventually unsuccessful; after a few men had had their cocoa gardens planted for them people both lost interest in group work and also in cocoa. As Savang said: '*Ol i no harim gut mipela* (They didn't listen to us properly)' and Anthony Potungah was told that these new ideas were '*Giaman tasol* (Just lies)'. But the directors themselves were slow to develop their own cocoa; two decades later they were retrospectively enthusiastic about what they saw in Tolai but on their return only Kuipuru and Kepoama, who had previously started cocoa plantations, maintained their interest in cocoa. The others followed much more slowly. Throughout Siwai there was little positive reaction to the Tolai trip; there was no enthusiasm for yet another cash crop, especially one that had a delayed crop and permanently occupied land.<sup>2</sup> A locally successful

<sup>2</sup>At about the same time Hasing (Jeku) and Maimoi (Turugum) went to Wewak, in the East Sepik District, to look at peanut planting and they also saw coffee. When they

demonstration was required.

For the year ending November 1956 Tomlin made a rough estimate that total Siwai produce amounted to 2 tons of copra, 5 tons of rice and 2 tons of peanuts. When Tomlin wrote his first annual report of the Siwai DASF station in July 1957 business was booming. In the first year of operation, 1956-57, Siwai had produced 6 tons of copra, between 35 and 40 tons of rice (a massive increase over the 1951 production), 16 tons of peanuts, 12 tons of 'other cereals' (mainly corn for chicken feed) and £600 worth of baskets. This was much higher than he had predicted even six months earlier and had been done with only one tractor; a request to the Native Loans Fund in Port Moresby for £3600 to purchase a truck had not yet succeeded. At least the peanut sheller and the rice mill were working well but corn cobs were being purchased at 1½d. a pound where it had been 2d. a pound before. It was a fairly impressive start for the Society and optimism reigned supreme; '... the Buin subdistrict has never seen greater progress in any one year than it has in the year 1956-7'. Even apart from agricultural changes about fifty miles of new roads had been built and a wharf constructed at Buin. The 'percentage of labour potential working away from the area has decreased sharply and there are very few working on plantations'; moreover, 'even aged females, not normally occupied in any work before, now have their small peanut and corn gardens ... interest has thoroughly penetrated all age groups'. Siwais were already generally considered to be 'particularly "cash crop" conscious' and because they wanted to go ahead so quickly the Bougainville agricultural department always retained 'a soft spot' for them (D.N. Brown, pers. comm., 1975).

In the next couple of years almost no copra was made; by 1957 there were still very few growers. The existing ones produce little copra and the groves are not weeded' (PR Boku 1/57-58). Production for cash was almost entirely of rice and peanuts. At the start of 1958 rice was again declining a little in popularity since Tomlin was recommending peanuts, rather than rice, because peanuts could be used as a catch crop in new cocoa plantations but later in the year

---

2 (continued)

returned they explained the virtues of peanut planting but no one was interested. (I can trace no administration record of this trip, which could have been before the society began, hence the date is impossible to pinpoint.)

'since readjustment of prices [with rice going from 3d. to 4d. per pound and peanuts from 6d. to 4d.] has been affected, much more rice is being grown and peanut acreage has been cut down slightly in favour of it'. A year later a co-operative officer from Rabaul noted that the rice price of 4d. per pound was effectively subsidizing rice growing to prevent a switch to peanuts (at the same price); he recommended that the rice price be lowered to 3d. otherwise rice stocks would become too large. Apparently the advice was acted on but once again policy was somewhat vague. The extent to which the administration should interfere in manipulating the market was never specified; scarcely surprisingly, one *kiap* noted in 1958 that the people considered the Siwai society and DASF to be synonymous (PR Buin 3/58-59). At least there was a general assumption on the part of local officers that Siwais would respond rapidly to changing prices. But whatever the price, rice marketing was not progressing; one tractor load disappeared into the flooded Mivo river, whilst the administration promised to purchase another crop but failed so that 28½ tons had to be sold at a dollar a ton less to Wong You at Buin. Some was resold to society members at 8d. a pound. Rice milling too was always a problem: the new mill, installed in 1956, was adequate only for producing rice for local traders and Bougainvilleans. After one month it was difficult to operate and only Tomlin himself was able to manage it. Peanuts promised well; in November 1958, 'marketing has been progressing well ... This alone will pull the balance sheet right out of the "red" [the first official indication that finances were not as they should be] and ensure a good net surplus in the next balance' but no more than a month later the merchant who had bought most of the society's peanuts had made a loss on his last two consignments to Australia and the prospects were doubtful. In the six months before November 1958 the Society had purchased 36 tons of peanuts, 17 tons of rice, £300 of basketware, £33.5s. of cane furniture (all of which came from Buin) and 4 tons of stock feed. Although the Society was 'in the red' the income to growers was £3,077.11.7 in a four month period, which was apparently typical of this period; this had been built up from nothing over a period of only two years and speaks volumes for the interest of the Siwai people in 'local development'. Moreover for the first time the Society had a Siwai secretary, Luke Pauru, although the manager, Kanku, was from Buin.

Early in 1959 the Society further diversified its interests; jointly with DASF a sawmill was constructed to

purchase logs from Siwais and mill them for use in local construction. In March this was working very well; the District Agricultural Officer considered that the 'arrangement be sanctioned and allowed to continue' since timber was produced at an average cost of £2 per hundred square feet compared with £6 or £7 from the usual suppliers in Rabaul. Moreover a Siwai was operating the mill and no supervision was required. Nevertheless the Senior Agricultural Officer in Port Moresby found that 'the present system of share work [between DASF and the Society] is highly irregular and cannot be sanctioned' so that when the blade broke six weeks later he refused to sanction the purchase of a new one. Bureaucracy collapsed a promising local industry and one that, despite many subsequent attempts, has never been re-established.

Nevertheless in the first half of 1959 the Society made a profit of £704 from peanut marketing and, although they lost £21 on rice transactions, this was the first overall profit that the Society had recorded. (Despite administrative pleasure over the apparent early success of the Society the implications of the fragmented accounts that remain is that, apart from during this one period, losses were consistently recorded.) Once again it was a very short period of prosperity; once again initial optimism appeared unfounded. In the second half of the year a period of decline began. Tomlin had left Siwai and the quality of production suffered; Wong You cancelled his order for rice (since he claimed it was neither ripe when cut nor was it dried properly) and the European peanut merchant was concerned with the poor quality of the peanuts.

The final 1959 Siwai Society accounts were very disappointing since in that year the peanut market, never very assured, collapsed completely. Even so, as late as June 1959 Siwais were still being recommended to continue growing peanuts 'as the Honorary Adviser [the European *didiman* at Konga] is confident that Aropa Estate will soon recommence buying'; moreover, at the same time, the rice price had fallen and the peanut price risen so that the Society could not fulfil its orders for rice, 'partly because members prefer to produce peanuts at 5d. per pound rather than rice at 3d. per pound'. By the end of the year the Society decided that they did not wish to purchase any more peanuts, although for the first months of 1960 they did agree to purchase village stocks at 1d. per pound; they argued that 'if people want to keep planting them it should be for their pigs' benefit'. In its place the Society recommended more

plantings of rice and corn and more basket manufacture while the Society's Adviser was considering the possibility of introducing oil palms. After 1960 no more peanuts were ever again purchased by the Society, although nearly a decade later they became one of the most important foods in Siwai markets and later the main produce sold to Panguna. Official, and local, concern for the future of the Society and therefore marketing in Siwai was growing.

The failure of the peanut market seems to have induced a fairly rapid response by peanut growers; in eastern Siwai alone Haling estimated that although 76½ acres were planted in the previous year no more than 8 acres were then under cultivation (APR Eastern Division, Siwai, 1960). Two years later in the same area peanuts were no longer grown as a cash crop but some were grown by a few people for food (APR Konga 1/61-62); the Bougainville co-operative officer noted that 'Until 1959, peanuts were a good cash crop' but had become 'an expensive lesson in economics as far as the Siwai are concerned'. In Buin the 'failure of the peanut market is considered to have made the Buin very conservative' and they were uninterested in trying other crops; there was a little more optimism about conditions in Siwai. At least one agricultural officer felt that there was a possible consolation; proper attention could now be given to cocoa and coffee, which had been ignored because of the quicker and easier return to peanuts. In fact there seems to have been universal disappointment in the sudden failure of peanuts, which had become the best cash crop and a more important source of cash than rice; throughout south Bougainville there was an inevitable distrust of alternative cash crops.

Rice too was once again passing through a disappointing period. Although almost all Bougainvillean production now came from Siwai it was suffering from disease (*Leptocoryza varicornis*) especially at altitudes below about 140 metres; production had decreased and the seed had degenerated. Moreover, although the Society could easily sell all the rice produced in Siwai within Bougainville, it was of poor quality, needed lengthy cooking and the price they obtained for it was so small that the rice economy was running at a loss. Requests for new rice seed had brought only a small quantity from central administration whilst staff shortage had hindered extension work. In these circumstances of decline, copra once again began to revive. There was a low turnover of copra and the purchase price was very low but a

small surplus was expected to be maintained and it gave the best profit margin even though it was all used for stock feed. Not all the copra produced went to the society; the three villages of Ru'nai, Kotu and Aitara had set up a single village fund to manage jointly owned and planted coconut plantations. Assisted, in some way, both by the Department of Native Affairs and DASF they had two copra driers working and their copra was carried by mission ships from the beach at Aitara to Sohano. The revenue from this was shared out to villagers according to the number of days that they worked. (Transport problems eventually caused its decline around 1965.) Between 1959 and 1961 there were steady sales of copra to the society and the first society drier had been built using 44-gallon drums. However in 1960 all the copra produced in eastern Siwai was being sold to three individuals who had their own driers and who then sold copra to the Society (APR Eastern Division, Siwai, 1960). The Society at least provided a better market than the Chinese traders from Buin who came irregularly and with whom there were often disputes over prices. By 1961 copra seemed to have finally established itself as a cash crop with long-term potential. Driers were being constructed at Hire and Horino and planned for Mamagota, Kunu, Laku and Musiminoi; each of these villages had large areas of coconuts near the coast, some surviving from before the war.

Attempts were also being made, with unknown success, to increase corn production since this was a profitable enterprise but there were even problems with baskets. Many had proved to be unsaleable since 'no-one knows what style Europeans like'; moreover, much of the profits seemed to be going to middlemen, rather than to the Society, because of the problems involved in transporting the baskets to Rabaul. Standardization minimized problems of sales but especially before the emergence of Bougainvillean markets the 'middlemen' have always existed. It seems that the Society left no stone unturned; in the second half of 1960 the most profitable item was unspecified 'vegetables' purchased for £7 and sold for £16. The high profit was partly due to a low purchase rate of 3/4d. per pound which suggests that this was probably one ton of sweet potatoes sold in Buin. If this was so it is the only recorded case of sweet potatoes being marketed by the Siwai society and a possible indication of the desperation then apparent to the administration. (It also suggests that there were quantities of sweet potatoes surplus to domestic requirements.)

Cocoa was still a long way from realizing its potential; the whole of Buin sub-district produced only 3 tons in 1959-60 (possibly all from Mosigeta) and in Siwai there was still little progress. In the whole of Siwai there were reported to be 1500 trees at the start of 1956 and 5000 not long afterwards (Tomlin, 1956a). Planting gained slight momentum in the late 1950s but there were only small returns to the earliest producers. What happened to the earliest cocoa produced in south Bougainville is not clear; it may simply have rotted. The first record of any sales is in April 1958 when the Siwai Society purchased eight bags of cocoa from Widokuma in Mosigeta and sold them in Rabaul but it was 'not of good quality' (Tomlin, 1956a). As late as 1959 the Bougainville co-operative officer recommended 'that permanent tree crops be introduced' to Siwai, although in the previous year Hasing (Jeku) had won the K.I. Tomlin Trophy at the annual Buin Agricultural Show for the best owner-managed cocoa garden in the district. Extension work was 'handicapped by the land tenure problem' but it was expected that 'the newly formed Siwai Local Government Council will assist the planting of permanent crops by campaigning for individual family holdings of land instead of the traditional communal land usage'. The future of cocoa was still uncertain; even the administration was unsure of its potential. The 1959-60 Annual Report for the Territory of New Guinea was no more hopeful than to state that in Bougainville 'further plantings of cacao and robusta coffee were made in the interests of diversification' (1961:67). In the south there was even less confidence.

Even the assets of earlier years were fading away; the tractor was not standing up well to the long and arduous trip to Kangu beach at Buin. Each trip cost the Society £6 per ton, which was a prohibitive price on almost anything produced in Siwai. At least Siwai was better off than Nagovisi where 'consideration should be given to shelving the Society's activities until river crossings are bridged or suitably forded' but the situation was still deteriorating. 'By the time cocoa comes into bearing there may be no tractor to transport the crop to the market'. Competitive markets for the small amounts of produce had also re-emerged; rice and baskets were sold to the missions at Tonu and, to a lesser extent, Monoitu, although later a special meeting was held at Amio, early in 1962, to ensure that this competition did not break the Society.

The earliest trading accounts of the Siwai Society are now lost. (Indeed, it was ten months before stationery of any kind reached Konga and there may never have been accurate records.) Those that do exist (Appendix II) from the first four years of operation, although incomplete and inadequate, do shed some light on the Society's problems and successes. They suggest the artificiality of the situation; although the quantity of each crop produced was related to the Society's price these were not real market prices but simply prices fixed by the Society at the instigation of the *didimen*, which were expected both to stimulate production and to enable a profit to be made on each crop. Profits rarely fitted time periods; it was not that the Society had ready credit available, rather that the administration subsidized purchasing. (It is not clear how, or for how long, this may have existed.) It was a period of trial and error; effectively the Society was purchasing whatever came on the market and selling whatever and whenever it could. Repeated large stocks, at the end of each time period, of products which could not necessarily be successfully stored for long periods nor subsequently sold, indicate the difficulties that the Society had in identifying market outlets. These two years from 1958 to 1960 cover a period when there were few problems in encouraging production but many in selling the resultant produce.

Rice and peanuts still dominated cash crop production in the two years from 1958 to 1960. However the decline of peanut production is well illustrated in the Society's accounts (Appendix II); purchases of peanuts fell from £2118 to £81 for similar periods in little more than two years whilst there was no compensating increase in the income from other products. (Even in the last period of 1960 when cocoa showed some returns these went to a very small number of producers.) Moreover peanuts were such a large part of total production and therefore Society purchases that over the same two-year period total purchases fell from £3029 to £595. Fluctuating prices and production make generalizations about Siwai incomes from the Society difficult; however it is probable that in 1958 the total income that Siwais received from sales to the Society (which represented at least three-quarters of all agricultural sales from Siwai) was about £7000 whereas in 1960 it may have been no more than £1800. This was a considerable fall in income; dependence on rice and peanuts had proved inadequate as a source of cash.

Inevitably there was official concern for the organization of the Society; in 1959 the Assistant Registrar of Co-operatives insisted that the Society 'must not be allowed to operate at a loss'; although societies were 'not profit making concerns for the benefit of outside investors they must at least keep capital intact'. A year later the co-operative registrar in Rabaul was worried. He eventually refrained from recommending liquidation but was concerned about the peanut market, suggesting that there should be an investigation of the possibilities of growing other tree crops in south Bougainville, such as ginger, vanilla and castor oil. These do not seem to have been tried and in February, 1961, the Society secretary informed the directors that unless the next balance sheet showed a profit the Society would be forced to close since there were no longer any purchasers for the rice. Not surprisingly all the members insisted that the Society go on; only one man, who was blind and therefore thought to be short of money, took back his share capital. This was the greatest crisis that the Society had faced and what exactly happened then is not clear; nevertheless disaster was somehow averted. Once again rice returned to the fore; a new market was identified and the Society staggered onwards towards a still uncertain future.

By then there was a new interest involved in agricultural development. The Siwai Local Government Council which held its first meeting in January 1960 was, with Teop-Tinputz Council, the first to be set up on the island. From its inception it was concerned with agricultural change; indeed at its third meeting the Assistant District Officer told members to plant cocoa, coffee and coconuts. There followed the first discussion that the council had ever had on anything other than administrative matters and in the first few years of the council there was a familiar pattern of a talk to the council by an administration official, a subsequent discussion of the eventual suggestion and then, usually, assent. By the seventh meeting, in August 1960, the Council were becoming more ambitious; they requested an aircraft landing strip (to cut out carrying cocoa and coffee over the long road to Buin) but they were beginning to evolve their own ideas on the organization of commercial agriculture. The Council objected to the *didimen* requesting them to plant jointly 500 cocoa trees per head; they considered that it would be better if each individual, working alone, began with 200 and later worked up to 500 trees and that the *kiap* should give them assistance in marking out the area. The Chairman suggested that rice and corn first be planted and then the ground could

be marked out for coffee or cocoa. The disillusionment of this period is reflected in some of the discussions. Laisi (Hari), one of the Siwai leaders, complained of the vagaries of agricultural policy and practice:

*Bipo ol kiap i save tokim mipela long planim pinat, rais na korn. Bihain yupela i tokim mipela gen long planim kakao na kopi, tasol rais na pinat i lus pinis* (Before the *kiaps* used to tell us to plant peanuts, rice and corn. Afterwards you too [the *kiaps*] told us again to plant cocoa and coffee but rice and peanuts have completely finished) (Siwai Local Government Council Minutes, October 1960).

Still in their first year of existence the Council had appointed their own '*didiman boi*', Kuipuru of Amio (one of the Siwai Society Directors) since he was known to be hard working and had already finished his own cocoa plantation. He would go round and assist in developing the new cocoa gardens; the salary was £18 a year and his bicycle cost £10. Although there was some confusion between the exact strategies that the Society, the Council and the administration recommended, overall there was no doubt that each of these in their own way were determined to expand cash crop production throughout Siwai.

In the early 1960s meetings of the Society were much like those of the Council; they provided good opportunities for the advisers to lecture a large group, including Siwai leaders, on the merits of particular crops and the techniques involved in cultivating them and rather less opportunity for Siwais to set out their own aims. In July 1961 councillors were warned not to plant food crops in amongst cocoa and coconuts, whilst in January 1962 Society members were being lectured on the necessity for planting *leucaena* as shade for cocoa and coffee, but there were often conflicts between the interests and policies of different lecturers. In April 1961 the Konga *didiman*, David Brown, spoke to the Council about cattle farming; there were only plans to start a cattle project at Sohano hence at £800 for a bull and £90 for a small cow, there was apparently little local interest then. Three years later, in March 1964, a different *didiman* told the Council that Siwai was not a good area for cattle. Although 'plenty of people wanted to keep cattle' he pointed out that the income from this was below cocoa and also below baskets.

Conflict also occurred between the Council and the Society; the Society directors attempted to get workers for the Society whilst the councillors wanted people for Council work. In 1961 the Council instigated a system under which all adult males in the Council area worked alternately for two weeks as directed by the Council (which included work on their own cash crops), followed by two weeks according to their own wishes. Although the councillors were usually more influential leaders than the directors, Council work was less obviously rewarding so that the conflict was not easily reduced. Moreover the conflict seems to have been one of authority rather than over the actual work to be done. Partly as a result of this and the disappearing markets, by October 1961 interest in the Society had 'declined very rapidly' even though a fieldworker had been assigned to the Council to inspect the development of cash crops in Siwai.

The extent to which the Society actually organized their own priorities for crop development, machinery, marketing and so on is unclear but it is certain that their own wishes played a small part. Apart from planting and maintaining the new crops, of which they were totally familiar only with rice, most of the operations of the Society were then beyond the technical competence of the people. Machinery could not be repaired, accounts could not be maintained correctly and markets could not be established. Inevitably the directors were very dependent on their European advisers, although the constitution of the Society probably gave them total control.

What impact changing levels of interest in cash crops had on the subsistence economy is not clear. Thus, in 1957, at a time when cash cropping seemed to be successful Tomlin observed that 'much more tinned meat and fish are consumed'; on the other hand, a year later, he felt that 'cash cropping has had only a minor effect on traditional subsistence cropping and has not altered the quality or the variety of such foods grown ... the actual quantity grown of such crops as sweet potato, etc. has been reduced only slightly if at all'. Nevertheless rice consumption was steadily increasing. In 1960 Haling regarded it as the most important food crop after sweet potato; 'by far the greatest proportion' of planted rice was consumed in Siwai. By then rice was entirely grown in household, rather than commercial, gardens and it was estimated that in the Rataiku area alone (where rice always grew best) there were 142½ acres of rice, which represented 0.16 acres per person (compared with 0.42 acres per person of sweet potato) and rice followed sweet potato

as a rotation crop (APR Eastern Division, Siwai, 1960). These figures are unlikely to be wholly accurate but they certainly indicate what an important component of the subsistence economy rice had become; it was never the cash crop that Siwais wanted it to be but it had, eventually, produced significant changes in the subsistence economy.

Once again, after the first five years of operation of the Siwai Rural Progress Society, the future of cash cropping seemed to hold out little opportunity in the Siwai area. Siwais had seen rice and peanuts intermittently succeed and fail, and failures had been more common than successes. Although *didimen* were able to offer an attractive future to cocoa growers most Siwais felt that they had seen it all before; this time, for the first time, it was the administration, rather than the Siwais themselves, that pushed cash cropping through another disappointing spell into what they at least felt would be a period of success. Even so, during this half decade, there were the first real indications of very rapid Siwai responses, via planting strategies, to changing crop prices. In other parts of New Guinea the 1950s marked the emergence of cocoa and coffee; in 1950-51 only 317 tons of cocoa beans and 33 tons of coffee beans were exported. In 1961-62 these figures were 10,014 tons and 3444 tons respectively (Hasluck, 1976:139) but in south Bougainville there was no confidence yet in the future of cash crops. In 1960 Siwais themselves were again looking outwards; as Father Lebel, who had been stationed for some time at Monoitu, recorded, 'The Siwai RPS is at a standstill. Many young men are going away to work on plantations to find their tax money' (*Catholic Action*, 1960b); despite a significant institutional change the future was again gloomy.

## Chapter 6

### Coffee and cocoa: towards the cash economy

Perhaps it is always darkest immediately before the dawn; the commercial economy of Siwai in 1960 promised very little to either the Siwais or the administration officials who had laboured to bring cash into the area but, unknown to either, the stage had already been set for the massive expansion of a single cash crop. Nevertheless at the start of the 1960s, apart from the disappearance of peanuts as a cash crop, conditions were much as they had been throughout the previous decade. The old crops were being persevered with and there seemed to be no promising newcomers. The administration could promise Siwai little; there seemed no alternative but to continue with rice, where there had sometimes been good prices, and make copra, for which the price was often low but there had always been a market. The fate of the crop that had hitherto earned the most cash, peanuts, was discouraging but there was still some hope that a new market might be found. Nevertheless for the first time it was *didimen* and administrators, rather than Siwais themselves, who seemed to be most enthusiastic, although, as Tomlin later recalled, 'the faith of the influentials acted as a bolster' (1969:1).

Rice retained its importance for some time; as the *didimen* encouraged the new tree crops, the Siwais maintained their desire to grow and sell rice. In 1961 the society directors wanted to plant a society rice garden (on the lines of earlier communal efforts) but the Society's adviser warned them against it because of possible problems involved in organizing labour. A year later each director was presenting the Society at its monthly meeting with a report on how many baskets and how much rice had been produced by each village per month and which villages were working best (presumably at rice growing). For the years 1961-62 sales of the 45 tons of rice produced in Siwai provided a revenue of £1657, over 90 per cent of the Society's income. Although sales to the Society fell (apparently because the price went from 4d. to 3d.) rice planting was increasing so that in 1963 production had increased to 60 tons and DASF were

introducing a new fuller-grained variety. However in 1964 there was another setback; once again the Konga mill had broken and spare parts were unobtainable for the best part of the year. Rice trade at the Society was almost non-existent although the price had more than doubled to 8d. per pound. Once again it was a frustrating period; at exactly the time that rice reached its highest price it could not be milled. But rice production remained ahead of its competitors; even in 1964-65 40 tons of rice were produced in Siwai compared with 22 tons of cocoa, 10 tons of copra and 1½ tons of coffee.

Siwai itself was becoming the main market for rice; in the first half of 1963 Siwai people purchased rice worth £278.12s from the Society. The Japanese rice varieties had been replaced by Mekeo rice from Papua, which had higher yields and was also preferred as food. Hopes were still high, mainly on the part of the administration, so that in 1964 it was expected that a new rice mill would be set up at Boku and rice growing extended into that area. This was never built. Similarly when there was a food shortage in 1965, following heavy flooding, the Society's adviser hoped that this food shortage would encourage an increase in rice planting. (Why rice was expected to survive better than sweet potato is not clear.)

In 1964-65 rice sales from Siwai Society brought in £3240, despite decreased planting (when the rice mill was out of order); in mid-1965 replanting had begun and rice was continuing to 'make an important contribution to the economy'. Despite the large income from rice, much larger than any earned previously, this was the last flourish of the rice economy. The exact sequence of decline is not clear but two factors were critical; firstly, cocoa had begun to provide large incomes and, secondly, the price of rice declined sharply so that in 1967, when the society was purchasing rice at only two cents per pound, there was little interest in producing it. One reflection of the fact that by 1967 rice-growing no longer held quite the same interest for Siwai agriculturalists was the rather plaintive comment of one councillor, related to a motion on fencing in chickens, that 'even if the whole of a garden is planted with rice chickens can finish it all in a single day'. Nevertheless early in 1968 John Simiri (Musiminoi), a Konga *didiman* and also Chairman of the Local Government Council, and the directors of the Siwai Society organized a plan to restart rice growing, in response to constant concern over the possibility that,

like almost all the crops that had gone before, cocoa too would eventually fail. Simiri was himself then engaged in spraying a paddy rice field at Panake, which he estimated at 12 acres. Something may have come of this since between 1969 and 1971 there were a number of rice sales to the Society from Panake; even so the final decline of rice had begun but, predictably, it was a very slow decline. After more than two decades in Siwai it was not destined to disappear quickly.

Even in the 1970s attempts were made to revive production of rice for sale. In 1971 the Rice Growers' Association (Australia Pty Ltd) were interested in starting commercial rice projects in the Buin sub-district, possibly with the shared interest of the co-operatives, following the completion of the trans-island road in 1972. Nothing came of this interest. In 1975 there were more island-wide moves to restart rice planting; *didimen* toured Bougainville with new high-yielding rice varieties but there was no apparent interest; enthusiasm for rice had finally evaporated. The advantages of rice, its known commercial value, ease of growing and access to land (unlike permanent tree crops) were finally insufficient for it to compete with cocoa or even, in the end, sweet potatoes.

Rice was still produced for sale in Siwai at least until July 1973, when Siwai Society purchased rice worth \$17 from one Panake man, but before that there had been no purchases since November 1971. Once again the rice mill had broken down. In the two and a half years before that some 23 separate producers (Figure 7) had sold rice to the Society earning \$125; since the Society was no longer interested in rice purchasing the price was probably very low so that much larger quantities of rice may have been sold internally in Siwai markets, apart from being grown for domestic consumption. In 1975, on one occasion, I saw rice from Panake on sale at Konga market; it may also have been grown on a tiny scale in a few other villages but this seems to have been the final flourish of Siwai rice. It persisted longest and earned the most cash for growers closest to Konga.

Overall rice cultivation eventually proved to be unsuccessful for a variety of reasons, none of which had originally created problems, namely the emphasis on communal cultivation and management. These final deterrents included the lack of infrastructure, essentially roads both within Siwai and between Siwai and potential markets, inadequate administration guidance and finally changes in the supply

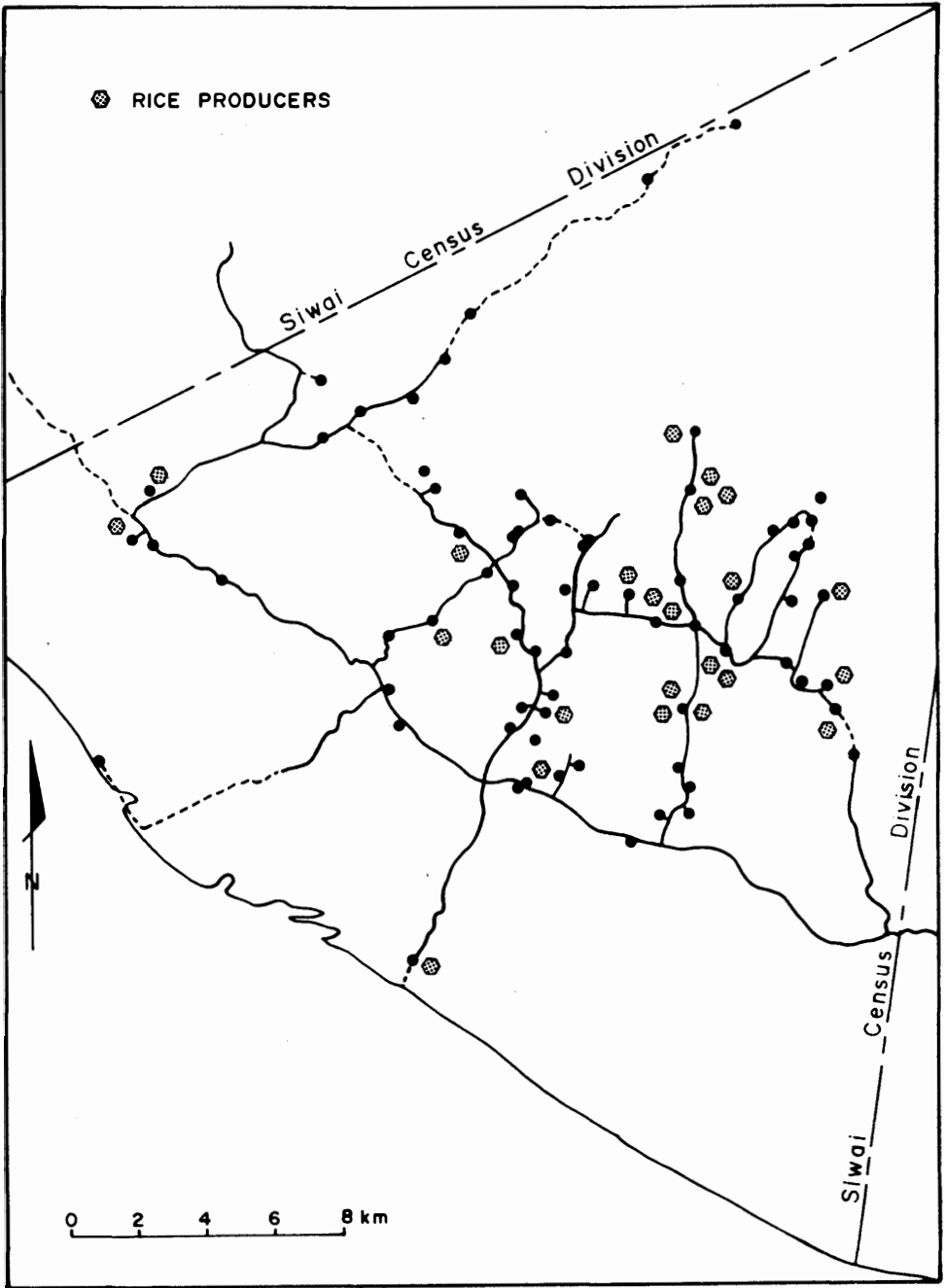


Figure 7. Rice producers 1969-71

situation of rice in Papua New Guinea. (It is significant that none of those expatriates who tried was ever able to make a long term commercial success of rice growing anywhere in the country.) None of these factors was effectively able to deter the Siwai rice producers until the 1970s when the rapidly rising price of cocoa, and improved accessibility, proved beyond doubt that emphasis could most effectively be placed on cocoa. After a chequered career spanning over three decades a historic cash crop disappeared from Siwai; diversity of crop production was continuing to decline.

Corn disappeared more quickly from the cash economy; unlike rice and peanuts it had never been planted in single-crop gardens. Nor was it primarily a cash crop, having been a small part of the Siwai garden economy for the whole of the century. Its price was never high and, probably following changing administration requirements for foodstuffs, the market collapsed. Like peanuts it became just another component of subsistence gardens.

Copra too was never a very successful competitor; throughout south Bougainville it grew badly (Sumbak, 1970) and in several areas, like western Buin, even limited success of cocoa and rice meant that by 1964 copra manufacture had ceased to be important (PR Makis 5/64-65). Copra prices after the war had scarcely risen significantly until the early 1950s (Appendix III) and it was generally not until the late 1950s that Siwais began to re-establish coconut plantations. In the early 1960s the price of copra once more stagnated so that in many villages there were no real coconut plantations beyond subsistence and ceremonial requirements. Thus in 1962 Ham was the first Siroi villager to plant a coconut plantation; a few other villagers followed this lead but that was all. Other parts of Siwai were much the same so that in 1962 there was not one copra drier in either the Haisi or Rataiku areas. Yet copra always retained its marginal role in the cash economy. Since coconuts were planted as one of the shade trees for cocoa it was inevitable that, despite unproductive trees, there should be a surplus of coconuts above domestic requirements. Consequently in the late 1960s, increased cocoa plantings and greater use of coconuts rather than *leucaena* as a shade tree meant that production of copra increased again, although it always remained greatest in the coastal villages where there were better trees.

The Siwai Society purchased little copra in the early 1960s and there are no surviving records of whatever transactions occurred, hence prices and quantities are unknown. One set of extant records refers to the period from mid-November 1965 to mid-June 1966; in this seven-month period no more than eight individuals sold copra to the Society (as the price rose from 3d. to 4d. in that period). These sellers came from Sininai, Kumuki, Nukui, Toitoi, Siroi, Turugum, Materas and Kunnu. Total Siwai production must have been greater, since the Aitara-Kotu group were still producing copra and other producers may also have sold to traders from the beach. In 1965 the Aitara group were still selling to a private trader on the beach rather than to the Siwai Society who had offered to help them and may have been able to offer them a better price. For those who had copra driers the effort gave a reasonable cash return; thus the elderly leader, Manako (Toitoi), earned £21.17 from 1504 pounds of copra. (Ten years later the price had not increased.) How the return to effort then compared with that into cocoa or coffee is now impossible to say; only one man sold two of these three crops at this time and he had little of either. Throughout the 1960s, copra again remained in the background.

### Coffee

One of the last introductions into south Bougainville was coffee *robusta*; this seems to have been entirely a government decision based on the availability of a station and *didiman* at Konga and considerable local enthusiasm for all kinds of new developments. It is unlikely that many Siwais could have seen coffee growing on plantations, although coffee had been grown in some north Bougainville plantations before the war, and there were apparently no local pressures for its introduction. At the start of 1956 Tomlin made a coffee nursery at Konga and distributed seeds and marked out a plot for one man in Iru, considering that coffee was most likely to be successful at higher altitudes, indeed that it 'should be planted above the cocoa line'. It was also recommended for the more remote villages, which tended to be higher up, because an individual grower was able to process his own coffee. It was therefore viewed by the administration, at least, in much the same way as cocoa and returns to the two crops could also be expected to be much the same; administration policy aimed at planting coffee in areas where cocoa did not flourish (PCA, 1956:49) and, as with cocoa, the administration recommended that adult males plant 500 trees each.

In 1960 most of the coffee in eastern Siwai was recorded as 'mainly in higher villages; better maintained than cocoa'. Hasing (Jeku), who had previously won a prize for cocoa at the Buin show, won the coffee prize in 1960 and a census of coffee trees throughout Siwai carried out in the same year (Figure 8) found more than twice as many coffee trees as there were cocoa trees, and they were distributed quite widely. Konga (with 630 trees) was the only place where the coffee was mature and Iru apparently the only place with more than one grower. There were more than 5000 trees spread over eighteen villages. Neither the recommended number of trees per grower nor the geographical 'cocoa line' had been observed.

Coffee was the first of the two new tree crops to produce a cash return in Siwai. In July 1960, which was probably the first month in which coffee was produced commercially, the Society was paying 1/3d. a pound for coffee if it was good and 9d. if it was not good. There was probably very little sold since at the start of 1962 most of the coffee in eastern Siwai was still not bearing (APR Eastern Division, Siwai, 61-62). A census of the whole of Siwai in 1962 recorded that 250 pounds of coffee were sold to the Society, but no more than two blocks were then producing. These census figures show an apparent (and probably spurious) decline in the number of coffee trees; there were some 240 mature trees and 4031 immature trees. But by then cocoa had already gone well ahead; there were eight or ten times as many cocoa trees and 1000 pounds of cocoa were bought by the Society. Although the 1961-62 annual report for the sub-district stated that there had been no new coffee plantings in Siwai, and early in 1962 the *didimen* were advising against further planting, there must have been continued local interest since a couple of years later some 4764 mature and 4486 immature trees were recorded.

Coffee may have been quickly recognized as in some way inferior to cocoa, and even perhaps to rice since early in the 1960s there was a lack of interest in some established coffee gardens. In 1964 'previously neglected' coffee plantations were being worked again following on the spot purchases by the Society at 4/- per pound. Since the price of cocoa bean was then only 4d. per pound for wet bean (and 1/3d. for dry bean) coffee seemed to have reasonable price advantages, and interest was stimulated despite the greater labour inputs that coffee required. Even so there was little enough planting or production; in 1963 the Society received three quarters of a ton of coffee (compared with 12 tons of cocoa).

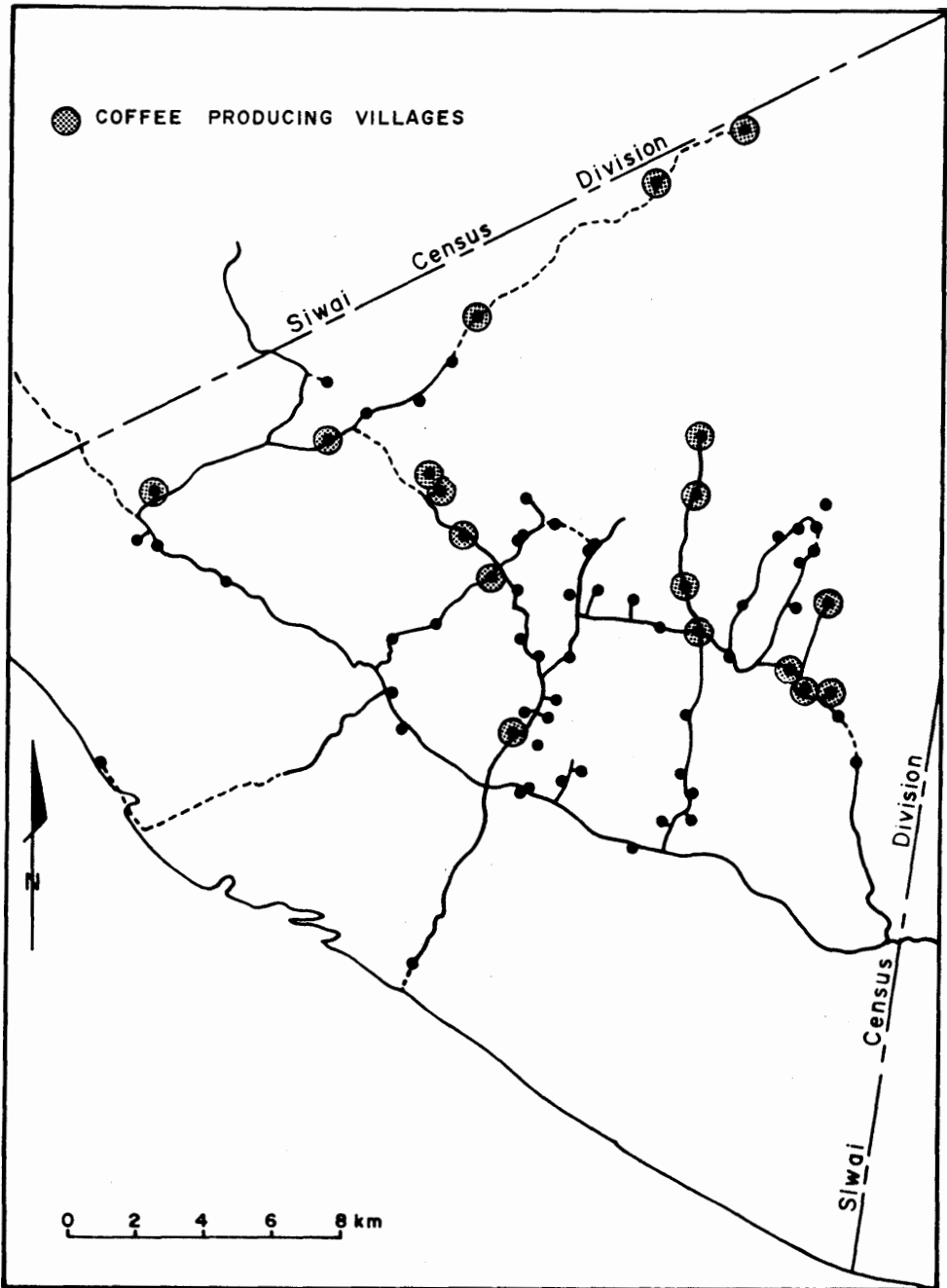


Figure 8. Coffee producing villages 1960.

Source: 1960 Village Census

The only year for which there is a complete record of coffee sales to the Siwai Society (the only outlet for coffee) is 1965 (Figure 9). This was a year in which the coffee price was 1/- per pound, which was lower than in the previous year, but since the cocoa price remained much lower than this, 'the previously neglected coffee industry has had new life breathed into it' (PR Buin, 12/64-65). Sales partially reflect the supposed earlier distribution of coffee trees (Figure 8); Tonui had incorporated Toira into a single line village by then but other apparent changes in distribution probably indicate neglect of some of the earliest coffee plantations. The only one of the first Society directors who then produced coffee was Siwa of Tonui; the rest, and almost all Siwais who subsequently became businessmen, were already committed to cocoa. Although one or two *mumis*, including Noruse of Kumuki, were selling coffee, the limited evidence suggests that traditional Siwai leaders were not at the forefront of coffee growing. Cocoa and especially rice were crops for which there was a local demand and in which both traditional and younger 'modern' leaders took the initiative; coffee was a crop recommended primarily by the administration. Those who tried it were a much more random sample of villagers.

Income from the coffee was not great; only three growers earned more than £10 in the year 1965. The leading seller was Unkong (Amio) who had sold 480 pounds and received £24.

Unkong was born in Amio around 1925. Before the war he went to work on a plantation at Hakau in northern Bougainville; his father received a present of about £2 when he signed on whilst he himself worked a three year contract during which he claims to have received three shillings a month and £30 at the completion of the contract. (His real income may have been less than £10.) He worked on both cocoa and coffee there so that when he decided, around 1960, to plant coffee on his wife's ground near Mamagota he was already familiar with it. Some prior experience with coffee seems to have been the main characteristic of the early coffee growers. Unkong was no more familiar with cocoa and was encouraged by the *didimen's* support for coffee. At first pleased with his income, he became disappointed that he had backed the wrong crop but continued producing coffee until about 1969. Soon afterwards he planted his first cocoa trees near Mamagota; now,

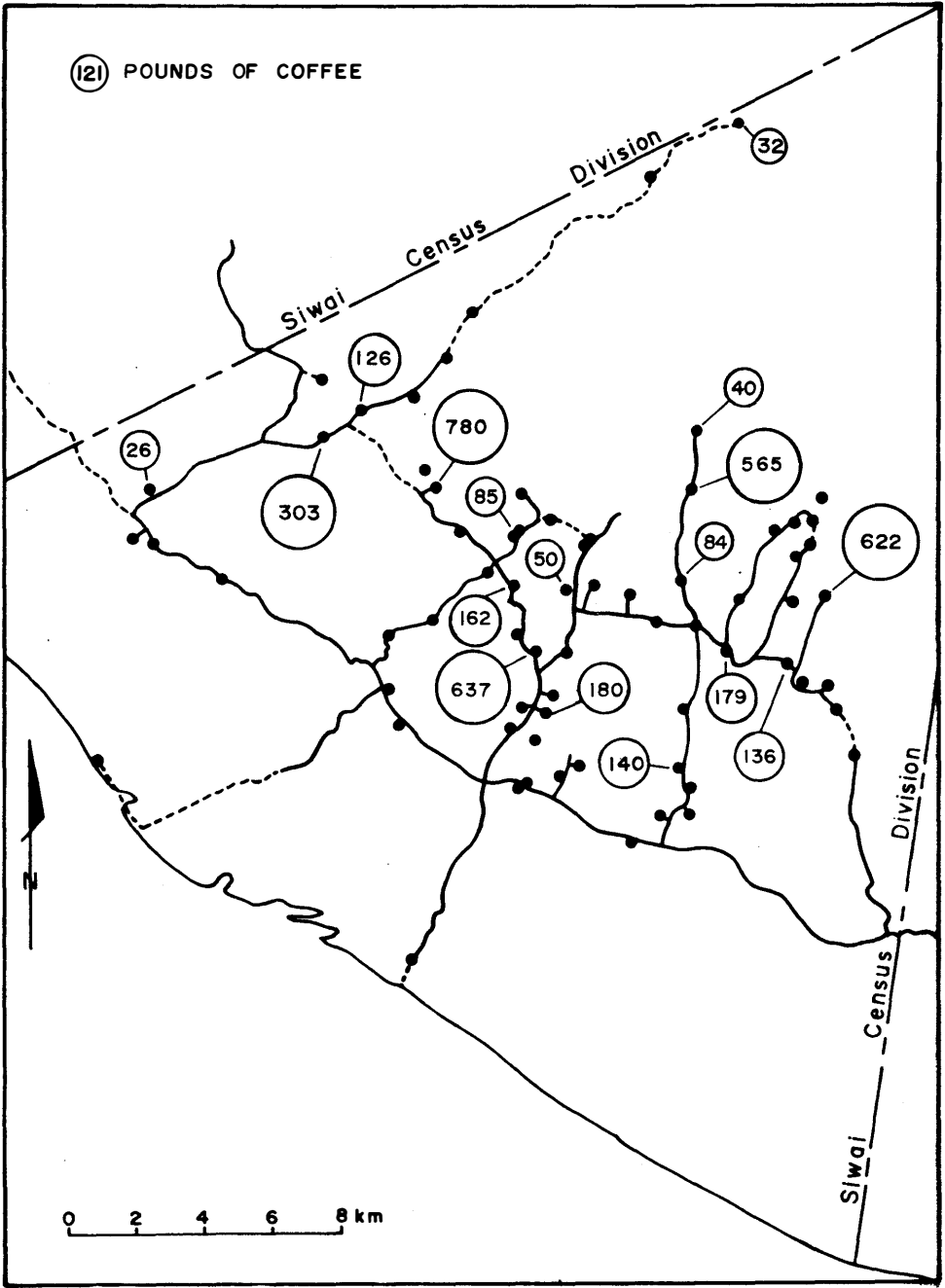


Figure 9. Coffee production 1965

as an older man with no particular need for cash, he has no more than 200 cocoa trees but has an adequate income. His coffee trees are reverting to bush.

Nevertheless two years of limited success encouraged some Siwai coffee producers, especially since in 1967 the Society was paying only two cents per pound for cocoa (wet bean) compared with 15 cents per pound of coffee. It was only then that the local *didimen* began to actually discourage those who wanted to plant coffee; even then in Muwoku village, at least, growers were still requesting coffee in 1968. By mid-1969 the Bana Society (of Nagovisi) was handling several tons of coffee per year, the Buin Society was handling about five sacks and the Siwai Society even less than that. In other parts of south Bougainville coffee seems to have started more slowly than in Siwai, although in upland areas it was always expected by the administration to rival cocoa. Thus in upland Buin, in 1966, it was 'still thought to have the best potential' (PR Buin 7/1965-66) and a year later was still being planted whilst in upland Nagovisi it remained even longer. Coffee production was still increasing there in 1972 when the *kiap* stated that it still seemed to be worthwhile (PR Boku 1/72-73).

Although historically more important in Siwai, the competition from cocoa was too great and coffee disappeared earlier there than elsewhere in south Bougainville; even so it was a slow decline. Siwais who had invested in coffee were naturally reluctant to abandon a permanent tree crop that had been a reliable source of cash income. But in its last years the coffee came mainly from the upland areas where it had begun (Figure 10); in the end the demise was fairly abrupt although even in 1970 the Buin co-operative officer was still trying to find a better market (possibly CRA) for Siwai coffee, and four tons were produced in the year. In the penultimate year 1971 there were fifteen sellers; in the last year there were only five. Siwai coffee production continued until about September 1972 when the Society recorded its last purchases; the five growers then were from the villages of Tonui (two), Iru, Mokolino and Mainoita. Kuha (Mainoita) earned \$18.80 and the others earned \$27.32 between them; coffee production ended, as it had begun, quietly.

The main disincentive to greater coffee planting, and especially production, seems to have been the demand on labour rather than low prices. Although coffee is supposedly

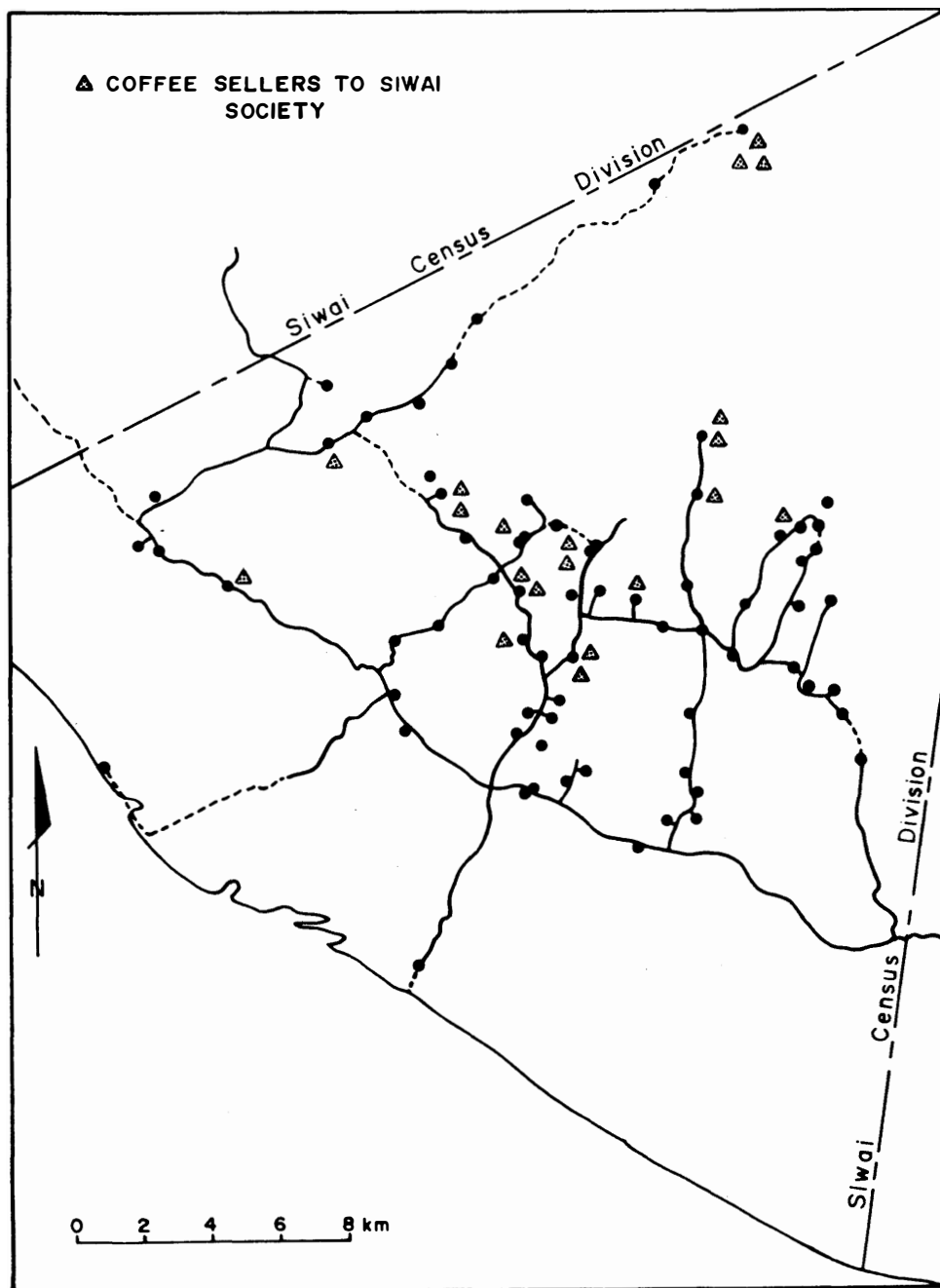


Figure 10. Coffee producers 1971-72

unsuitable to a wet, equatorial climate because of its need for a short dry, cool spell it grew quite satisfactorily in Siwai and there is no evidence that the trees themselves were unproductive. Siwais found that, apart from the work involved in establishing a plantation, the labour of picking, carrying, fermenting, pulping and carrying to Konga was too great. Maintenance, such as pruning, was rarely carried out, even by the biggest coffee producers. Cocoa was less labour intensive and even rice seemed to be much the same; cocoa eventually replaced rice and, scattered throughout Siwai, coffee plantations are reverting to forest.

### Cocoa triumphant

At the start of the 1960s cocoa growing was still a novel venture throughout Siwai; in January 1960 the *didiman* Haling counted 15 blocks of 3280 trees in Rataiku (two were larger than 500 trees). Only three were more than a year old; all were badly managed, there were often no shade trees and cocoa was usually mixed with subsistence gardens (APR, Eastern Division, Siwai, 1960). A year later when the first systematic count throughout Siwai was conducted cocoa was growing almost everywhere (with the exception of the Haisi area which may not have been visited). There were over 7000 mature and 18,000 immature trees spread over 35 villages (Figure 11). Apart from Muwoku, most of the villages with mature trees were fairly close to Konga, although Kinirui, the nearest village, had no trees at all. Amio, with 800 mature and 1896 immature trees, seems to have led the field with Musiminoi close behind. (As in every subsequent count the *didimen* themselves were expected to count every tree, although even in the earliest years this would have been extremely difficult because of the dispersal of village trees, hence most counts were based on growers' estimates.) In 1962, another count was made by the directors of the Siwai Society (Figure 12) which more or less confirms the distribution recorded in the first survey. Even so, the differences between the two surveys are indicative of the limited value of all crop counts; most are no more than general guides to numbers and distribution. Their accuracy has steadily declined.

Although there were growers throughout Siwai there were few of them and most Siwais were quite uninterested in cocoa. However, the *didimen* had become extremely enthusiastic; at the Council meeting of November 1961 the Buin *didiman* told the Council to make a rule that each man must plant 500 cocoa trees and look after them. He was also concerned that people

were not taking enough interest in cocoa and that those who did have plantations were not looking after them but were allowing the bush to encroach on the cocoa; '*Sapos man i no save lukautim gut kakao garden bilongem, didiman em i gat lo long rausim dispela garden, tasol mipela i save isi long yupela* (If someone does not look after his cocoa plantation properly, the *didiman* himself has a law for getting rid of this garden, but so far we have been easy on you)' (Siwai LGC Minutes, Nov.1961). How the *didimen* might have removed a garden is far from clear; they were just very keen on cocoa growing.

The official guidelines for cocoa growing were that each household should have a 500-tree holding (covering about 2½ acres) with a possibility, at least in Nasioi (Ogan, 1972:126) although it may never have been expressly formulated in Siwai, of working up to a 3000-tree plantation (on 15 acres) which could be maintained by a household with two adult sons. During the year 1954-55 a *Cacao Action Plan* had been drawn up by the national administration, where the principle of 500-tree blocks had first been set out. The aim was to prevent indiscriminate planting, since *didimen* believed that small areas tended to be forgotten and subsequently became a home for pests and diseases. (At much the same time 500 trees was also being recommended as an appropriate number of coffee trees to plant whilst, a few years later, the number once more reappeared as the recommended number of rubber trees.) The council was not entirely convinced about making any rules but agreed at least to recommend that Siwais look after their cocoa gardens. Each month, almost without exception, the councillors were lectured on the values of hard work and, to a lesser extent, health and education; the councillors themselves often responded willingly but their messages were not always transferred into action. The next month was no exception; the Buin Assistant District officer pointed out:

*Yupela; lukim long Kieta, ol i gat 300,000 diwai kakao, na ples ia Kieta emi no stretpela graun olsem long Siwai, em i ples i gat maunten tasol na bikpela diwai moa. Na yu, yu gat gutpela graun na yu save les long mekim garden. Siwai i gat 20,000 diwai tasol na dispela em i liklik samting long ol narapela. Trai mekim dispela yia 1962 em i wanpela gutpela yia tru bilong yupela ol Siwai (You have seen around Kieta that they have 300,000 cocoa trees and the Kieta area isn't level land*

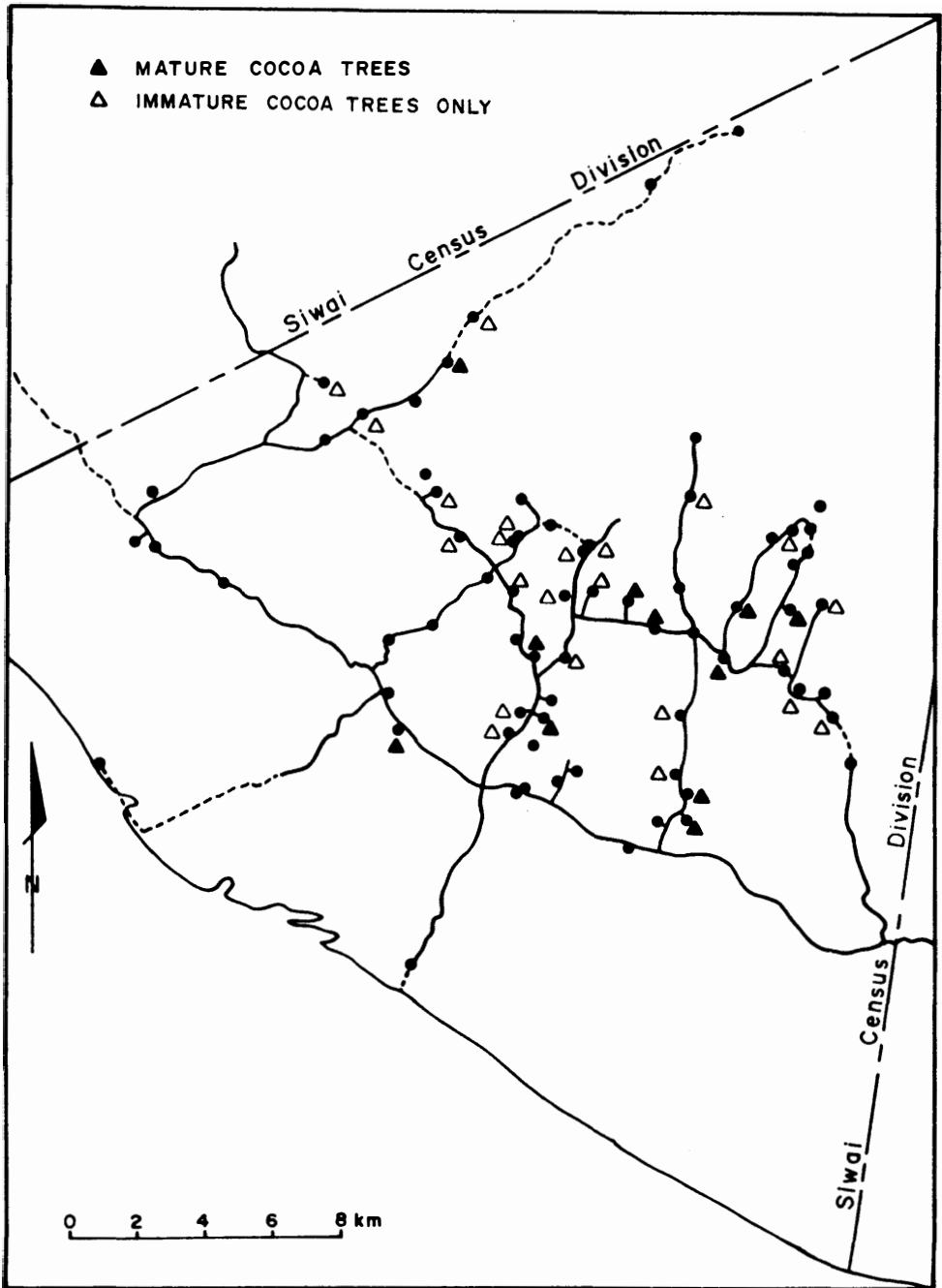


Figure 11. Cocoa producing villages 1961

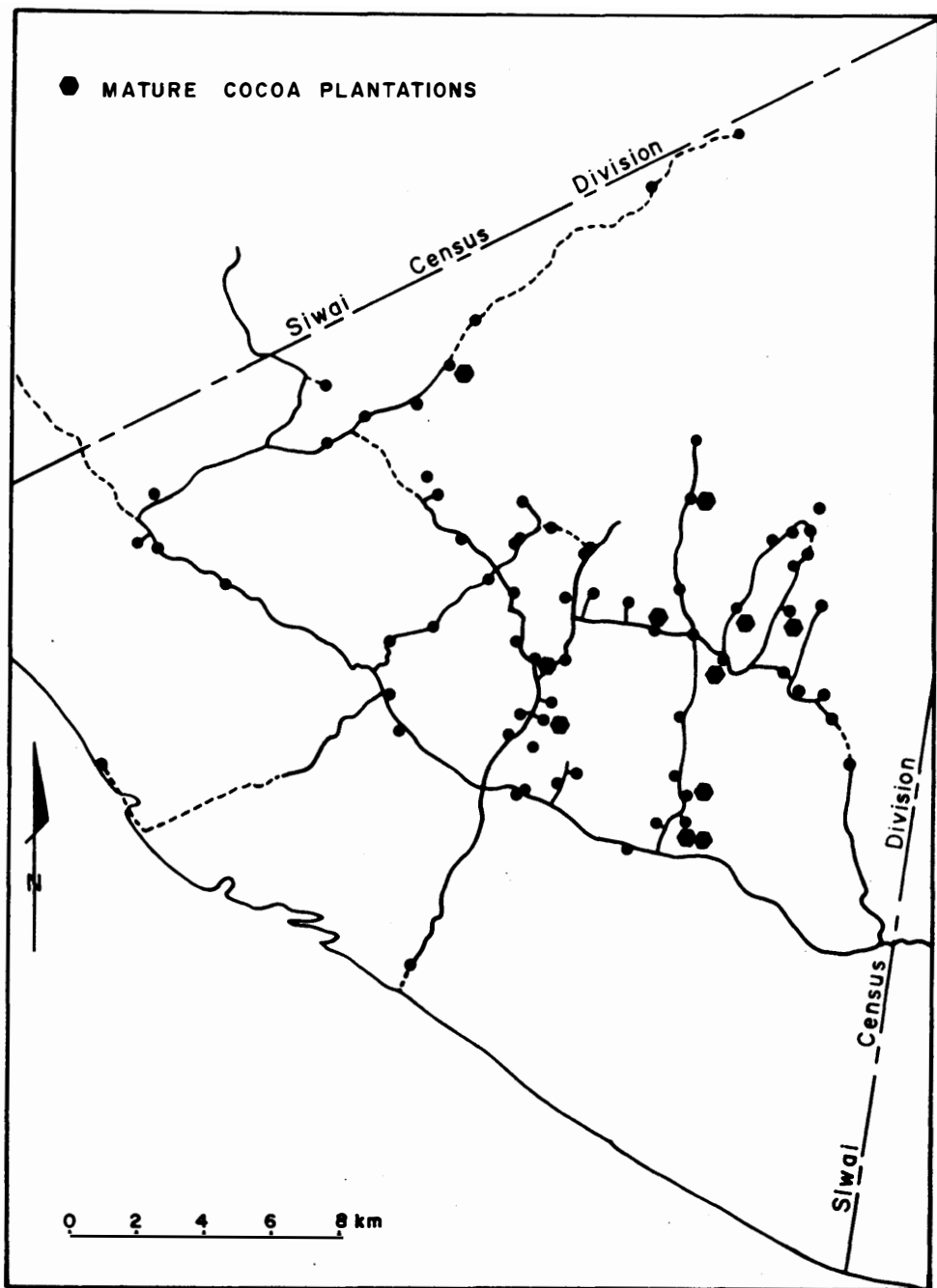


Figure 12. Cocoa producing villages 1962

like in Siwai; it's only got mountains and much bigger trees. But you people, you have good land and you're too lazy to make gardens. Siwai has only 20,000 trees and this is tiny compared with other areas. Try and make 1962 an excellent year for the people of Siwai).

Siwai cocoa trees produced their first cocoa in 1961. A small amount of cocoa was sold on an experimental basis to DASF. However almost all of this cocoa was sun-dried; there had not been enough sun and two tons had rotted and been completely destroyed so that the only cocoa purchases that the society made in that year were from Mosigeta in Baitsi. (Indeed the society had made even earlier cocoa purchases, all of them from Mosigeta.) In March 1962 the Siwai Society made their first purchases of Siwai cocoa. Sellers of wet bean had to carry their produce to the DASF station, apparently on only one day per fortnight, where they then had to stay and assist the station labour to dry the bean so that they would know how the fermentary worked. The fermentary had been planned in 1960 when it was also determined that the initial payment for cocoa beans (possibly wet but probably dry) would be 6d. per pound. A new cash crop had emerged.

The earliest existing records of cocoa purchasing by Siwai Society date from August 1962, only a few months after the first sales within Siwai, and the record of the twelve months after that provides a valuable guide to the distribution of production and the incomes of early producers. The amount sold to the society was less than the potential total Siwai production since very small quantities taken from or left on immature trees were not sold to the society. Although one Kuhino man sold two pounds to the society and received 6d., most sellers carried much more to Konga and ignored small amounts. Rather more important, in October 1962 the society took various quantities of cocoa from fifteen sellers which, when it reached Rabaul, was rejected by the inspectors; the society refused to pay anything to the growers. Moreover all the cocoa that the society obtained in the four months between November and February was lost when the MVS Polurrian capsized; once again no one was paid although in neither case were the growers at fault. Several of these sent no more cocoa to the society that year. It was not an impressive start to Siwai cocoa marketing yet, unlike coffee, there was never disappointment in the amount of labour involved in obtaining satisfactory market prices. There are no records

of neglected cocoa plantations.

Production figures from 1962-63 (including cocoa rejected and drowned) emphasize the early concentration of production,<sup>1</sup> and growers, around Konga (Figure 13). Western Siwai apparently produced very little despite their close links with the Baitsi area where cocoa production had first begun in south Bougainville. All the big producers were even then drying much of their own production; fermentaries were being operated by Hasing (Jeku) and Kepoama (Musiminoi) whilst Kuipuru (Amio) and Kuiaka (Kapana) had access to the society fermentaries. Surprisingly only two of the seven directors of the society were producing cocoa; their rhetoric and observations had not convinced even themselves. Since the price of wet bean oscillated between 2d. and 3d. a pound, those who earned most from cocoa were those who dried their beans and received from 9d. to 1/- per pound. Kuiaka earned most in the year - £57.19s - despite losing about £17 worth in the Polurrian. Kepoama received £48.3s and Kuipuru got £31.1s; both of them also lost cocoa in the sea. Significantly the biggest earner of all was the company plantation in Amio village; the village produced cocoa which sold for £62.4s. It was scarcely surprising when the owner of the ground on which the communal plantation was growing decided to take it over himself a year later. Kepoama, who received £48 in that year was the apparent leader. Within three more months he had received £236.7s from the society, an extraordinary sum in 1963.

Born around 1925 he had a couple of years in school, served in the war with ANGAU but never went away to plantation work and therefore was quite unfamiliar with cocoa growing. After the war he was one of the first people to be interested in rice growing and subsequently became the first person in Siwai to plant cocoa. Encouraged by Barry Holloway, at that time a young policeman in Buin and with the assistance of Hatah then working in a Buin store, who provided money to pay for labour which cost two shillings, plus food, per day, he cleared land and planted about 250 trees. When he travelled to New Britain in 1956, as one of the Siwai Society directors, his own cocoa was already bearing fruit.

---

<sup>1</sup> Dry bean production figures have been converted to wet bean here as elsewhere in the text using the rule of thumb that there is a 60 per cent weight loss from wet to dry bean.

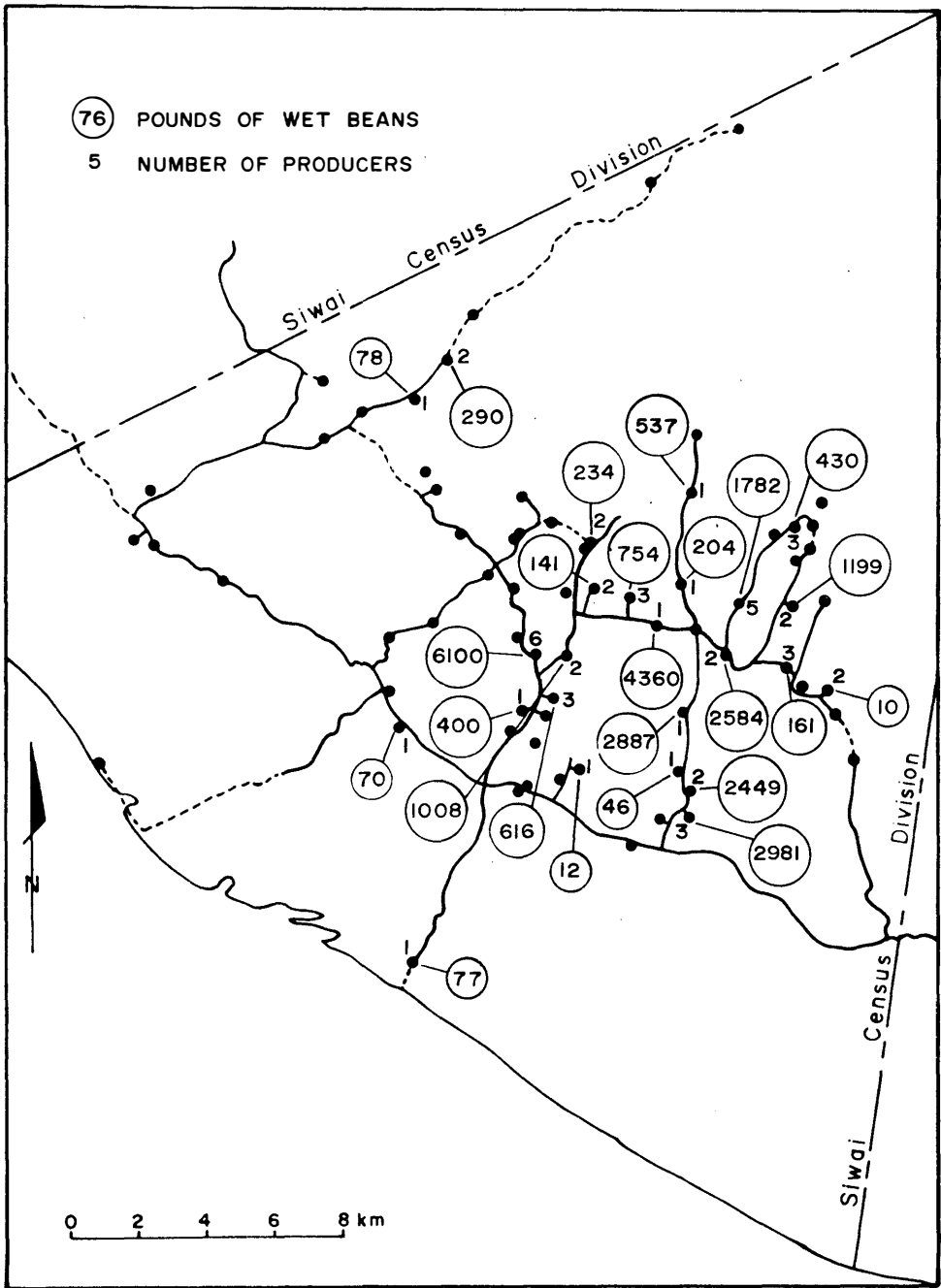


Figure 13. Cocoa production 1962-63

With the assistance of Hatah's brother, Tokura, he built the first tiny fermentary in Siwai, which used both fire and the sun to dry the beans. His first output, one rice sack (about 50 pounds) of dry beans was sold to Tomlin at the society. By 1963 he had more mature cocoa trees than any other Siwai and was already buying small quantities of wet bean in the Hari-Mamagota area to dry and re-sell to the society. He was the first cocoa based Siwai businessman.

In the first year the society had demonstrated that although there might still be problems cocoa provided for a few individuals an income greater than had been achieved from any other crop. It was a demonstration that was not ignored although ironically the society itself made a loss on cocoa in 1962 because much of its purchase was of poor quality. Although the total income from cocoa was not great Siwais observed that the few individuals involved received much larger sums than had been previously obtained from any other cash crop. Consequently even this tiny new income, because of its uneven distribution, may have been enough to generate the interest that resulted in a massive extension of plantings; it was estimated that in the nine months, between April and December 1962, some 16,500 trees were planted in Siwai bringing the total number of trees to about 52,000. One year later, at the end of 1963, there were a reported 119,000 trees. Cocoa growing was under way.

Many of the exhortations that administration officials made in the Council and Society meetings were appeals to a Siwai spirit of progress and development rather than to a more objective analysis of the economic situation. The *kiap* who had claimed at the April 1962 Council meeting that Siwai was behind both Buin and Nagovisi in their rate of cocoa planting was probably fairly accurate but when later in the year it was stated that '*Siwai em i las tru long ol wok bilong painim mani* (Siwai is the very last place in starting work to get money)', this was something of an exaggeration, albeit pardonable, especially since a different *kiap* was noting at the same time that, in southern Buin, cash crops 'remain merely a sideline for the industrious' (PR Buin 2/62-63) whilst three years later in eastern Buin the people were still more interested in coconuts since they considered that cocoa was a European crop. Some of them felt that since they were unable to compete with Europeans they would stick to copra; they claimed that the high cocoa prices did not

impress them (PR Boku 5/65-66). Siwai, in reality, was ahead of almost all the rest of south Bougainville. There were still however appeals directed to particular villages that seemed to be uninterested in cash crops so that the first young Siwai *didiman* told them:

*Sampela ples ol i no laik planim kakao na kofi samting. Tupela ples hia, Siroi na Ruisei, ol i slip yet ... ol i no girap. Moa gut ol man bilong Siroi i mas tingting gut na girap long planim kakao long dispela yia* (Some villages are not interested in planting cocoa, coffee or any cash crop. Two places in Siwai, Siroi and Ruisei, are still asleep ... they haven't got started. It would be better if the Siroi men thought wisely and began to plant cocoa this year).

A year later in 1964, whilst the councillors from Hanong, Tonui, Amio, Moronei and Kapana were claiming that every man in their villages had planted cocoa, although not necessarily as many as 500 trees each, the council chairman was demanding an explanation of why Siroi villagers had not yet started. There were known to be disputes over land ownership but the chairman, who was from Unanai, and therefore familiar with Siroi, observed,

*Mi save sampela Siroi ol i save gat gaden tasol, ol i no save wok long en oltaim. Sampela ol i save wok long gaden bilong ol long wanpela de tasol long wan wik samting* (I know that some people of Siroi only have food gardens and don't work there all the time. Some only work in their gardens about one day a week).

A motion was unanimously agreed that every man had to plant 500 cocoa trees.

The Society and the Council were at last united in their attempts to encourage cash crop production. The Society directors maintained their pressure on villagers to plant cash crops and reported the success or failure of these initiatives. In late 1963 the Society received reports from the directors responsible for the Rataiku and Korikunu areas. In Rataiku, two villages, Morokaimoro and Mokolino, were 'empty tru'; they had no cocoa, coffee, rice or coconuts. In the Korikunu area, Ru'nai and Kotu were the same whilst in Hari, the young wanted to plant cocoa but the old were

preventing their access to ground. Indeed this was a more general problem; Father Lebel, then stationed at Monoitu, observed how some men would plant on three or four plots of ground before matrilineage elders allowed them to keep their cocoa on the site (pers. comm. 1975). There were no reports from other parts of Siwai but a Society store had been built at Sininai and a fermentary was being constructed there. The census that was carried out at about the same time (Figure 14) indicates that the stated distribution was more or less true; in Ruisei, the largest of all Siwai villages, there was not a single cocoa grower whereas villagers on either side had more than ten. Apart from a few mainly smaller villages, cocoa had reached almost every corner of Siwai including Iru, the supposed stronghold of coffee growing. Absolutely everyone was convinced about the virtues of cocoa; Society and Council, *didimen* and Siwais were all equally enthusiastic. So too were the missions; Father Lebel (pers. comm. 1975) recalled how by about 1960 he was telling Siwais to plant cocoa in his sermons and in his conversations. Progress was now rapid.

Even in this phase of cocoa growing a number of the earliest cocoa planters had begun to hire labour (pp.201-2) According to Tomlin (pers. comm. 1977) very few of the early cocoa growers spent money; rather they saved it until they had enough to hire labour. Nagovisi labourers were recruited to clear ground for more extensive cocoa plantations and were paid wages of around £1 per month; many remained in Siwai for periods of over three months. This employment situation, which seems to have few contemporary parallels elsewhere in Papua New Guinea, lasted for four or five years after 1955 and ended primarily because Nagovisis began to develop their own cocoa plantations. It was an early indication of the determination of the early cocoa producers.

Siwai society made its first profits from cocoa in 1963 and in the year ending in May 1964 it provided the main income of the society (£996 out of a total of £1610). As one *didiman* noted with pride, 'Rotting of pods on the trees, lack of organized production, transportation etc. ... is now ancient history'. The same year was the one in which cocoa planting really took a hold in Siwai; in the single year of 1964 about 140,000 cocoa trees were planted in Siwai (Figure 16) a rate that was not quite maintained in the following year when cocoa prices reached a record post-war low (Appendix III and Figure 17). The Konga fermentary was working satisfactorily and more ambitious development

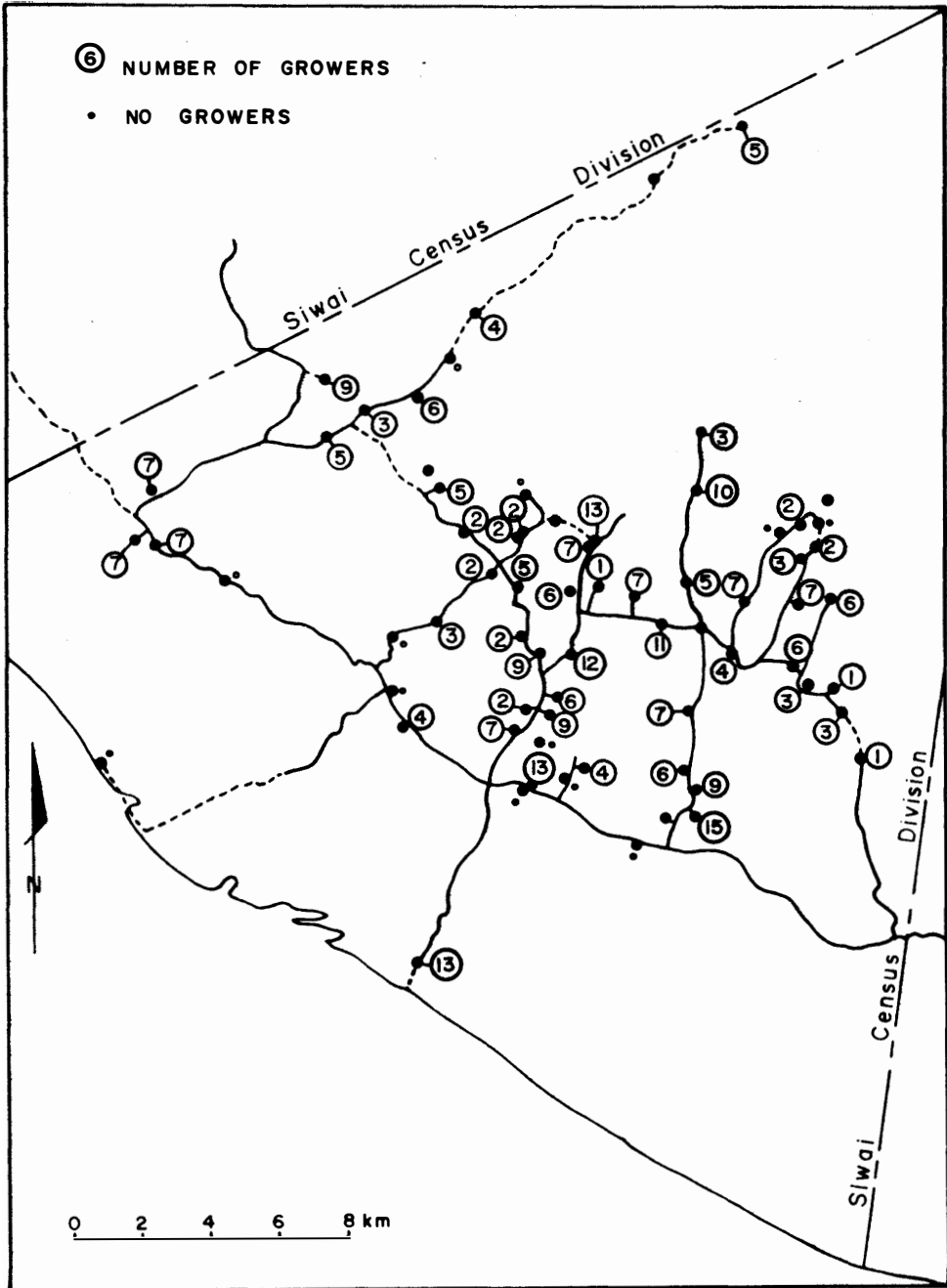


Figure 14. Cocoa growers 1963

projects were under way; in 1963 the Society expanded cocoa buying to include Nagovisi, Baitisi and Banoni but only dry bean was purchased since there was too much time and labour involved in buying wet bean. Consequently the Society secretary recorded that 'centralized fermentaries have been constructed throughout the above areas' whilst the Society had also begun to build another fermentary and store at Kangu on the Buin coast. Cocoa could be carried and stored there when transport to Buin was easy; there were eleven large rivers between Boku and Buin and unpredictable floods had prevented cocoa reaching expected ships. (It was even claimed that basket production had fallen because of the interest in cocoa planting.) Both administration and Siwais remained convinced about the potential of cocoa.

In the year ending in September 1965, despite low cocoa prices and bad weather (which apparently reduced yields) cocoa gave the Society an income of £2337 out of a total of £4785 (rice still contributed £627; baskets brought in £1276 and coffee a mere £131). For most of this period the Society paid 2d. a pound for wet bean and 9d. for dry bean. All the earliest Society cocoa sales were to Rabaul Trading Company; there were still the familiar difficulties of transport plus other more unfamiliar problems. In 1965 Rowntrees, ultimately the main purchaser of New Guinea cocoa, refused to give a grade to the whole of Siwai production because of its taste. (Ten years later good Siwai cocoa was the best in Bougainville and ranked with any in the world.) Nevertheless by 1965 the developments in Siwai were considered to be the best in Bougainville. Just as Siwais had gone to New Britain to see how cocoa was grown and societies operated so, in its turn, the Siwai Society became a model of integrated development, based upon cocoa, and there were official visitors from Buin, Kieta and Buka, all areas which had hitherto been in advance of Siwai in terms of cash crop expansion.

By then some large cocoa planters were beginning to emerge in Siwai. In mid-1965 the Buin Annual Report listed seven individual growers in south Bougainville with more than 1000 trees, but all were in Buin. One of these had 3000 trees; although none had full-time labour some were hiring men for short periods of time. Widokuma had begun a separate Mosigetia Company in Baitisi; the company had 6000 cocoa trees, were purchasing wet bean from neighbouring villages and marketing their cocoa independently. However a 1963 cocoa census of Siwai had already identified ten growers with more than one thousand trees, although none of

them had a thousand mature trees. (It is possible that this is what the Report included and that there were still no large Siwai producers even in 1965.) In 1963 Soiri (Kapana), who was a *didiman* at Konga, had 2168 immature trees, whilst neither Kupoama nor Kuipuru were far behind. Buin was not as far ahead as the Report implied. But it was not all steady progress; in July 1965 cocoa prices slumped to a low of £69 per ton (in store, Rabaul). There was a growing feeling, amongst both expatriates and Bougainvilleans, that it was scarcely worth the price of picking and processing the beans. One *kiap* was anticipating serious unrest in the future (PR Buin 11/64-65). This turned out to be the rock bottom price; there was no unrest, simply a delayed expansion in planting until prices rose again. Cocoa easily survived its only crisis of confidence and, in the three years that followed, cocoa prices went up again, the Society had a 'meteoric rise' and turnover increased six-fold.

One of the few years for which there are reasonably comprehensive records of the purchases of the Siwai Society is 1965-66, which also happens to be the last year in which the Society dealt with a substantial variety of agricultural produce. In that year of low cocoa prices they paid out \$12,387 to 775 members; the most important product of all was baskets for which the Society paid \$4937 (40 per cent), closely followed by cocoa purchases of \$4914 (40 per cent). Rice (\$952; 8 per cent), coffee (\$811; 7 per cent) and copra (\$652; 5 per cent) were minority specialities: rice and coffee declining and copra remaining much as it had done for some time although in the cocoa price slump of 1965 copra prices had briefly been better than cocoa prices.

Unfortunately there are no adequate Society records of basket purchases yet it seems that for more than a decade after the start of the Society, baskets remained a standby product so that whenever there was some crisis in agriculture, or merely a lull before tree crops became ripe, basket production increased significantly. As early as June 1956, Rangai (Panake) had a 'wholesale store' dealing in baskets; there was always an identifiable market and steady incomes were always possible. Indeed the first indication from a patrol report that there was an apparently permanent diversion of labour from baskets to agriculture came in 1967 when the *kiap* observed that 'money earned from baskets is supplementary to earnings from cocoa or copra (unless the person doesn't have any)' and that 'they are usually made in spare time and not during the day (when garden or cocoa work take precedence)'

(PR Konga 1/67-68). Baskets provided something of a problem and the Society was always ambivalent in its attitude to basket producers. At times of poor crop production they were dependent on basket purchases to retain profitability and consequently lashed out against those who sold their baskets elsewhere or who came to trade for them; there were many of these occasions since demand for basketware for a very long time seemed to be above the supply. On the other hand, when the Society was temporarily short of cash from overspending on cocoa purchases, as in July 1967, the directors agreed to suspend basket buying in this case for two months because of its low profitability. Five years later the situation was much the same, with the Society uninterested in finding new markets for what appeared to be a surplus of baskets. In that five-year period the arrival of a large number of Europeans to work in the mine operation had resulted in a considerable increase in demand, a rise in price and the production of large numbers of sub-standard baskets by less regular makers (cf. Ward, 1975:76). When this market had been saturated prices fell and producers were dissatisfied. Nevertheless after 1965, for the first time, a cash crop promised an income consistently higher than could be obtained from basket-making.

### Cocoa and companies

Rather like the communal rice gardens that had begun when widespread rice planting started, the people from almost every village in Siwai, and indeed elsewhere in Bougainville, planted communal cocoa plantations in their villages, at much the same time that they began to plant the individual cocoa plantations. Thus in Siroi village, a late starter in cocoa growing, the village men worked together in the mid-1960s to clear and plant cocoa plantations for three of the more prominent villagers; after this they cleared and planted a cocoa plantation, the Siroi Company plantation, for the whole village. This was done essentially at the instigation of a younger man, then the village councillor, who had become convinced of the necessity to instigate business-type activities in the village, and who had already seen the start of companies (S, *NM-kampari*), as all these essentially plantation enterprises were known, elsewhere in Siwai. A little later, and in the same way, a copra plantation was planted on the coast near Aitara (since two village men had access to land and it was believed that it would be easy to load copra onto ships there). The essential aim of the Siroi Company was to trade cocoa and copra and save the money

until there was enough to buy a truck for the village which would enable further business development. Although the latter aim was never realized, the Siroi Company, which could depend on the labour of all the village men for one day a week for several years, made a considerable income from cocoa selling and some income from copra selling. Inevitably disputes over the receipts based on inadequate maintenance of the records make it impossible to assess the Company's income; the receipts that exist in Siroi suggest that in the years from 1970 to 1972 the Company made at least \$100 a year from both cocoa and copra sales to the Siwai Society alone, in which the Company had its own share. Compared with the achievement of some other village companies that of Siroi was unimpressive; other villages, including Kumuki and Toitoi, certainly eventually earned enough from their companies to purchase landcruisers, and many of the village companies were running trade stores by the start of the 1970s. By the mid-1970s few of the companies were still as successful as they had been only half a decade earlier; most had succumbed in some way to the tide of individualism.

Despite the failure of the early communal rice gardens, in the sense that the records were inadequate and disputes arose among participants after the first flush of enthusiasm was over, the communal ethic was maintained and the village companies exemplified this ethic. Once again group ventures became more important at a time when innovations were being incorporated into the village economy. This particular form of communal organization, the Company, was almost ubiquitous in Siwai in the mid-1960s although the term *kampani* itself seems to have emerged around the start of the 1960s. In 1968, a year when some companies such as that in Amio village had already disintegrated, there were at least 50 villages in Siwai with cocoa companies (Figure 15); this particular list, culled from a variety of sources, is undoubtedly incomplete whilst the smaller villages, many of which did not have companies, may have worked alongside their neighbours in a single company. Moreover the company plantations were almost all very large; although new plantings were rarely carried out on the company plantations after about 1967 many were, for several years afterwards, the largest single holding of cocoa in the village. The Siroi Company plantation, with about 1000 trees was the largest in Siroi for nearly a decade and there were a number of other companies with more than a thousand trees. The essence of the companies, as in Siroi, was that they linked together men from different lineages within a village in a single co-operative enterprise although

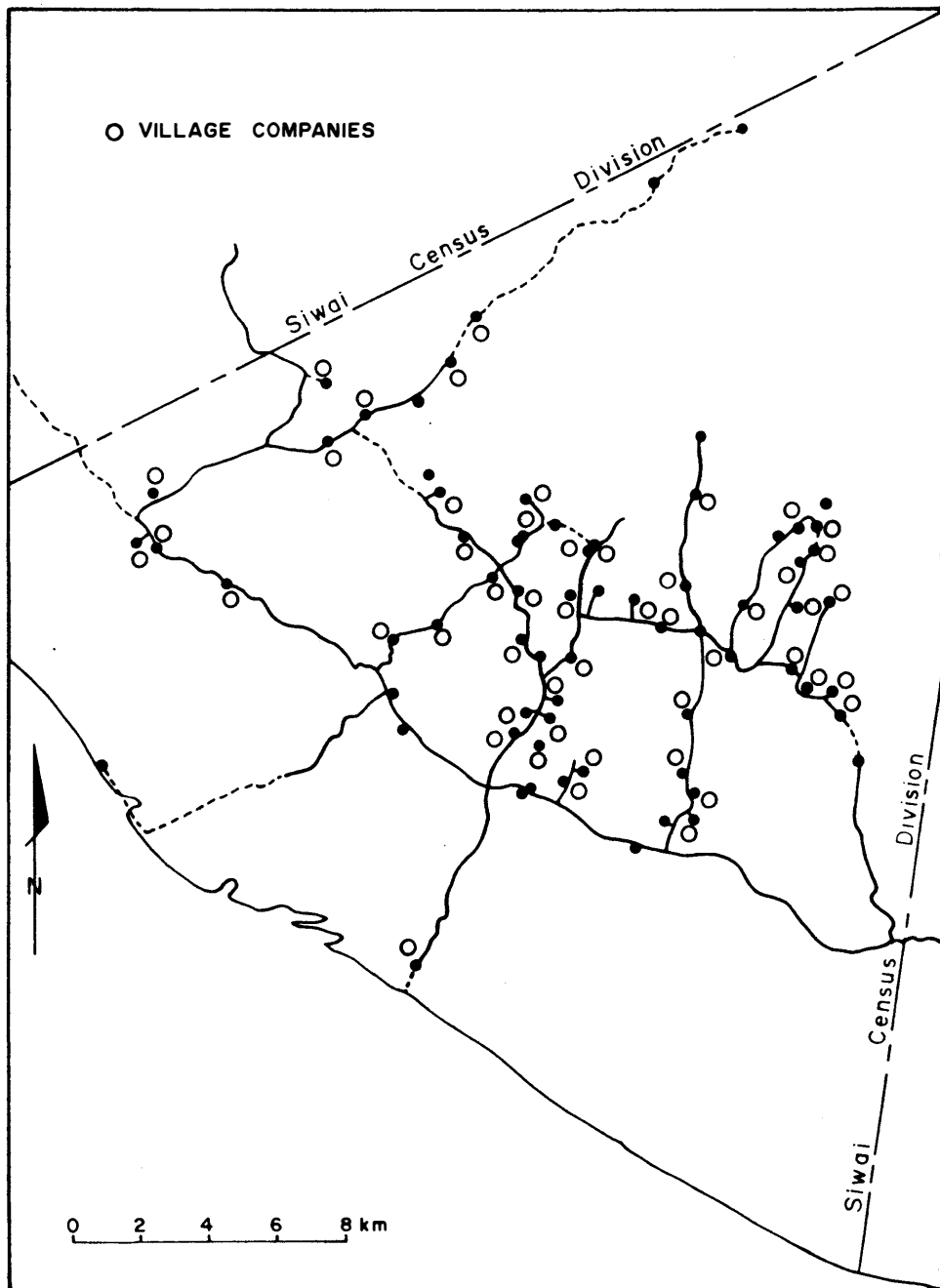


Figure 15. Village companies 1968

in many villages, as was true also in Nagovisi (Nash, 1974: 107-8), the companies had a dispersed membership based on membership in a single matrilineage group. These latter companies were invariably the most successful.

As in the earlier communal ventures there were almost always disputes over the organization of work and the use of the income from crop sales. Thus as early as the middle of 1964 a Council agenda motion read, 'All those who set up companies (NM-*wok kompani*) must inform both the *kiap* and the council since plenty of disputes arise out of them'. The minutes of this meeting are lost but the problems rose again since in 1966 the councillors were once again debating the topic and concluding that the companies were a 'good thing'. In the Siroi Company, which is probably typical of most Siwai companies, there were continuous disputes which eventually resulted in the decline of co-operative work on the cocoa plantation and the almost complete abandonment of the coconut plantation. The Company had its own bank account and income was deposited there but it was rarely drawn upon for any reason; some of the early aims, including payment of school fees and medical charges (cf. Nash, 1974:108), seem never to have been realized. Individuals who felt that the income should have been distributed for these and other purposes became disillusioned, failed to turn up for work on the plantation and thereby created further organizational problems, in almost exactly the same way as had happened on the rice gardens of a decade earlier. Exactly the same problems occurred in the cocoa companies of Nagovisi and Mitchell's explanation of these is also valid for Siwai:

It is difficult for Nagovisi, with no clear hereditary leadership, to decide on how decisions shall be made. Problems will be talked over extensively, but a stubborn individual can keep a decision from being taken, even when the others are agreed. Also, there is a definite disinclination on the part of most Nagovisi for argument and heated debate; a person or a couple who are unhappy about some aspect of the *kampari* are much more likely to withdraw quietly and cease to participate than they are to cause a ruckus ... Within the *kampari* there were no effective sanctions to force unwilling labourers to maintain the cacao, nor were there any organizational mechanisms which would allow for the dividing up of any funds which might be earned ... [this

problem] was usually the one which led to the dissolution of the group ... I suspect that this reflects a belief on the part of older Nagovisi that money is to be equated with *viasi* [shell valuables], treated in the same way and hoarded. The thought that the communal pile of money is growing is said to be one which makes old people very happy; they do not care whether it is distributed or not. Young people, however, usually do not see things in this light (Mitchell, 1976: 89-90).

The companies foundered on the same rocks that had sunk the rice schemes and most of the early stores (pp.249-50). Intended to move the agricultural economy towards a 'modern' economy organized around business principles, their essential communal organization, rooted in traditional forms of co-operation (such as fishing, hunting and ceremonial garden labour, where the product was invariably eaten or used by the producers), was inimicable to success.

Companies existed and in many cases thrived successfully for well over a decade in south Bougainville. (Indeed many still existed in the mid-1970s.) Although they do not appear to have been significant elsewhere in Bougainville (cf. Ogan, 1972:175-6) they also existed in New Guinea, for example in New Ireland (Lomas, 1974:218) and in Papua where, for example, Bakoiudu migrants set up a communal rubber *kompani* (Gostin, 1972). In the Purari delta of Papua an essentially similar form of communal economic organization, also known as the 'kompani', had emerged earlier (because of the more rapid payment of war damage compensation) but foundered on the inability to master technological problems, obtain access to markets, and use adequate accounting procedures (Maher, 1961:64-8). In other parts of Papua such as Milne Bay (Moulik, 1973:88) and even in Guadalcanal (Bathgate, 1975:858) the *kampanis* were much more obviously related to trade store management only. For each of these areas, and for Siwai as well, the origin of the *kampani* is unclear; why it developed in the same basic manner in many parts of Melanesia is equally uncertain. Once again it reflected the transposition of expatriate business organization, like *bisnis* (see pp.249-50) and *plantasin*, to local situations which were not the same as the alien variety but where the terms were appropriate.

The breakdown of communal farming followed rather different patterns for rice and cocoa. Communal rice farms

declined partly because of problems with the rice itself; it was sometimes impossible to sell and it suffered from disease, but more important was the impossibility of satisfactorily maintaining group labour in conditions where the returns were very low, partly because of mismanagement. The concepts of reciprocal economic obligations that had existed in pre-war subsistence gardens and feast-giving activities were not applicable to the new communal rice fields and no clear definition of what would take their place was ever achieved (Maher, 1961:68). Those who were most enthusiastic about rice left to begin their own gardens; others simply dropped out. Cocoa had no similar technical problems but leaders, to some extent disillusioned with rice, were less enthusiastic about cocoa, hence exerted less pressure on supporters to establish and maintain communal gardens. Indeed, it was partly the low interest born of disillusion with rice, and hence pressure, on the part of leaders, that resulted in the slow adoption of cocoa which was, in any case, a slow maturing crop.

#### Diversification and disillusion

There were still some attempts to introduce new cash crops into south Bougainville although none were prompted by the 1965 slump in cocoa prices. Perhaps the least successful of all these was rubber; it was first planted in 1963 in south Bougainville at the Buin DASF station and one Buin-based *didiman* (Roger Porteous) was sufficiently enthusiastic to travel around south Bougainville to encourage its development.

There was some justification for introducing rubber into south Bougainville; it had previously been successful on Bougainvillean plantations so that in 1961-62 rubber worth £7000 was exported from Bougainville, the only rubber exported from Papua New Guinea. Moreover at about the time it was tried in south Bougainville results from the smallholder rubber schemes of Kerema in Papua were inconclusive and, although still dependent on an upturn in price, rubber showed some possibility of future success (Hogbin, 1964:109-14). In any case it was technically easier to grow, to keep disease free and to process to a higher standard than cocoa. In Bougainville the intention was that it would be grown with cocoa, initially as a shade tree. Until about the eighth year the value of cocoa produced would be greater than that of rubber. Subsequently the cocoa could be gradually lopped as the rubber became tappable. Rubber was

planted by 49 people in the south, which was the only part of the island where rubber was tried (47 in Buin and 2 in Siwai), most in blocks of 500 trees, which by 1970 were almost all of tappable size. Local plantings occurred between 1965 and 1967.

Joshua Montoro, of Hanong, a man who was willing to try many new things, first planted rubber in January 1967; he had about 1300 rubber trees which were still growing in 1976, when he was talking about replacing them with cocoa. He had first seen them on Aropa plantation, when he was at school near Kieta, and heard that they provided a good income. Consequently he did not want to wait until they became established in Buin but went ahead on his own. Hining of Rabaulu, at much the same time, was the only other Siwai to plant rubber. Both looked after their trees for several years until disillusionment set in.

None of the trees grown has ever produced rubber and never will. Cocoa was always adopted more quickly than rubber. By the time that rubber was introduced the administration throughout Bougainville favoured cocoa, and it was a crop known to almost all the Bougainvilleans who first tried it. They were unlikely to try the almost unknown rubber (although Aropa plantation, near Kieta, had 175 acres in 1957). Soon after its introduction rubber prices fell to the extent that the administration could not support further extension of plantings (so there would never have been enough trees in south Bougainville to support the processing plants that would have been required). Cash returns from cocoa came much more quickly. At least Siwais never discovered the considerable demands on labour of rubber cultivation nor the unpleasantness of some of the working conditions. Neither have they ever seen rubber produced in Siwai; drawing latex from the ornamental rubber trees around Konga school always provoked interest and surprise.

Seemingly inevitably, in the light of previous experimentation, there was even a forestry project in Siwai; although some Siwais had been to the Bulolo School of Forestry in the early 1960s, they brought back only the Baptist religion. A later Siwai visitor established his own forestry plantation.

Kinokua, born in Morokaimoro around 1922, was educated before the war in the village school and at Kihili and, after the war, at Mbanga in New Georgia. He then returned to Bougainville and became a Methodist teacher and catechist mainly in the Buin area. Tiring of this, after about ten or twelve years, he used some of his savings to travel around New Guinea where he visited friends in Bulolo and became enthused with the teak growing there. Returning to Siwai he built his own house a few miles outside the Morokaimoro village line near the Mivo river where he planted teak trees on his extensive land and ignored all village activities. When a *didiman* interviewed him in June 1971 he had planted 248 teak trees and was interested in trying Kamarare trees and pines; he had diversified his economic activities to include nine pigs, thirty chickens (since he hoped to sell both eggs and birds) and sales of corn. Although he had considered beginning market gardening, setting up a trade store and starting a cattle project he was not interested in cocoa. Five years later the teak was growing well but he was becoming worried about road accessibility to this remote part of Siwai, some two miles north east of Moronei, where apart from a few cocoa plantations his was the only economic activity. His chickens had never been commercially successful but he had got a half share in a trade store at Jeku (Tikai) and was spending more time in the Morokaimoro line. Now tired of watching the teak grow he was thinking of starting a cocoa plantation nearby.

Unlike almost everything else, the administration has never recommended timber growing as a cash crop for individual villagers (as opposed to small village plots for village use). Kinokua, to an even greater extent than the rubber planters, was an individualist who preferred his own untested development strategy; unfortunately it was a bad choice and, like other individualists before and after, he eventually took up cocoa and became integrated into what had become the standard pattern of Siwai change.

Throughout the post-war years there were always new crops to be tried, some at the initiative of Siwais themselves and some in response to administrative pressures.

Every crop that was tried somewhere in New Guinea, with the exception of a few crops like tea and pyrethrum that were climatically confined to the highlands, at some point found its way into south Bougainville. Most of these minor crops flourished briefly in the cash economy before disappearing for ever. Such a crop was the English potato. Potatoes were tried successfully in several parts of Bougainville; in 1956 villagers around the Banoni village of Piva were selling good quality potatoes to the mission at 6d. a pound. Other Banoni villages were requesting seed potatoes which they could later sell in the Buin market by transporting them on the fortnightly mail run of the MV Isis (PR Boku 2/56-57) but transport problems finally resulted in this trade ending in 1968. In Siwai there was no similar enthusiasm for the potato; they were tried by the government in upland areas of Buin and Nagovisi and at Iru in Siwai (APR Siwai No.2, 1956) and although, like almost everything else, they grew extremely well, the impossibility of marketing substantial quantities and the local dislike of potatoes as food meant that they were never accepted. At various times, especially in the late 1960s, when there were several Europeans in Siwai, potatoes have been grown for sale but there are none now.

In the 1950s Buin villagers close to the small town had planted extra areas of sweet potatoes for sale to the administration, and probably also sold various other kinds of vegetables. Prices were probably quite low; in 1955 Buin villagers were selling sweet potatoes at a rate of 20 pounds for a shilling (PR Buin 2/55-56), however for a brief period around 1960 there was a boom in sweet potato purchasing and sweet potatoes were actually exported from Buin to Gizo in the western Solomon Islands. These were both markets quite inaccessible to Siwai and there were no local alternatives although some Siwais were able to sell vegetables to missions and to passing administration patrols. Thus in 1955 the *kiap* recorded that 'a plentiful supply of bananas, a native type of bean, Chinese cabbage, eschalots, pawpaw, pineapple, yams and crayfish together with numerous eggs were presented to the patrol'. The food was purchased [at unknown rates] for sticks of tobacco; sweet potato was in such plentiful supply that the patrol could not buy it all so much was left for the pigs (PR Buin, 1/55-56). It was certainly not a trade that Siwais could rely on. In 1968 the administration was predicting that the construction of the airstrip at Boku, at the same time that mine town construction began at Arawa, would result in a demand for fresh vegetables from Siwai

that could easily become important with airfreight overheads of only 2c. to 3c. per pound (PR Boku 12/67-68). In the event the construction of neither Tonu nor Boku airstrips resulted in the airfreighting of vegetables from Siwai. However airstrips in the most isolated parts of Bougainville, especially Oria and Lehu in the remote interior of Buin, were used for airfreighting cocoa and coffee whilst some time after 1972, when the trans-island road finally linked Siwai to the copper mine and the east of the island, the production and external marketing of vegetables did become a valuable adjunct to the standard cash crops. This was a rather later phase in the development of Siwai agriculture.

Finally and least important of all, there were also oil palms. The World Bank team that studied New Guinea in 1963 had recommended that an oil palm plantation be established in Bougainville (IBRD 1965:120). Although a successful oil palm project was subsequently developed at the Buin agricultural station, the success of cocoa meant that it could never have been extended to villages. Moreover, by the time it was apparent that oil palm too was successful there, it was politically impossible to implement a settlement scheme in Bougainville. The oil palm was probably the only tropical lowland cash crop grown successfully elsewhere in the country that never reached Siwai.

After cocoa, and the brief interest in rubber, there were no systematic attempts by the *didimen* to introduce new crops into the area. Cabbage, tomato and other vegetable seeds were distributed to those who asked for them to encourage production for the local south Bougainvillean markets but, by the later 1960s both *didimen* and Siwais knew that they were only interested in cocoa. The only possible alternative that either side considered seriously was cattle but cocoa remained dominant. Experiments with other cash crops had done no more than disillusion the experimenters.

#### The consolidation of the cocoa economy

From 1966 onwards high incomes from cocoa resulted in a steady increase in the numbers of cocoa trees but the Council, and their advisers, were never completely satisfied. In July 1966 the Council was concerned that not all men had 500 trees and some of those that did were not looking after them properly; Purauko (Tonui) complained: *mi lukim plenti man ol i sindaun long wokim basket na ol i no save tingting long go long gaden bilong ol* (I have seen plenty of men

sitting making baskets and not even thinking about going to their gardens)'. Indeed the whole Council decided that people were not working hard enough; the chairman recommended that every day from Tuesday to Friday councillors strike the village gong and send all the men to work whilst all the councillors voted for a motion that everyone should work on their communal (company) gardens for one week in every month. At the start of the 1960s cocoa growing had been still a novel venture in Siwai (p.142) but in the first half of that decade cocoa became successfully established almost throughout the area. Yet from 1959 onwards, culminating in the record low of July 1965, cocoa prices fell fairly steadily (Appendix III). The important factor that spurred the extension of plantings was not therefore the relative price of cocoa but the substantial sums of cash that had been received by the early producers.

After the slight lull in cocoa planting in 1965, when the weather was very bad and prices low, the steady increase in planting resumed in 1966 and has continued ever since (Figure 16) with only minimal relationship to the price of cocoa (Figure 17). There had previously been disputes over the ownership of land, especially because a permanent tree crop was being planted, but never claims that there was an absolute shortage of ground. In 1967 there was the first indication that this was possibly becoming the case; Siumai (Noronai) pointed out to the Council, '*Long mipela bilong antap, mipela no gat inap graun bilong planim kakao. Olgeta graun ol i pinisim pinis olsem i orait long lukautim pik* (For those of us who live in the mountains there is not enough land for planting cocoa. All the ground is used up and its only good enough for keeping pigs on)'.<sup>2</sup> This was an exaggeration but the problem was probably never far from Siwai thoughts.

Although all subsequent records of the society are incomplete some of the receipts do indicate how much the early cocoa growers earned in the next few years. In the last six months of 1966 alone Kepoama sold some 7791 pounds of dry bean and received about \$750; Komoru, who had taken over the Amio village plantation, sold 11,512 pounds for about \$950 and Hatah (Rano) who began production between 1963 and 1966, sold 14,389 pounds and received about \$1200. A year later he earned over \$1900. These figures may well

<sup>2</sup> It is also possible to translate the last section as '... and it's only sufficient for looking after pigs' but the first translation is more probably correct.

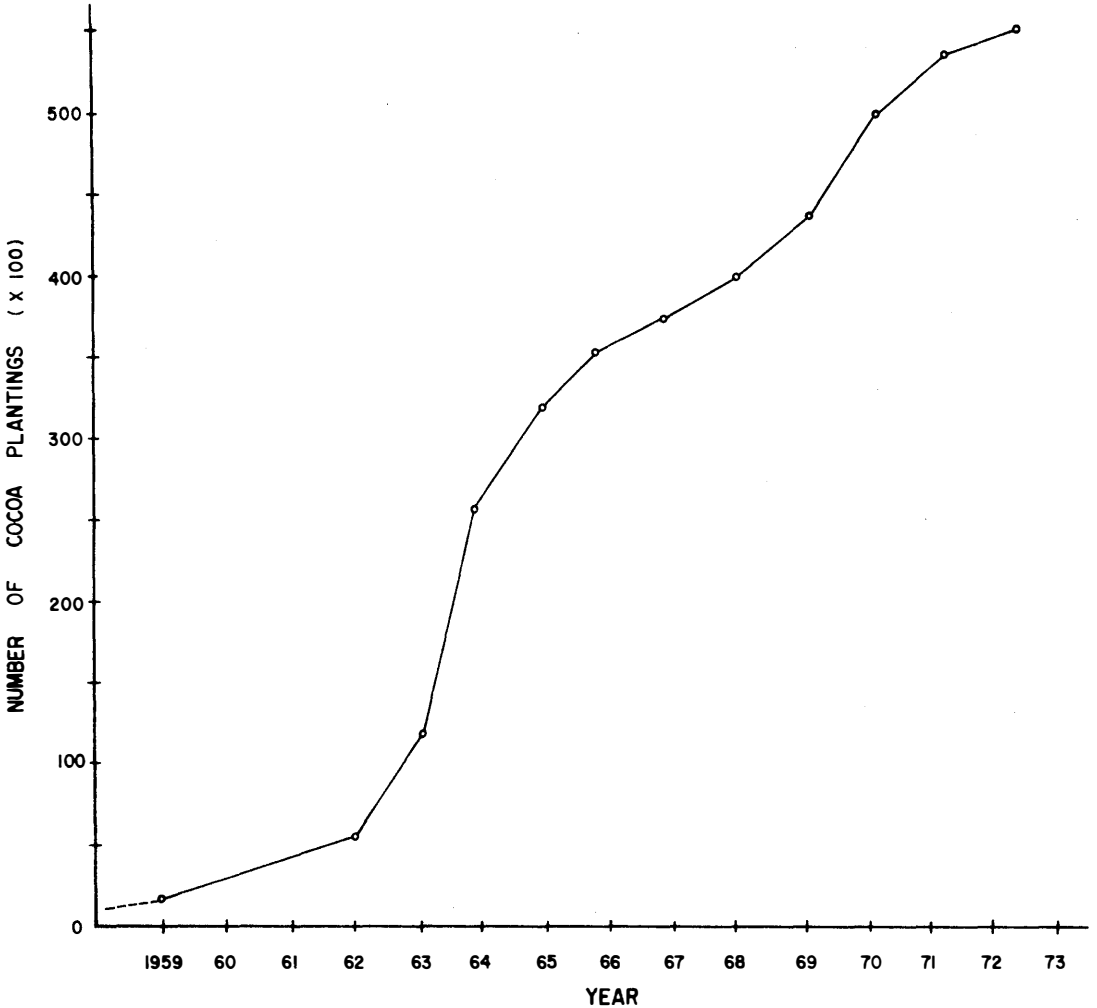


Figure 16. Cocoa plantings 1959-72

be incomplete but they do represent what seems to have been a not atypical six month period. Clearly however the success of these few men was atypical; most other Siwai growers received much less (but there is no information on the number of growers and their receipts) since they were selling wet bean. Apart from that at Konga, fermentaries seem to have then existed at Amio, Hanong, Materas, Maisua, Sininai, Jeku and Rano (where Hatah and Kepoama worked together) so that in most parts of Siwai there was reasonable access to fermentaries and during this period the Society began to purchase substantial amounts of dry bean, which approximately trebled the incomes of the producers.

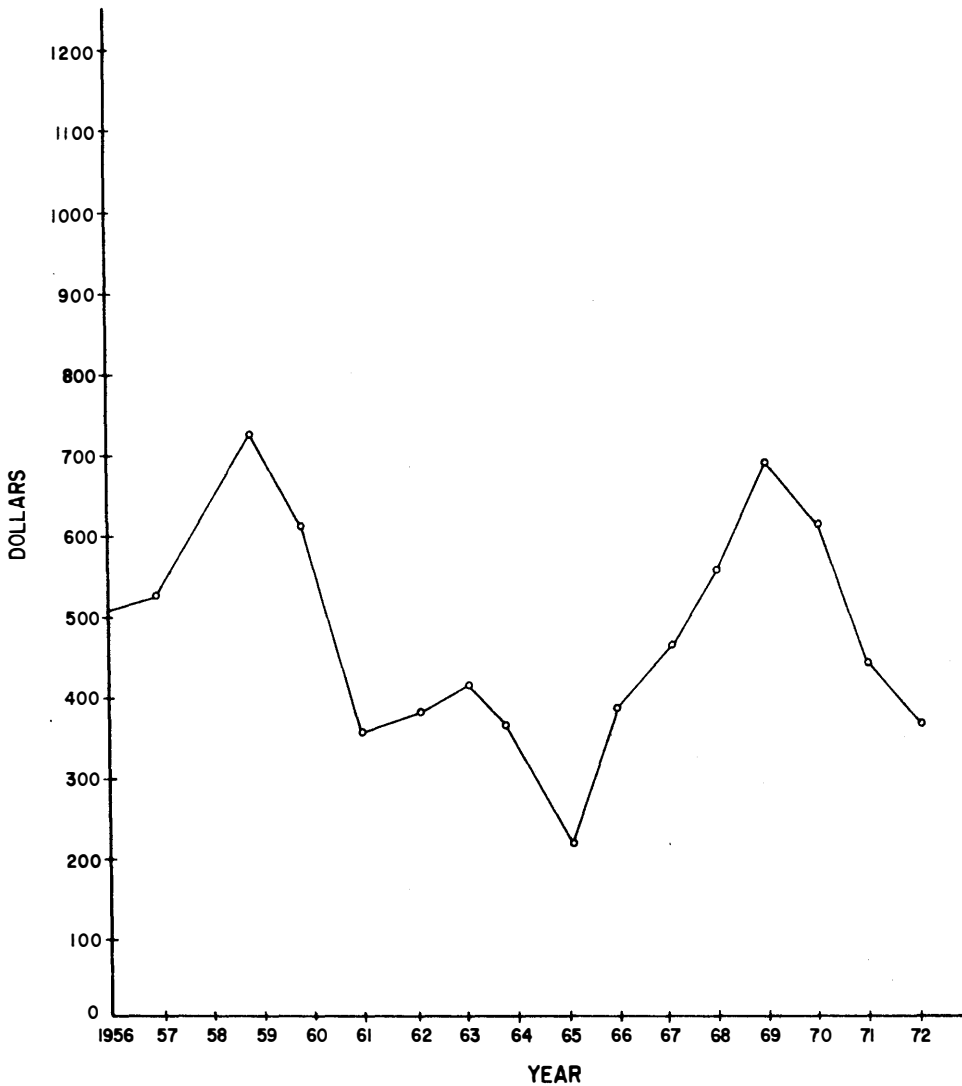


Figure 17. Cocoa price 1956-72

Fermentaries developed more slowly even though the tiny driers that were first constructed demanded no great technological expertise. In May 1961 the Assistant District Commissioner told the Council that

*Mi lukim plenti kakao i stink nating. Mi laik yupela mekim box long em na mekim drai. Sapos husat kakao i redi pinis, em i mas go lukim box bilong Hasing na wokim bilong em olsem' (I have seen plenty of cocoa just rotting. I want you*

to make boxes [fermentaries] to dry the cocoa. Whoever has ripe cocoa beans must go and see Hasing's fermentary and make one of his own like that).

Widokuma had the first fermentary in south Bougainville at Mosigeta and Hasing (Jeku) the first in Siwai. But again there was confusion over policy; in November 1964 the Council were told that it was necessary for one man to have at least 5000 cocoa trees before a fermentary could be justified. Whilst in 1969 it was stated in the Territory Annual Report that the continued policy of the *didimen* was that members sell their wet bean cocoa direct to the Societies since dry bean cocoa, processed by individuals, was usually of poor quality. This had indeed been the original national policy set out as part of the Cacao Action Plan in 1955 (PCA 1956: 49). There is no information on the number and distribution of fermentaries for the first few years of cocoa production but by mid-1967 there were a reported eleven fermentaries in Siwai (including three Society fermentaries) and the administration then believed that it was 'very necessary to increase the number'. Co-operative officers and *didimen* were not always in accord. All the individually owned fermentaries were of bush materials and it was estimated that they dried as much as 80 per cent of the Siwai cocoa crop. The Siwai Society was considering the installation of mechanical driers to cope with the anticipated increase in production that would follow when more than half of all the trees were bearing cocoa. Small fermentaries grew rapidly; one year later the number had doubled to fifteen.

When the *didimen* carried out a census of cocoa growers in 1968 they found some 805 cocoa growers distributed throughout Siwai. There were growers in every village except Aitara and by this time the number of growers in each village had become more or less proportionate to the population; thus there were 35 growers in Matukoli, 31 in Kaparo and even 29 in Ruisei, which had finally got started, whilst small villages like Kotu, Lakemba and Sikurai had no more than three growers. Siroi, with only nine growers, was still something of a disappointment. Some 54 of these 805 growers had more than a thousand trees although the average number of trees per grower was about 600. A year later the *didimen* repeated their survey, this time recording 926 cocoa growers with an average number of trees per grower of around 470. Siroi had improved from nine to thirteen growers but elsewhere

the changes were less substantial.<sup>3</sup> New cocoa plantations were still being established and old plantations extended but by this time all those most interested in cash cropping had already begun their plantations and those then beginning plantations were less interested in planting very large areas. Subtracting cocoa companies, and a few others (such as mission plantations), from the 1973 list of growers produces a total of around 860 distributed amongst approximately some 1200 adult males (aged over 20). Since this total included a significant proportion (perhaps one in five) of absentees and old men the incorporation of new cocoa plantations appeared to be approaching saturation point.

A further count of cocoa trees in August 1972 revealed that the number of new plantings had fallen steadily since 1969, although the average number of trees per grower was about 640. Plantations had generally been related to road developments and those some distance away had usually been neglected to some extent; most of these earlier plantings had now ceased hence it was believed that the extension of feeder roads would stimulate more planting. However by the mid-1960s a number of households had left their line villages to establish their own individual houses, or small hamlets of close kin, near to previously distant cocoa plantations. An old settlement pattern was being revived. The *didiman*, probably B.R. French, then recorded that 'the average planting of 640 trees is either related to a minimum requirement for money for council tax, school fees, etc. or due to a "comprehension gap" - people not being able to see themselves as big-time operators with higher incomes. Time is not a limiting factor.' In that particular year a holding of 640 trees might have produced wet bean worth less than \$100 (well in excess of council tax and school fees) but in other years it was two or three times that. Nevertheless French was generally correct; most Siwais did not see themselves as 'big-time operators', but not because of some comprehension gap. Their wants were then satisfied with these income levels. On the other hand there were already a large number of successful businessmen in Siwai, often using their cocoa plantations as a basis for diversified development (see Chapter 8).

---

<sup>3</sup> Since this census also recorded three growers with over 2000 trees who had not been recorded in the 1968 census, whilst a large number of others were recorded with less trees in 1969 than in 1968, it is impossible to place a great deal of trust in the census data.

As more of the new cocoa plantations came into production and others reached full production, after about seven years of growth, the amount of cocoa produced in Siwai increased much faster than the rate of new plantings. Thus in 1968-69 some 224 tons of cocoa were sold to the Society; three years later in 1971-72 314 tons were sold to the Society (and a further 76 tons sold elsewhere). Estimates made in August 1972 suggested that the next year would more than double the 1971-72 output. Because of a fall in prices incomes did not rise quite so quickly; nonetheless in 1968-69 the Society received \$130,787 from cocoa sales.

In January 1970 the *kiap*, J.G. Steven, estimated that about 20 per cent of the annual production of cocoa was lost through diseases, such as capsid bugs, pink disease, thread-blight, longicorn bugs and also through 'bad management'. This seems a high estimate, at least for the disease component, although in 1969 DASF brought in the first measures to combat disease; fertilizers were introduced and eight DDT dusting machines were distributed within Siwai. Little use seems to have been made of either fertilizer or dusting powder yet there is now little evidence of cocoa diseases in Siwai plantations; it was simply a further indication that Siwai cocoa production was becoming of regional importance and deserved specialized attention.

In 1967 the Buin, Siwai and Bana (Banoni-Nagovisi) Societies joined together to establish the Busiba Society which was intended to link some of their efforts through a central workshop for trucks and tractors, and a warehouse from which consumer goods could be distributed to the member societies. Although in its first eight months of operation it had a turnover of \$200,000 problems of management and its general duplication of the activities of the individual societies resulted in its virtual collapse in 1970 when the Siwai and Bana Societies both withdrew. It was an ambitious experiment in large-scale integration which in the end proved an expensive disappointment.

Even in the early 1970s the Siwai Society itself had not managed to achieve completely successful operation; in August 1971 it was forced to stop purchasing wet bean cocoa for three weeks when the supply of sacks ran out. Outlying areas too were less well served; in the same month the people of the Haisi area complained that the Society tractor was not visiting them often enough to purchase their cocoa regularly. They had no Society director in their area and most people

had been selling to cocoa dealers 'for some time'; one of the reasons for the private sale was that the Society refused to make on the spot payments for wet bean cocoa since they preferred to make the growers return with the tractor to Konga. In this way they were able to ensure a ready supply of labour when the tractor became bogged; not surprisingly the Haisi people resented the long walk home. No more than a handful of villagers actually understood the way in which the Society established the price of cocoa. Nor were the Society above making a number of penny-pinching economies, which contributed little to efficient administration so that this continued to be a problem. (For example towards the end of 1967 the Society directors refused to appoint a new secretary from Hutjena on Buka island, since the air fare was too expensive.) Yet they had become a massive enterprise by the standards of rural Siwai; by 1970 there was an impressive row of four fermentaries at Konga, plus offices and stores, a truck, a landcruiser, two tractors and trailers, all of which provided full-time employment for some twenty-three people, with a full-time European co-operative officer. At the same time the DASF station at Konga also had a European officer and fourteen agricultural assistants; specialist interest in Siwai agriculture had never been so great.

Rather earlier in 1968 the Society directors had agreed, following a suggestion from the Vice-Chairman To'osih, that when the Society had obtained enough money they should purchase adequate land for a plantation of their own. It was intended that this be on the scale of a European-owned plantation. Nothing ever came of this idea and when in 1974 Toboruai plantation in Buin was offered for sale to the Society they demurred. Retrospectively they were probably fortunate to have escaped ownership and management of a large plantation.

The revenue that the Society had earned from cocoa sales enabled them to consider other possible sources of earning money; attempts at diversification were prompted both by a fear that the cocoa prices might eventually collapse completely and by concern that the larger and more successful Siwai cocoa producers were already selling their own cocoa elsewhere and that this trend might continue, eventually threatening the Society's future. In 1969 the Society became interested in developing a large scale cattle farming project in Siwai; this scheme, which eventually failed to come to fruition, is discussed in the following chapter (pp.187-96). The following

year they decided to set up a bakery at Konga but nothing came of that. A little later they did however, apparently without discussion or dissent, purchase 7000 shares in Bougainville Copper Limited. The frustrating inability to develop the cattle scheme persuaded the society directors to look elsewhere and, clearly influenced by European advisers, they determined to obtain land and take up business leases in the new town of Arawa. Thus in August 1971 the Chairman of the Society wrote to the Director of the Department of Lands, Surveys and Mines requesting three urban allotments in Arawa, so that

when individuals of the Siwai areas have sufficient capital and commercial knowledge an opportunity will exist for them to commence business. They are particularly worried that they will be left in a similar position to indigenous people in other districts of Papua New Guinea who find it impossible to commence business enterprises in the main centres because they have no land or buildings in these centres.

They are concerned that they may become the 'poor relations' in Bougainville because they have not been in the happy position to receive the benefits afforded some Kieta people through B.C.P. Development of the area.

The Society anticipated that the earliest stores would be of joint Bougainvillean-European ownership, resulting eventually in complete ownership by Bougainvilleans. Within a month the Society took up two business/commercial leases in the town; they continued to pay rates on these but the sites were never developed so that by April 1974 the Society wished to get rid of the land, claiming that they were tricked into taking it by their white co-operative advisers. Another attempt at diversification had come to a disappointing end.

By the end of the decade copra prices had still not risen whilst cocoa prices were rising rapidly. Copra once again was becoming no more than a minor cash crop; thus in October 1969 the *didiman* reported that in Mamagota village, which was probably reasonably typical of conditions elsewhere, 'very little copra is being made at the moment and many nuts are being left in the bush to rot. They say that they have too much work with their cocoa to worry about copra'. (In Aitara 75 bags of copra had rotted whilst they waited six

months for the arrival of a ship.) Consequently for the financial year 1969-70 the Siwai Society had a turnover of \$168,376 for cocoa, \$18,961 for baskets and a mere \$530 for copra. By then there were more than twice as many cocoa growers as there were coconut growers. However coconut planting was being encouraged as a shade crop in new cocoa plantations so that new coconut planting never ceased whilst those who retained their faith in coconuts were eventually, if briefly, rewarded in 1974 when the copra price rose sharply. Even in August 1972 there were as many as 21 copra driers in Siwai; four of these were owned by Hari villagers and the distribution (Figure 18) partly reflects the historic dominance of coconuts in the coastal, low-lying areas of Siwai. Nevertheless at the start of the 1970s cocoa completely dominated the Siwai cash crop economy.

Despite all these developments there were still problems; the greatest of these was transport. The only place that cocoa could be exported from was Kangu on the Buin coast but by 1967 the deficiencies of the Kangu port were particularly apparent; there were no storage facilities there, there was a lack of cargo space on ships and since Bougainville was the 'end of the line' (PR Buin 6/66-67) ships returning to Rabaul often left without backloading since they had too much to take on elsewhere. Consequently by the time cocoa left Buin its quality had generally deteriorated. But for the majority of Siwais this was not the main transport problem; their problem was one of getting their own cocoa to Konga. For most parts of most years the Society tractor could not negotiate the tracks into Rataiku, nor could it go north of Sininai; elsewhere, especially in Mokakuru, small areas were cut off for smaller time periods. In 1967 there were strong demands from western Siwai that a buying point be established at Sininai or that they be allowed to join the Bana Society, based at Beretemba in Nagovisi. The Sininai area had already (in 1965) requested their own separate society and in 1967 the councillor for Haisi requested that the people from the four villages there be allowed to take their shares out of the Society. In the end they did not, although in 1966, when members from both Haisi and Sininai wanted to join the Nagovisi Development Society, some had their share capital returned to them. Later in 1968 the Society directors recognized the dangers of fission and decided to build fermentaries at Miheru and Haisi. Neither was built and they were still discussing the idea two years later. There were no obvious solutions to these transportation problems; remote, upland areas found

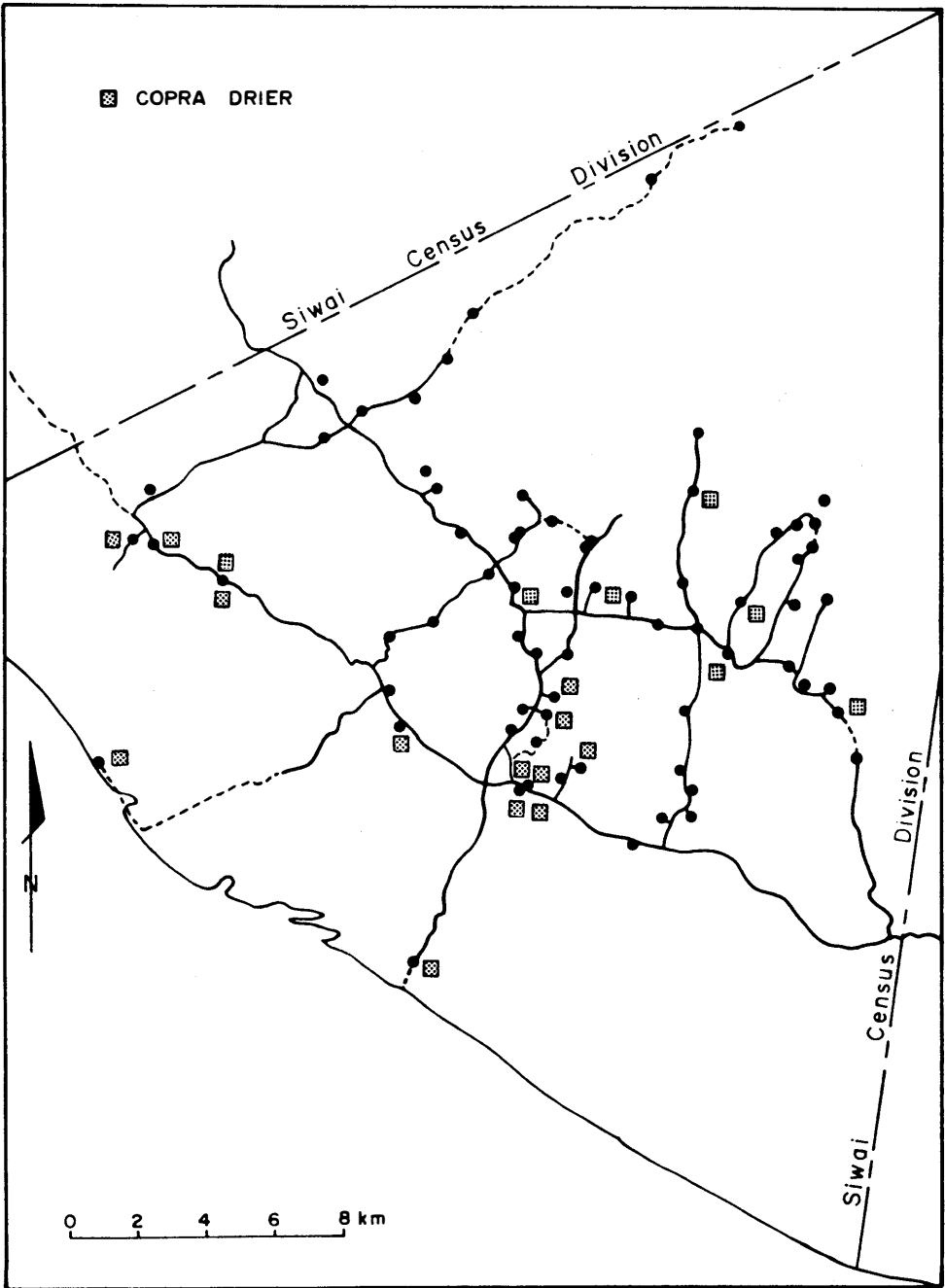


Figure 18. Copra driers 1972

marketing difficult although, in some senses, they gained from it since it was an indirect incentive for them to construct their own fermentaries early on. Some familiar difficulties remained; the Society directors were still spending much of their time telling people to plant more trees and Kerukai (Kaparo) complained to the other Society directors that he was unable to persuade people to plant 500 cocoa trees each.

Other problems were of a rather different order. Transport difficulties represented, to some extent, the problems of success; subsequently, conflicts between businessmen and fears of labour shortage were minor problems that even more obviously stemmed from the successful establishment of a cash crop. There was no doubt that cocoa-growing had brought prosperity. At the annual meeting of the Society a profit of \$10,045 was announced, which was almost certainly enormously in excess of any previous year. By 1968 profits were potentially so great that one of the Chinese traders in Buin attempted to lease a quarter of an acre in Siwai for a fermentary site and also obtain a licence to purchase wet bean throughout Siwai. Although the owners were willing to lease the land Siwai Council brought strong pressure to bear on them and the Chinese traders remained no nearer than Buin town. (Two years later the Society and the Council united to oppose the granting of a pedlar's licence to either a European or a Chinese trader from Buin who both wanted to trade inside Siwai; they stated that since there were nearly 70 private stores in Siwai, any Siwai could obtain anything he wanted from these.)

By 1970 there were fears that labour shortages would diminish the rate of planting, as they seemed to have done in Buka; a special DASF report on south Bougainville Cocoa Production stated that there was an 'acute labour shortage'. Early planters had had sufficient labour but intending planters could not get enough especially since the copper mine had attracted many young men. It was feared that because of the apparent labour shortage and the lure of a new cattle industry cocoa planting would decline. At the February 1970 Busiba Society directors' meeting a motion was passed that Busiba should find labour from outside Bougainville ('Highland labour') since local labour was in such short supply. The Society were also willing to construct houses for such labourers, a remarkable change in the usual attitude to outsiders.

In January 1970 the *kiap* patrolling through Siwai found that he was continually being asked if cocoa would become the same as peanuts (PR Konga 1/69-70). This proved to be a totally pessimistic assumption, although following previous Siwai experience and the 1965 slump in prices, excessive concern was scarcely surprising.

Apart from the distribution of some exceptional crops such as potatoes and coffee at Iru there were few regional variations in the innovation of new crops. Isolated Aitara was ignored but otherwise crops seem to have spread quickly throughout Siwai; many, like coffee, began at the Konga agricultural station or, like cocoa, were quickly centred there but, although patrol officers often claimed to observe that villages near Konga were the first to accept these new introductions the little numerical evidence that exists suggests that this was rarely significant. Until the emergence of the Konga station and, associated with it, the spread of cocoa the villages that suffered least war damage, such as Mamagota and Aitara on the coast and mountain villages like Morokaimoro, were probably the wealthiest in terms of cash earnings, but affluence based on copra sales was not great. Distribution of war damage claims to the central villages removed this disparity but that was a temporary benefit. In 1955 there was no great food surplus in the Konga area; '... it is not a very wealthy area' (APR Buin, 1955) but the central villages soon pushed ahead as cash crops became established.

Most new cash crops were established at Konga initially so that it is not surprising that villages living close to Konga often grew and mastered these crops first but any lag between a start at Konga and adoption elsewhere in Siwai was very slight. Distances were short with the exception of Aitara and the remote Haisi area; this was the last part of Siwai to adopt cocoa and in 1962 when the people of that area decided to build their own society collecting point for rice and baskets the society adviser was delighted since 'support from these more outlying villages is often poor'. Haisi and Hiru-Hiru villages were attached to the Bana Local Government Council for many years and it is only recently that this area has been incorporated more closely into the rest of Siwai.

Iru, which had been at the forefront of coffee production, clung to this for a long time but eventually gave way to cocoa no later than many other places. In isolated Aitara cocoa planting began only in the 1970s; in 1969 they were

still primarily dependent on copra and accessibility was such that it was more convenient to sell it on the irregular visits by ship of a Chinese trader from Sohano, rather than carry it to Konga. It is possible that the people of Iru were discouraged by *didimen* from planting cocoa, which is certainly a more bulky product than coffee; it is even more likely that no one was interested in explaining cocoa growing in Aitara. (Even Tomlin was unaware of the existence of Aitara village in 1955.)

In a quarter of a century after the war peanuts and, for a time, rice became established as food crops but there have been few new food crop introductions. I recorded one kind of banana brought back by a Siwai missionary from Tari in the Southern Highlands of New Guinea and a more decorative kind of bamboo brought from Faisi.<sup>4</sup> The *didiman*, Haling, found twenty-one varieties of sweet potato in Rataiku in 1960; he stated that less than half of these had been there more than twenty years. The others had either been introduced by the Japanese or by labourers returning from the Solomon Islands (APR Eastern Division, Siwai, 1960). This report was probably to some extent erroneous, yet it does reflect a continuous and parallel process of introduction and experimentation, for food crops as well as cash crops. Yet these changes in the subsistence economy are quite dwarfed in significance by the introduction and extension of cash cropping.

Although spatial variations in development were quite small a new pattern had emerged; the early post-war disadvantages of villages in the central area had been reversed. These were now the villages closest to Konga, where development efforts had been concentrated, and with the best, all-weather road access. The increasing success of cocoa tended to emphasize these regional differences, despite the rather greater concentration of fermentaries in the uplands. However, although the first indication of a concern over land shortage came from Noronai, a Rataiku village not obviously without land reserves, subsequent pressures were concentrated

<sup>4</sup>In 1965 the *didimen* at Boku were trying to introduce a new species of bamboo that would grow at low altitudes since they thought that people were wasting too much time bringing bamboo from the hill areas for house-building. A fine grass, which some Siwais have made into small lawns, may also be a post-war introduction.

more in the central Siwai villages. By 1967 Siroi and Kaparo villagers were beginning to take up land for cash crops south of the old Buin road and a few years later a different pattern of inequalities, ranged around the availability of land, was beginning to emerge.

The uneven distribution of the new cash crops also created regional inequality within south Bougainville. The construction of the agricultural station and subsequent Rural Progress Society at Konga resulted in most extension work initially being concentrated around there hence cocoa (and coffee) grew most quickly in Siwai. Nagovisi briefly had a Rural Progress Society but it was inefficient and soon closed, although it is possible that the locally developed Mosigetta Cocoa Company was much more successful than the Siwai Society for some time. By 1958 the people of both northern and southern Buin, who had lost their early agricultural station, were complaining that they had been neglected at the expense of the people of Siwai and Nagovisi; the people of western Buin were less concerned since they were able to sell substantial quantities of peanuts and rice to the Siwai Society. The initial advantages that followed the existence of an agricultural station for two years at Kangu had long since disappeared and the advantages of easier access to Buin town and port could not compete with the more substantial administrative assistance to Siwai, although the location of a station at Konga is always explained by both administration and Siwais as simply a result of Siwai enthusiasm for development. When the Buin Marketing Society began in 1959, then dependent on sales of rice and sweet potatoes (PR Buin 1/58-59), Siwai was well ahead and even further ahead of Nagovisi where in 1960 one *kiap* claimed, without supporting evidence, that 'the people are dirty, lazy and backward' (PR Boku 3/60-61). Transport orientation towards Kangu eventually restored Buin's advantage but Nagovisi remained relatively isolated until the 1970s.

## Chapter 7

### Pigs and cows: animals in the agricultural economy

Throughout the post-war decades there were also changes in the animal population of Siwai, although the administration rarely seem to have taken much interest in any livestock other than cattle. Although theoretically enthusiastic about local pig-breeding and poultry-farming within Papua and New Guinea, in practice they were more concerned with European developments in these fields. Siwais themselves were primarily interested in pigs, but never for marketing; they occasionally considered the commercial possibilities of poultry and finally experienced a wave of enthusiasm for cattle.

#### Pigs

After the war there was a shortage of pigs throughout southern Bougainville, and especially in Siwai where they had been almost wiped out during the war. When the administrator, Colonel J.K. Murray, led a team across southern Bougainville in 1947, two years after the war, they found 'only five domesticated pigs ... and all of these were of the wild bush type' (Cottrell-Dormer, 1947). Attempts were made to purchase pigs by trading with shells in the Mount Hagen, Chimbu and Bena Bena areas of the New Guinea highlands, to resell for a nominal price in south Bougainville, but the attempts were unsuccessful and they had to be brought from elsewhere (PR Kieta 9/47-48). By the start of 1948 the numbers of chickens and dogs were reported as sufficient, but there were not yet enough pigs (PR Bougainville 10/47-48); in those years there was some difficulty in organizing proper feasts although it was a little easier in mountain villages. The pigs that survived the war, for example in the mountains of eastern Buin, were of very poor quality despite some pre-war mixing with pigs brought from European plantations (PR Bougainville 11/47-48). By mid-1949 there was apparently an increase in numbers; the average Siwai village had two or three pigs but Unanai, where the villagers were reported to be having some success in breeding pigs, had about twenty

(PR Boku 4/49-50). The Buin station was then using Berkshire sows and Tamworths for breeding and boars were being sold for £5 each. By 1951 the numbers of pigs seemed to have increased but there was still an uneven distribution; the area around Sininai had relatively few and 'exorbitant prices' were being charged, such as £5 for a suckling piglet, whilst throughout Siwai it cost £2 for servicing sows. However a census of dogs, poultry and pigs carried out early in 1951 suggests that the shortage was generally over (Figure 19). In some villages, notably Matukoli, Moibinai and Kotu, there were more pigs than people and for the whole of Siwai there were 43 pigs to every 100 people, a proportion roughly the same as it was before the war and also the same as it was in 1975. By then all the pigs had a strong 'European strain' bred into them (PR Buin 5/50-51), although this was also true before the war. Subsequently, the patrol reports have not included any reference to a perceived shortage of pigs anywhere in south Bougainville. In the early 1950s there were, once again, adequate pigs in Siwai; in five years the pig population seemed to have returned to its pre-war numbers, a surprisingly rapid rate of recovery.

The most substantial change in post-war animal husbandry was the switch from fencing gardens to prevent pig depredations, a practice that was universal before the war, to fencing in pigs but not the gardens (and later cash crops). This change occurred in some parts of Bougainville not long after the war; as one *kiap* noted early in 1951:

Throughout Siwai it has now become the custom for the pigs to be fenced in and the gardens in the main left unfenced. The southern and eastern villages have made such fences from the large supplies of arc mesh abandoned in the area and there were no complaints of pig destruction in these villages. This has also meant that gardens are much closer to the villages and much time is saved walking to them (PR Buin 5/50-51).

The administration may have also encouraged this change before the war (Oliver, 1955:128). Some of the early pig compounds may have been exceptionally large; in 1957 the *kiap* noted that there were some as large as 5 to 7 acres (PR Boku 1/57-58).

This change resulted from administration policy; it was aimed at closer supervision of the pig population, so that

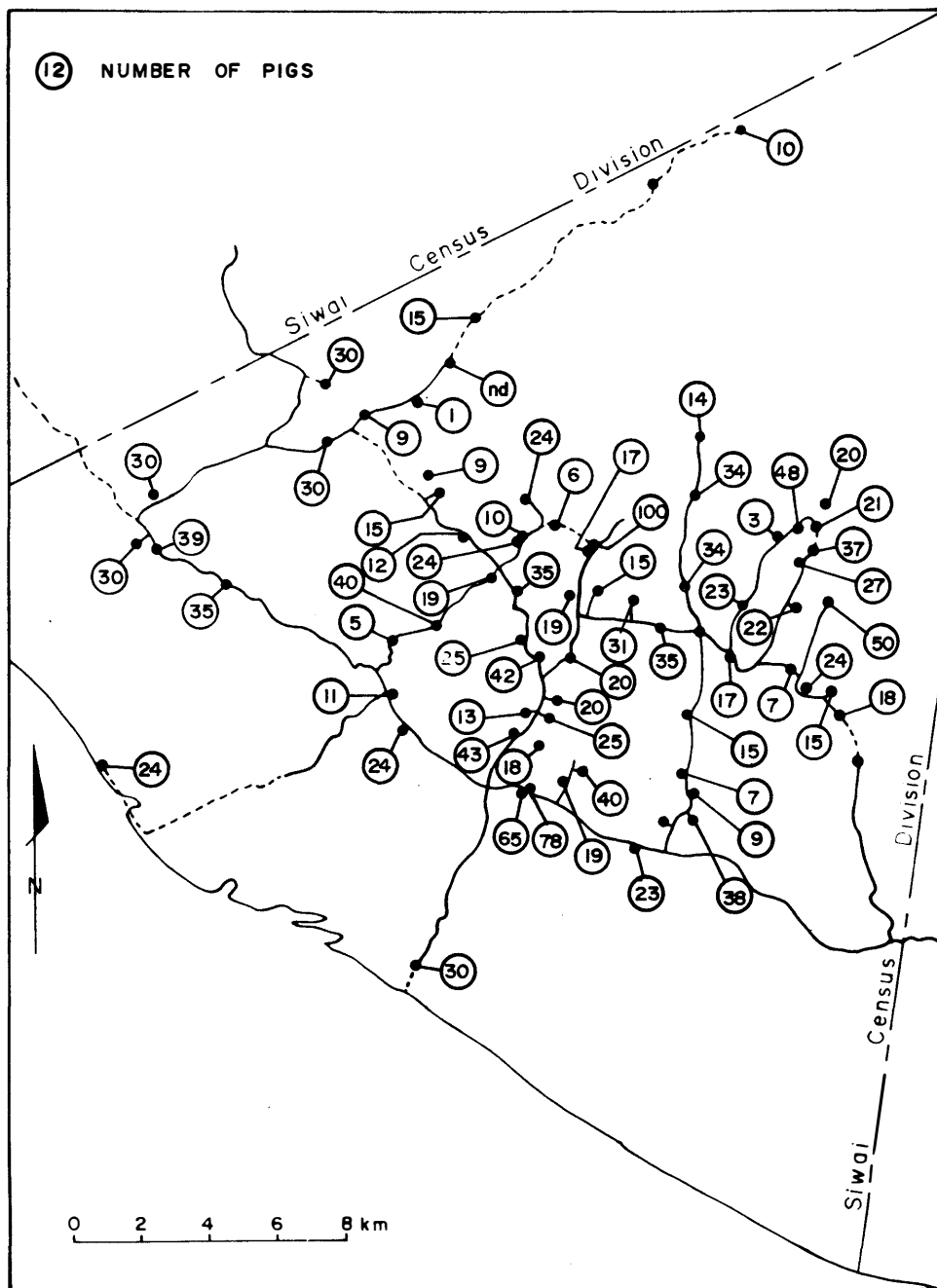


Figure 19. Pigs 1951

Source: PR Buin 5/50-51

mating could be more closely controlled in an attempt to improve pig strains (Hasluck, 1976:135). There was, however, a substantial element of administrative convenience; pig damage for a long time had been the most important topic discussed in village courts. In areas where there were more pigs the change was very slow; in August 1956 the *kiap*, David Elder, was still recommending to the Buins that they reverse their fencing policy on the grounds that gardens were becoming more valuable and pigs less valuable as cash crops increased in importance and there was, according to the *kiaps*, a 'decline in the social value of pigs'. Moreover, it would be easier for patrols to settle disputes and, finally, imported stock could be introduced to improve pig quality. The Buins themselves counter-argued that the fences kept out wild pigs which continued to cause damage (PR Buin 1/56-57). In some areas the introduction of cash crops was a more significant influence on this change than administration policy; moreover there was often confusion as to what to do with the pigs, individual villages and villagers reacting in different ways. Amongst the Rumba valley Nasioi of eastern Bougainville, pigs almost died out during the transition to cash cropping in the late 1950s and early 1960s as villagers decided to give up pig rearing, rather than either allow them to roam wild and damage plantations or fence them in (Ogan, 1972:118-9).

In Siwai the almost complete absence of pigs after the war and the early introduction of rice gardens (and later other cash crops) meant that there were substantial savings in labour time (and also timber) from fencing pigs rather than gardens, hence the change was rapidly effected. Siwai had clearly taken the lead in fencing pigs. The *kiap*, D. J. Hook, commenting on the neighbouring Nagovisi and Baitsi areas in 1957, observed that there was a general 'lethargy and unwillingness' even when it came to fencing in pigs; Siwai was held up as a 'model' of agricultural development (PR Boku 1/56-57).

But although the administration's arguments had, in a sense, been best received in Siwai, there too there was not unmitigated success. In 1956 the *kiap* complained that the pigs were not well-fenced and damage was being done to rice and cocoa plots as well as to sweet potato gardens (PR Boku 3/55-56); two years later pig damage was so bad in Nagovisi that the *kiap* urged implementation of the Native Administration Regulations of 1924 which allowed that on its second trespass a pig could be killed (PR Buin 5/57-58). *Kiaps* continued to worry unduly about pig damage, which seems to

have remained a consistent problem for tidy administration, if not for pig breeding. The most significant change that followed this administration attitude to pigs was not in the agricultural sphere at all. It was, as in neighbouring Nagovisi, 'the end forever of such pig-human residential associations' (Nash, 1974:78) or, at least in Siwai, for a couple of decades.

The price of pigs rose substantially during the period of shortage after the war although they did not, as one *kiap* claimed, lose their 'social value'. *Kiaps* collected little data on the price changes so that there are, at best, a few casual observations. Thus in early 1957 in eastern Buin it was implied that the price of an unspecified number of pigs required for a wedding had recently reached f150, and that meeting this cost was a problem for many people (PR Buin 5/56-57). In Siwai, in 1955, the *kiap* recorded that there were

many natives who cannot afford to pay the ten to fifteen pounds asked for a pig. At one feast held in Maisua village f150 was paid by 10 natives to purchase 8 pigs which were eaten at their feast. This, I think, is a typical example of any feast held in the Siwai area. Many natives wish to get the price of pigs back to the pre-war standard but this is made quite impossible by the fact that the demand is so great and the supply of war damage money is more than sufficient (PR Buin 1/55-56).

Clearly there was some confusion over the availability of adequate cash within Siwai but there was also the implication that earnings from cash crops were still insignificant.

There are few records of the pig breeding policies of the *didimen* or of the impact that these have had; almost certainly *didimen* were primarily concerned with the cash crops that met their concept of agricultural development rather than with pigs, whose use remained embedded in the social structure. Nevertheless there were changes; Hook observed how European boars had improved the stock and increased the size of litters, so that as many as ten piglets were being born rather than the two or three that came from the old village pigs (PR Boku 1/55-56). To some extent success appeared to depend on constant administration assistance; Hook later noted that most Siwai pigs had some trace of European stock in them but that since most of the boars introduced by DASF after the war had either died or been castrated; 'the old practice of leaving sows to be

serviced by bush boars has returned' so that he and some Siwais were concerned that the quality of local pigs would soon deteriorate (PR Boku 3/55-56). A year later a new *kiap* observed only some Siwai pigs that showed 'traces of good breeding' (PR Boku 1/57-58) usually from the imported Berksh Berkshires. Throughout three decades of agricultural change in Siwai administration interest and policies assisted in the improvement of pig strains and in their management but never succeeded in making pig husbandry a commercial success. Indeed it is doubtful if any *didimen* believed this possible or if any Siwais were then interested.

### Chickens and ducks

Unlike pigs, chickens were only briefly in short supply after the war; whether they survived better than pigs, regenerated faster or were reintroduced by the administration is not clear. By 1948 chickens in Siwai were again sufficient. A few years later they were plentiful but, unlike ducks or pigs, they were considered to have little value (PR Buin 1/55-56); however the *kiap* Hook reported, a year later, that many Siwais had built chicken runs and were intending to sell both eggs and poultry (PR Boku 3/55-56). Some of these may have succeeded briefly but it seems unlikely; providing feed and preventing disease were new problems that were not understood well by these early poultry producers. Subsequently there are scarcely any written records of poultry production in Siwai and it seems that for well over a decade chickens (and to a much lesser extent, eggs) remained simply a supplement to the diet; quality did not improve and nothing was marketed. Chickens constituted the scavenging economy.

It was not until 1969 that the first real poultry project got underway; the owner of this project was Haranu, of Miheru, who had already been closely associated with the more important economic developments in Siwai and especially the emergence of trade stores (pp.201-2). At this time he had a small trade store near Amio village; using revenue from this he obtained a loan from the PNG Development Bank which enabled him to set up the poultry scheme. The Konga *didiman* commented on the scheme in May 1969, 'at present he has five roosters and six hens. They lay four eggs a day. He will sell about 50 eggs very shortly to Barclay Brothers, Boku at 15 cents for two'. The Bank loan enabled him to build up to about 27 chickens and their eggs were sold to Barclay Brothers (who were then engaged in constructing the main road between Konga and Boku), and also to *kiaps* and

other local administration officials. The income from this was very small, possibly because Haranu could not ensure a regular supply of fresh eggs, and there were no local Siwai purchasers so that despite requests from the *didimen* that he maintain the scheme, he let the eggs hatch and sold all the resultant chickens at \$2.50 each for local parties. Within a year he had repaid the loan of \$240 but once again the problem of markets and access to those markets prevented a potentially valuable project from going ahead. It was not until the mid-1970s that any poultry projects gave the impression of long-term viability.

Ducks must have been well-established by 1954 although they were not counted in 1951; one *kiap*, A.J. Humphries, observed that the Muscovy ducks were of excellent quality but that 'the standard price was too high to permit a trial of their eating quality' (PR Buin 1/54-55). Perhaps no one actually paid this particular 'standard price' since a different *kiap*, a year later, reported that the ducks, still of excellent quality, were 'used as a form of currency and a sign of wealth. They are bought and sold for about £2 each and, unlike pigs, they are never eaten' (PR Buin 1/55-56). In western Buin at the same time, a separate *kiap* also described ducks as being important as currency rather than as a protein source (PR Buin 3/55-56). Subsequent to this use as 'currency', for which I have no additional information, ducks became, like chickens but in much smaller numbers, simply a diversification of the Siwai diet. There are no records of duck or duck egg marketing.

### Cattle

Until the emergence of cattle in village agriculture there were no animals that were consistently produced for marketing; pigs were always, in a sense, marketed but exchange was more or less circular and reciprocal. No one was able to make money from being a successful pig-breeder and no one tried to establish a modern, large-scale pig herd. Chickens, not a component of Siwai exchange transactions, were more easily incorporated into a market economy yet there were no markets for chickens and eggs and the sporadic attempts at marketing failed to succeed. Baskets and crops, even in poor years, were usually a more consistent source of income.

Cattle were an entirely different proposition from pigs and chickens. Before the war the administration had made no attempt to interest local farmers in cattle production but Lutheran missions at Madang and other places on the New Guinea mainland made some attempt (IBRD, 1965:124); after the war the situation changed little until the 1950s when the administration made a start at a local distribution of cattle. By 1958 there were possibly some 17,000 cattle in the Territory and the administration was attempting to develop this rapidly both on village holdings and European plantations (Hasluck, 1976:307) but it was slow progress.

There had been a few cattle on the two Siwai mission stations before the war but none survived Japanese wartime requirements; before that they had done no more than supply the missions with milk. After the war some missions once again reared cows; Turiboiru mission in Buin had a couple of Herefords in 1951 and by the 1960s cattle were flourishing at most mission stations in Bougainville including Kihili, Monoitu and Tonu (PR Buin 11/64-65). Although there was no consistent drive by *didimen*, administration, missionaries or Bougainvilleans for local people to develop their own cattle projects, by 1964 some Siwais were interested in keeping cattle; most of these had seen successful cattle projects elsewhere in New Guinea. Consequently after much discouragement, a few years later, the first cattle reached south Bougainvillean villages. The first record, in a patrol report, of cattle in villages was in February 1968 when a cow and a small bull were observed in the Buin village of Bogisago, not far from Tabago Catholic mission where they had been purchased. They seemed to be well fed but were very much an experiment (PR Buin 2/67-68). Later that year Kuheo of Silaruho village became the first Siwai to get his own cow; in August 1968 it was doing well. The cattle economy, officially introduced as an alternative to cocoa, had begun.

Cattle were obviously quite different from anything that had preceded them in Siwai; they were little known and extremely large animals, they required large amounts of fenced land and the economics of maintaining them was quite unknown to Siwais, yet cattle farming was suited to the south Bougainville environment. The main difficulty is the poverty of the grassland that develops in cleared forests or on regenerated garden land, hence *didimen* placed considerable emphasis on extensive planting of Para grass (*Brachiaria mutica*) to supplement the natural grazing. High rainfall is not a particular disincentive to tropical cattle farming and

the difficulties of establishing cattle in Siwai have not been associated with the physical environment.

Adoption of cattle was quite slow; a year after Kuheo received his cow three individual projects had begun although Kuheo was still the only man to actually have a cow. There had however been one new development; in 1968 the Siwai Society had decided that they would like a cattle project (and also a store and cemented roads). For reasons that are not entirely clear, enthusiasm for this project rapidly expanded and within a few months many Siwai leaders and villagers were keen to start a big cattle project on 3000 acres of land near Ruisei. This single project brought the greatest discord between *didimen* and Siwais that has been recorded in the history of agricultural change in Siwai. *Didimen* insisted that the only possible form of development was by small individual or clan-owned projects; almost all Siwais insisted that the big project was essential.

The basic argument for a large cattle project was set out by the Siwai Society secretary (guided by the European Society adviser) in March 1969:

The society is almost completely dependent upon cocoa and thus it would be wise to diversify any proposed investments. Many roads of investment have been considered and it seems fairly definite that a moderately large scale cattle project would be the most suitable. Reasons why it is considered that a cattle project would be successful are:

- a. Availability of large tracts of extremely fertile and accessible land.
- b. The near certainty that Conzinc Rio Tinto of Australia will go ahead with copper mining in the Kieta area. The estimated population of the township for C.R.A. staff is 5,000 people. The present average consumption of meat by staff is just a fraction under 2 lbs per head per day.
- c. Obviously, to provide such large quantities of meat, a large scale project will be essential. The Siwai people are capable of doing this and there is no doubt in my mind that they are the only people in Bougainville who have this capacity.
- d. Cattle thrive in the local environment.
- e. There are no apparent cattle diseases in the area.

Since the Society was expected to have a turnover in the 1968-69 financial year of the order of \$158,000 it was considered (assuming cocoa prices were maintained) that the Society would be able to invest a minimum of \$10,000 a year in such a project. Anthony Potungah (Kapana) argued that since most people already had cocoa plantations it would be difficult for any individual to begin his own cattle project; consequently a large company was necessary. Once again Siwais were reverting, this time more strongly, to the idea of communal management of a new economic venture. This belief may have been reinforced, as the administration certainly believed, by their observations of the operation of the copper company (CRA) and other large plantation and trading companies, all of which were highly profitable. Size may have been the key.

The administration was far from enthusiastic about such a large-scale cattle project; the Director and Assistant Director of DASF came from Port Moresby and pointed out the massive cost involved and the necessity for an enormous bank loan to establish the project. They were still optimistic about the potential for cattle: 'a combined coconut-cattle venture for the area seems a sound prospect if the coconut problem can be corrected'. Local *didimen* were concerned with local problems; they considered the financial difficulties but they also feared disputes between clans (especially over land) and worried that there was no one with the necessary skills or influence to start a large company of this kind which would have to have European management. Moreover they somehow estimated that the project would require about 600 labourers for 200 days a year and consequently were concerned about the withdrawal of labour from cocoa and feeder road maintenance. The head Bougainville *didimen* even proposed that 'we are to talk to those concerned on various aspects of the venture and not to become involved; we will advise but not assist as normally we do with the organising of such a venture'. Siwais resented these counter-proposals since they refused to believe that the individual projects that the *didimen* preferred could ever be successful with something as new as cattle. The administration were not convinced and the Konga *didiman* felt that 'cattle are not as important to the Siwai as their meetings imply. I feel a bit of drama is just as important to them as a cow'. The *didimen* therefore favoured smallholder projects of about 10 to 20 acres, with a stock of about ten heifers and a bull. Moreover Catholic mission policy, more apparent in Buin, was that even this was too ambitious and that projects should

have no more than one or two animals (Ward, 1975:60. consequently the *didimen* decided that four Siwai 'influentials' should go to New Guinea and investigate cattle projects there in the expectation that this experience would reinforce DASF views on their suitability. If this failed there was always the possibility of recourse to a different tactic; the resident *didiman* argues that 'possibly a visit by Mr Tomlin would be helpful if he is in the area as his word seems to be gospel here'.

It was intended that four Siwais would visit both Lae and the New Guinea Highlands to observe cattle schemes but in the event they got no further than Lae. The four men chosen, possibly by Siwai Society, were Gideon Matiha (Ruisei), Manua (Munnu), Joshua Montoro (Hanong) and Paros (Kumuki). They seemed to have stayed there for about a fortnight and although they produced a brief account of the cattle projects that they had seen collectively they were divided and made no recommendations. However at a special meeting of the Siwai Society Manua stated that they had seen no large company projects:

*Long wanpela ples ol i bin tok pastaim ol i bin kirapim wanpela bikpela kampani tasol i no long taim kros i bin kamap namel long ol pipel na ol i bin lusim* (In one area they said they had first started a big company but soon afterwards the people were involved in disputes and the company ended).

One of the people present commented 'Tru ya. Long hap bilong Siwai tu baimbai dispela pasin i kamap sapos il i wokim kampani (Very true. In Siwai too this kind of dispute will begin if a company is set up)'. Manua therefore recommended to the meeting that the best policy was for individual small-scale projects but Joshua Montoro was unconvinced; he had a different vision of a possible future.

*Wanpela masta long Lae i gat 1,300 bulmakau na i gat 6,000 acre na i gat tripela kau boi ol i ran long hos bek. Tasol dispela masta i tok, 'I no kampani, mi na pikinini tasol i stap insait longen'* (One European at Lae has 1,300 head of cattle, 6,000 acres and three 'cowboys' who go round on horseback. But this man said 'It isn't a company, only me and my children run it').

However a number of people were afraid of cows, and the *didimen* eventually convinced most of the people at the meeting that it was best to wait for the success of individual projects in three or four years, and then set up a company if they remained convinced. Nevertheless he pointed out that jungle had already covered up the Siwai Society cocoa plantation and many cocoa companies in other villages had already given up following disputes. Despite the optimism of leaders such as Laisi (Hari), Anthony Potungah and To'osih (Turungum), who favoured the large council project, Siwais were generally unconvinced and preferred to let individuals or small groups accept the risks involved in introducing cattle.

Meanwhile there had been some individual developments. At the start of 1970 three projects had some stock; Kuheo (Silaruho) had ten cattle and at Kinirui and Amio, Kumopi and Kamuai had four cattle each. Tonu mission then had four cattle and the Konga DASF, beginning to establish their demonstration project, had four cattle themselves. Not to be outdone by these individualistic developments the Siwai Society had obtained two cattle although they had no field available for them. By May 1970 the *didimen* had identified thirteen separate projects within Siwai and were attempting to evaluate their future success. Apart from that of Kuheo which had progressed furthest, only three other projects had cattle, and already the Konga *didiman*, R.D. Hill, was not convinced about the future of several of these, such as that at Kapana:

Barata, Konnei, Potungah (Kapana)

Konnei and Potungah are mere sleeping partners. Barata is not a big-head but is scared of cattle and feels unable to look after them on his own. I have told him countless times to cut back his Elephant grass and sub-divide but he procrastinates and mucks around so much I have reached the stage where I figure he will never have a decent project. He has two wild heifers (wild because Barata is scared of them and his kids tease them) in a well grassed paddock about 300 yards past the Society towards Kapana. He may want two more heifers next year but I can't see him getting around to clearing the bush (Hill, 1970).

In less than a year two of the partners in this communal project had dropped out. However, to R.D. Hill at least one of the other projects, at Kinirui, offered rather more potential.

Kunopi (Kinirui)

Kunopi has never had any training which is a good thing as it means he believes what he is told. He has worked as a cook for many years, is about 45, a very hard worker, intelligent and a really good bloke. He has 4 heifers at the moment. Two he has paid for and two he is waiting for a bank loan to buy. If the loan is not approved I strongly recommend another application be put in. He is one of the only cattle people in the area who is prepared to work on his own and he would be a good person to make an example of as I have no doubts he will be successful. He has about 8 acres cleared and fenced but is having trouble getting pastures so he says he will probably not buy any from our next herd (Hill, 1970).

Although all these projects had begun early and therefore represented the efforts of the few Siwais who were keen to introduce cattle, it was already clear that there were going to be considerable problems; several groups had found it difficult to obtain adequate ground and others had failed to clear their land. Two or three of those involved had been on cattle management courses but most knew little about techniques of management. Kauma (Tonu) had obtained a heifer from Tonu mission but was 'content to treat it like a dog'; Huhu (Ieku) did no more than 'sit down nothing' and throughout Siwai the large amount of work necessary to establish cattle projects had been largely absent. Kepoama (Musiminoi), the pioneer of cocoa growing, had also become interested in cattle but even he had not got far. The *didiman* recorded that he 'has got some grass and has marked out a bit of ground but is probably an unlikely starter'; so he was. The *didimen* too had their problems; every Siwai had requested that they initially receive a small young heifer so that they could get used to it and 'train' it but all the cattle they received at Konga were fully grown which made them difficult to distribute. Moreover they were already concerned that if a road or abattoir was not built they would once again have to purchase back the cattle before a 'real' market emerged. By 1970 therefore cattle farming had begun in Siwai but there were no indications that it would be successful.

The earliest cattle projects were mainly located near Konga (Figure 20) and reflect the fact that most of the

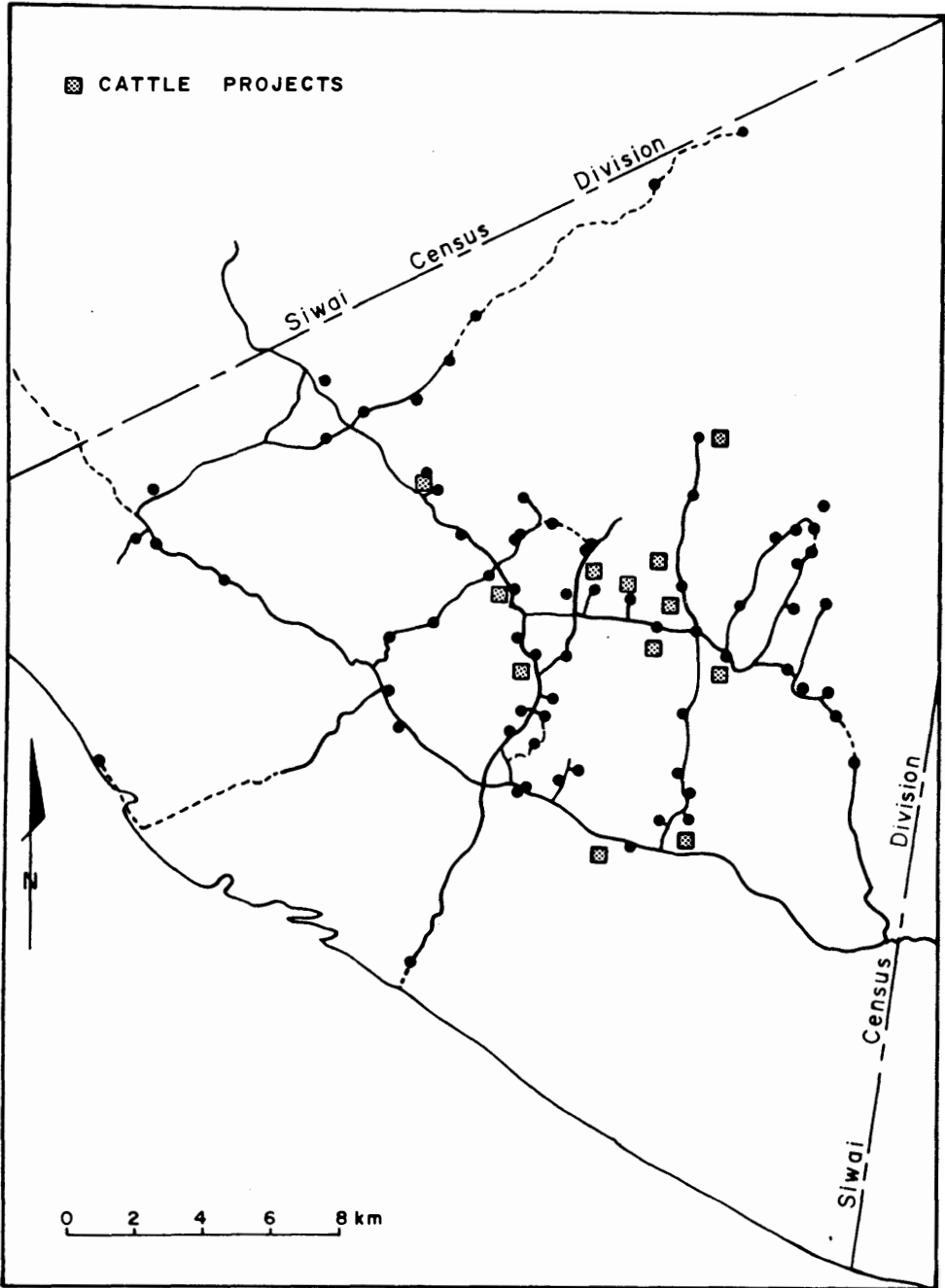


Figure 20. Cattle projects 1970

first cattle raisers had already been successful in cocoa growing; for them cattle were a means of diversification away from cocoa rather than an activity preferred in its own right. Thus, with one exception, none moved into cattle-raising without already having tried cocoa. Three of the project owners (or part-owners) were Siwai *didimen* working at Konga who already had some knowledge, at least in theory, of the organization of cattle projects. The one exception was Kuheo of Silaruho.

Kuheo was born in Silaruho in the last years of German administration in Bougainville. His father, Haranu, was the last Siwai to be hanged by the administration at Monoitu in 1923 when Kuheo was about twelve years old. Soon afterwards he ran away to Buin and was taken by a European to Rabaul where he worked on a plantation near Kokopo for three years. There he worked as a cook and also looked after cows. Later he worked at various places in New Guinea, including Kainantu, where he helped to set up the first station and airstrip and was shot in the leg by a 'wild man'. During the first part of the war he worked in Rabaul, alongside Michael Somare's father, building airstrips and trenches but he returned to Siwai to become a scout for ANGAU. He taught villagers how to fire 303 rifles and was himself shot in the hand by the Japanese. Before the war he had married two wives and after the war he married a third; as he put it 'this was the traditional way of carrying out business to obtain land and pigs'. After the war he did indeed acquire a large number of pigs and much land and consequently achieved a position of high status, usually being recognised as a *mumi*. He was possibly the first person to fence his pigs but took little interest in cash cropping. He had always wanted to obtain cows based on his early experience in New Britain but the *didimen* discouraged him until eventually they decided he was capable of running a project. In 1968, with his two sons, he became the first cattle owner in Siwai; as the *didiman* recorded in 1970 'he is pretty thrilled that he is now going to see a big cattle herd before he dies'.

Like most new introductions into Siwai the early innovators of cattle were mainly those who had some sort of previous experience with cattle. However few of these, not even Kuheo, were looking towards cattle as an economic alternative superior to anything that had gone before; it was an addition and not an alternative in the Siwai economy. It was a move into business, but business as prestige rather than as an improvement in cash-earning capacity beyond the existing cash crops.

The idea of a large Siwai Society project lapsed for a couple of years since in the absence of DASF support the Development Bank refused to grant a loan. The small scale projects were at best disappointing so that in May 1972 the Chairman of Siwai Society wrote ironically that 'If the current rate of progress continues the Siwai people may have one or two head of cattle ready for sale to Panguna/Arawa/Kieta by the time the mining operations are ready to cease. This I believe is scheduled for the year 2005'. Despite this failure, but to some extent because of it, Siwai leaders, like Thomas Konnei, the Chairman of the Society, remained convinced that a large project was the best way to develop cattle farming as a business enterprise. Consequently in 1972 the Society were examining new proposals. Their aim was to establish a separate Society, which would collect \$10,000 in share capital (from \$10 shares), purchase 3000 acres of land at Ruisei and begin the project with 100 cattle on 400 acres, initially with a European manager. This time the administration had revised their attitudes; the Chief Rural Development Officer of Bougainville, David Brown, considered that 'the Siwai people have developed several good smallholder cattle projects and now consider they are ready to progress to the next stage. This office considers ... that it would be timely to advance to the next stage of development, in the Buin sub-district, of 100-head projects' (Brown, 1972). Indeed circumstances had changed; the road to Kieta was open and there were obvious markets in the mine towns. Moreover BCL had expressed 'moral support' for the scheme and promised that Panguna Development Foundation would assist in supplying the venture. Consequently, with this level of support, the Siwai Society applied to the Department of Lands for a pastoral lease on the Ruisei land. They expected to purchase 3000 acres at \$1 per acre and make improvements to it that would eventually raise its value to \$500,000; costs in the first year of operation would amount to about \$26,700 (including \$10,200 for clearing and planting the land and \$2,000 for the manager's salary). At the same time that the Panguna mine was expanding its labour force

and cocoa was becoming decidedly profitable, the Konga *didiman* expected that the cattle project would give plenty of employment at standard labouring rates to Siwai men whilst it was even recommended that a good inducement to share purchasers would be the proviso that only shareholders could work on the project. No estimates were made of the potential labour force. The expectations were hopelessly optimistic. The needs of the copper mine, and a new road, seem to have provoked a complete reversal of policy on the part of the *didimen*. When the local *didimen* began to make a more critical evaluation of the scheme problems immediately became apparent; the area turned out to be 637 acres (and not 3000 acres), although this would not have made much difference since it would still support 630 head of cattle. They also found that Sukina, the representative of the 102 people with rights of ownership to the land, required \$1600 compensation for the 'improvements' on the land, that is the bananas, almonds, breadfruit and other economic trees that grew on the otherwise unused land. Moreover he was only willing to lease the land for twenty years at an annual rate of \$2 per acre. All of this was somewhat different from what the supporters of the project had envisaged. Once again land rights were discouraging large-scale economic developments. The changing demands on the part of Ruisei landowners provoked reconsiderations on the part of the Siwai Society so that at the start of 1974 they had abandoned the possibilities of Ruisei and were searching for a new site. There seemed no prospect of the project ever starting as around this time interest in the smaller schemes began to decline.

Possibly the greatest constraint to cattle farming was, and is, the availability of land; although the Konga *didimen* seem to have worked on the basis of one cow per acre, estimates for other tropical areas, including other parts of New Guinea, suggest that the animal density should be less than half that. This means that for a smallholder scheme with ten cattle, the minimum herd size that is viable, at least twenty acres of land were required, yet very few individual Siwais or even groups could obtain rights to such a large area of land, much more than was usually required for cocoa planting, even though cattle projects did not constitute permanent use of that land. Consequently almost all the earliest projects were to some extent communal group efforts; none involved purchasing land but some consisted of a set of fields fragmented because of the complexities of land tenure.

The most striking characteristic of early interest in cattle, on the part of Siwais, is the relative absence of an economic motivation for obtaining cattle. Even the *didimen* make no reference to the economic potential of cattle and neither the Society nor individuals seem to have been concerned about the long-term nature of the returns to cattle farming. Just as in parts of the New Guinea Highlands (Finney, 1973) ownership of cattle, as with some other business enterprises, was for prestige rather than profits although it was assumed that profits would follow from this kind of business. Similarly cattle were rarely compared with pigs; cattle were symbols of prestige or business and they were not the intimate component of the social and domestic scene that pigs were. The ecological differences emphasized the social differences; cattle ate different foods and required much more land because of their more restricted diet. The extent and nature of labour inputs into the two forms of animal husbandry was also quite different, especially in the establishment phase of cattle farming. The need for large areas of grazing land was not well understood. Orientation towards prestige and the assumption of easy profitability were the main reasons for the inadequacies of cattle projects.

#### Diversification and disinterest

Just as Siwais considered almost every possible crop with commercial possibilities, so too with animals. In 1969 a villager had requested that the *didimen* provide donkeys in Siwai, presumably as a beast of burden, and the Konga *didiman*, commenting on his unwillingness to provide them, stated 'Am I correct in assuming that donkeys would not be suitable here because of limited loads, wet conditions and the lack of skilled people to look after them?' (Horses, on which some missionaries had been known to travel through parts of Bougainville in the pre-war years, appear never to have been considered as a possibility for rural transport.) Later on in 1972 the *didiman* received a couple of enquiries about the possibility of obtaining goats; they had been observed on plantations and it was felt that they would make good food. The District Livestock Officer was firmly against this, believing that they would be difficult to confine and would cause considerable damage in the villages by eating young trees and so on. A rather different possibility was the export of butterflies; some of those in south Bougainville are amongst the rarest and most beautiful in the world yet Siwai requests in 1972 for information on exporting them

were turned down. In the end none of these diverse possibilities were taken up in Siwai, or indeed elsewhere in Bougainville, and most people remained quite content with the range of animals available to them.

The whole of the animal economy, with minor exceptions, was an addition to rather than a substitute for cash cropping. Animals promised no economic success since markets were distant and with the available technology animal products were not storable. Cattle initially promised no more, so that it was only the demands of a few individuals, and the assistance of missions rather than *didimen*, that enabled the introduction of a development of a rather different order. Cattle represented both business and prestige; they disappointed their supporters in that they proved to be neither, especially since the grandiose schemes of the Siwai Society could not be implemented. With the potential of cattle unrealized, no part of the animal economy brought economic success to Siwai. Cash crops offered quicker, and apparently larger, cash incomes so that whatever prestige cattle could provide was unable to compare with the economic benefits of cocoa. The Siwai animal economy was also subordinate to cash cropping.

## Chapter 8

### Business and cargo

The cocoa-conscious Siwai is an astute businessman. As such he calls a dollar a dollar and a spade a spade (Donovan, 1970).

The Siwai is no fool when business is involved. He has a rather fierce pride in his ability to work hard and better himself in a 'productive' sense and an equal measure of pride in his ability to live simply and not join the ranks of the sophisticates for whom he has no admiration and little tolerance (Tomlin, 1969:2).

Beginning with the communal cultivation of rice in the early post-war years it was generally assumed by Siwais that the purpose of growing cash crops was to provide an income which would be used not only to purchase various goods that were needed or wanted, especially foodstuffs like salt and tinned meat, kerosene and bush-knives, but also to establish stores and thus bring business development into Siwai. Cash cropping and business development were essentially separate parts of the same phenomenon; indeed Nash suggests that in Nagovisi the combination of trade stores and communal cash cropping perhaps followed a perceived European plantation model (1974:102). For Siwai this is equally true.

Before the war the stores that had briefly existed in Siwai were essentially tiny branches of European and Chinese businesses which were centred elsewhere (pp.62-3). After the war the Chinese trader Wong You, whose main interests were in Buka and Kieta, attempted to restart his Siwai store but, according to informants, he was told by Deokare of Kaparo that since he had only paid 10/- for the ground on which the store was built he could not return to take more money from Siwai. Alien-owned stores never returned to Siwai, whereas they were accepted in Buin, and all the subsequent stores, apart from those associated with the missions, were

essentially the creations of Siwai entrepreneurs. Siwais were no longer store labourers; they became store-owners.

The first six stores opened almost together around the start of 1953, not long after the distribution of war compensation money in Siwai. Although the average claim amounted to some £30 per household, claims were not evenly distributed within Siwai so that Siwai leaders, especially from central Siwai, were able to claim ownership of considerable natural resources (such as coconuts and sago palms) and almost certainly received sums of over £100. By any previous standards familiar to Siwais this was an enormous sum and represented a significant incentive to attempt a new form of development. Six separate Siwai leaders began stores, Towai (of Kotu village), No'kia (Hukuha), Haranu (Hire), Piruruho (Musiraka), Teremo (Amio) and Sihirong (Hari), and there may have been others in the more remote villages. Although the Assistant District Commissioner in Buin, Mr Cole, discouraged this new development, whose results to some extent eventually justified his caution, it was a move that was inevitable. Several of the stores, like that at Amio, were run in conjunction with the communal cultivation of rice on behalf of lineage groups; the operations of the two sectors were invariably indistinguishable. Like the attempts at communal cultivation, the rationale of the early stores (at least as it was expressed in 1975) was to improve the access of village people to goods without paying high prices or travelling to the Buin coast at Kangu. The intention that village stores would help people was familiar elsewhere in Papua New Guinea but was much less important than the belief that through the creation of an extensive network of credit and gift relations, and by simply owning a large collection of store goods in its own room or building, store-owners achieved prestige. For a time both these objectives were attained; prices were lowered and prestige was achieved.

Before these novel developments in Siwai one Buin man, Kungka, had already become a businessman of some note. As early as December 1952 the *kiap* observed that he had three trucks, three trade stores, two bakeries and large rice gardens annually producing around two tons of excellent rice which was sold in the stores. The rice was machine-hulled by his own huller; others could hire this for a rent of 25 per cent of their own crop (PR Buin 4/52-3). Kungka was therefore some way ahead of any serious rivals but, because his own village was in western Buin whilst he worked

from Buin port at Kangu, his business activities proved to be something of a model for the rather later Siwai efforts.

One of the first Siwai store owners was Haranu, now an elderly Siwai *mumi* of some authority. Before the war he had gone as a *kukboi* to the *kiap* in Kieta, who sent him to Rabaul for further education. Although he never achieved more than literacy at reading numbers he became a *plisboi* before the war and during the war spent some time as a coastwatcher with Paul Mason in the hills above Kieta. After the war he returned to the village of Hire. The following account, which cannot be collaborated in its entirety, is drawn essentially from his own description of his early post-war business activities.

After the war Haranu established a copra plantation of perhaps 400 trees at the mouth of the Mobiai river, which has now been destroyed by the sea. He was the first person in Siwai to build a copra drier. (Later he built a second one near Hire, with the assistance of the *didimen* soon after they first came to Konga.) He sold copra, sago seeds ('ivory nuts') and occasionally trochus and mother of pearl shells to Ton Lep, the Chinese trader at Buin. In 1953, with his war damage money, encouragement from the Catholic Bishop Wade (who told him this was a good way to use the money) and some assistance from Ton Lep he set up his own trade store at Hire and assisted in financing and running the stores at Musiraka, Ieku, Hukuha and Hari. The store at Hari, which was run by Sihirong, who had been a pre-war *kukboi* too, also had a bakery (NM-*haus bret*). The five leaders who were involved each contributed £100 entirely from war damage money and other men contributed £1 and £2 each. Since there was a lot of war damage money in Siwai they soon made £300 profit. (Haranu claims that their cash actually reached £4000 but this seems improbable.) All the goods for the store came from Ton Lep in Buin, when possible being carried in Kungka's truck (which for more than a decade was the only locally owned vehicle in the whole of south Bougainville), but more often they were carried on various shoulders. Sometimes Haranu paid no money for the cargo but simply traded copra and ivory nuts for it; although his copra drier was later set up near the store and he

encouraged people to bring copra and ivory nuts to him, this does suggest that the amount of income generated by the store may have been unimportant. Late in 1955 Tomlin recorded that coconuts were being purchased by Siwai storekeepers at a penny each (although in some villages there was such a shortage that 3d. each was being paid for planting nuts) while copra was being sold to Chinese traders at either 4d. or 4½d. per pound which can have left little profit margin for these early businessmen. The store lasted for two or three years, or possibly longer. Tomlin noted in October 1956 that 'native storekeepers have formed a buying club and bulk their orders so as to obtain favourable purchase prices', so that this group of stores may have lasted for more than three years. Haranu claims that he closed his store since he felt both that men with education would soon start running the stores and that Ton Lep was making too much profit from them. Piruruho, who had the store at Musiraka, claimed that the *kia*p, Mr Cole, had ordered him to close his store after only about one year since there were too many disputes over money. The other related stores closed after the same sort of time period, although some operated sporadically throughout the decade and even longer.

Although Haranu stated that some money was left when his store closed it seems that the first flush of enthusiasm for store ownership and the ability to purchase store goods had ended after the dwindling of the war damage payments and the inability of cash crops to provide alternative incomes. The cash that remained must have been decidedly less than the original investment. (Haranu himself later went on to be one of the main instigators in establishing the Siwai Society, established the first poultry project in Siwai with a loan from the Development Bank (p.185) and in the 1970s began a cattle project.)

The emergence of the early trade stores coupled with the war damage payments had a number of effects on Siwai life. Compared with other areas of Bougainville relatively few men were working outside Siwai; in August 1955 the *kia*p calculated that 28 per cent of adult Siwai men between the ages of 16 and 45 were working outside Siwai. Although this represented nearly a third of all adult males it was nonetheless lower than other areas (cf. Connell, 1978b). The *kia*p

believed that

this is probably due to the fact that with the large sum of money paid as War Damage Compensations, the circulation of money is, at present, quite sufficient for their needs and any great desire to earn more money will therefore not be noticed in the area until this money has reached its ultimate end, which is one of the many trade stores in the district

Production of copra also declined during the period when the compensation money was being spent and it was not until October 1955 that Tomlin noted with relief that the final completion of the payments had 'forced people back into production'.

In October 1955 Tomlin recorded that 'native businessmen employing a few labourers have been growing rice to sell in their stores'. It may well be therefore that the first hired labourers, working outside their usual lineage group and receiving cash payments, emerged at much the same time as the first businessmen. Tomlin's conclusion on the businessmen of both Buin and Siwai is fairly clear:

There are a great number of native businessmen throughout the whole sub-district. Most of these individuals have been trained by missions and plantations and are generally better educated and a cut above the rest. They combine with their small trade stores some agricultural activities. Quite a few grow rice to sell in their stores and peanuts for sale through traders. This generally means that they have other members of their families assisting them, or they employ other natives to tend their gardens. Cocoa growing is now becoming the fashion with these characters and quite a few are paying casual labourers to plant it (Tomlin, 1955).

Although at that time the emphasis on cocoa cultivation was more typical of Buin, the general characteristics of Siwai businessmen are demarcated here. The employment of labourers marked a new phase in the commercialization of Siwai agriculture. Few of these were regularly employed although by the early 1960s there may have been some individuals who spent more time on wage labour than on

agricultural activities of their own.

At much the same time that Haranu's store closed Anthony Potungah set up a store at Konga and it is almost certain that there was never any time since 1953 when there were not some locally-owned stores operating in Siwai. Thus in August 1955 there were fourteen licensed trade stores in Siwai but according to the *kiap*, D.J. Hook, only the three at Konga, Harikagu and Hari appeared to be prosperous. Some of the stores were in very small villages and Hook even found some in gardens. He also observed that although the retail prices allowed a profit of about sixpence per article, profits were offset by the free distribution of foods to the 'friends of the storekeepers' but that it was impossible for them not to do that. The time when any local stores would operate consistently at a profit was still more than a decade away.

Anthony Potungah began his first store around the mid-1950s but apart from him, all those who later became successful store-owners did not start until the 1960s. Potungah himself found the conditions for running trade stores in the 1950s very different from two decades later when his store was one of the more successful in Siwai.

Potungah had no formal education but learnt to read and write during the war. After the war he became a carpenter for Ton Lep in Buin. He watched carefully how Ton Lep used to mark up the prices of store goods and developed the idea of establishing his own store. Returning to Siwai around 1955 he used his savings to set up a store near Kapana village obtaining his goods from Ton Lep; most of these were the same sorts of things that are still sold in the present stores: rice, fish, *laplaps*, knives, kerosene and batteries. Although he did not want any assistance thirteen people nevertheless contributed £5 each to the development of the store, which also incorporated a bakery. His stated aim in setting up the store was to assist the old people of Siwai by providing goods at prices they could afford whilst simultaneously enabling him to make one or two pence profit on each purchase. The store was quite successful and he had intended to develop the bakery into a cafe (NM-*haus kaikai*) but the 'shareholders' told him that they were unhappy because he was 'eating' their money. He gave up in disgust, gave the store key to one of

them, Kunopi, and told him to run it. The store then collapsed.

The same problems that existed for the management of the communal gardens were therefore repeated in this and the vast majority of the stores that followed. Anthony Potungah, possibly with the wisdom of hindsight, commented that he had never wanted 'shareholders' but the collective organization of business and money-making activities was something that it was impossible to avoid in the first decades of Siwai commercialism. Stores like the grandiosely-titled Siigiha Trading Society at Kakotokoli had some 108 members in 1967 and were still enrolling new shareholders. Disputes over the destination of incomes, in situations where no one was able to maintain accounts, proved much too great for the long term stability of such enterprises. The relative longevity of the early stores associated with Haranu and the other leaders was a function both of their novelty and the extent to which a very small number of men provided the basic finance. Neither of these conditions was generally true of most of the stores that followed. In 1956 Rangai, of Panake village, had what Hook described as a 'well-established wholesale store dealing in native basketware' but most of the stores were little more than small collections of foodstuffs. Nevertheless in February 1957 Tomlin was able to state with some pride that 'local native storekeepers are catering well for the consumer side of the business and many articles are sold here at less than Buin prices. This is having a marked effect on local diet. Much more tinned meat and fish are consumed'. These were not apparently considered to be expensive and were eaten with the locally produced rice.

One characteristic that would seem to distinguish Siwai from otherwise comparable parts of Melanesia, at least until the mid-1960s, was the unwillingness with which income was spent in the trade stores. Tomlin recorded that, 'they talk sceptically of the money they are spending on consumer goods as "rubbish money" because it does not produce anything and is wasted. This is the reason why they limit it to a small percentage of their total income and save the rest to develop additional revenue producing business' (Tomlin, 1969:2). He believed that Siwais were exceptionally 'frugal-minded'. Nevertheless despite this reluctance to spend freely, the purchases made in stores were similar to those elsewhere in Melanesia; most prominent of these were foodstuffs, then clothing, radios, tools and household equipment. Bicycles became important and were much used for transporting cocoa;

Tomlin was careful to note that 'anyone worth his salt owns one, and uses it in conjunction with his work rather than as a means of amusing himself' (Tomlin, 1969:2). A high propensity to save, even out of quite small earnings, never proved to be a disincentive to further store expansion.

It was obvious to both *didimen* and Siwais in the 1950s that the main deterrent to business success was the lack of transport although, without considerable finance from outside, which was conspicuously lacking, it would have been difficult to ameliorate this problem. Tomlin observed that coconuts were being bought 'by the businessmen' but before they had smoke-dried the copra or devised a means of transporting it to Buin the coconuts had often developed sizeable shoots. In 1956 a group of villagers from Panake, Ruisei, Kapana and Ieku had been saving their money (probably mainly war damages) with the intention of buying a truck. They did not succeed and the transport problem was not entirely solved satisfactorily until 1972. By 1956 the concept of *bisnisman* seemed to be recognized, at least by Tomlin and presumably by Siwais as well; Tomlin noted that some of them were managing to do quite well and that the Society 'has purchased a total of 33 bags of smoke copra from Siwai businessmen'. He recognized a number of individuals who were successfully organizing some combination of stores, copra purchasing and smoking and sometimes bakeries to the extent that by western criteria there was a tiny group of small scale entrepreneurs.

Early efforts at organizing and running trade stores were made essentially without alien assistance; Chinese storekeepers were prepared to profit from providing cargo but the administration believed that the stores would be failures and took no interest in encouraging their development. Although most of the goods came from the Chinese traders in Buin the Methodist mission at Kihili also supplied cargo (and purchased copra). Later Siwai businessmen, such as Luke Pauru, developed some skills from periods of work with this mission which, for most of the post-war years, had a greater influence on the emergence of business than its Catholic rival which was rarely concerned with going beyond encouraging cash cropping. During the 1950s the skills involved in trade store management were gradually acquired but the problems of organization were still too great to allow profitability.

It is apparent that in the early 1960s more stores than ever before were being established in Siwai, many being known simply as 'canteens'. These latter were essentially the

result of the efforts of a single man or a small group of kin to buy in bulk large quantities of basic foodstuffs which would be sold only to members of the man's household or the group; they were not intended to supply large numbers of people or make a profit. They were in the strict sense stores rather than shops, accumulated in the owners' house. Late in 1963 the Council instructed store-owners that they must maintain trade stores in separate buildings (for which a licence costing £3 had to be purchased) rather than keep goods in the houses that they slept in. This did little to reduce the number of these tiny canteens. The number of bakeries was also increasing rapidly although this was not without its problems (the Council decided in 1967 that the medical assistant must inspect all of them with a view to taking to court those owners who did not maintain satisfactory standards). Flour was usually in short supply; skills in bread making were often conspicuous by their absence and most had an essentially ephemeral existence. Despite rather than because of the proliferation in numbers many of the stores were quite unsuccessful as business enterprises. As one *kiap* recorded at the end of 1964: 'trade stores come and go. They are not regarded as a lucrative source of income but as a thing of prestige for its owner and a convenience to the village' (PR Buin 5/64-5). A year later the *kiap* noted that the two adjoining villages of Rabaulu and Matukoli has as many as five trade stores but none of them offered any prospect of a long term future. Many seem to have been essentially a means of extending and strengthening social ties and hence their proliferation reflected these aims rather than commercial requirements. Thus the early development of trade stores in Siwai was much as it was elsewhere in Papua New Guinea; they were nominally to provide various kinds of goods in the rural area and to demonstrate their owner's prestige. To succeed in business it was necessary to save rather than share; this was impossible in the early years and stores foundered on disputes over the ethics of distribution.

By the late 1960s, however, trade stores had become an integral part of Siwai economic development. No longer were they divorced from the agricultural sector, with all transactions being made from war damage payments, but stores were run from the profits of the emerging cocoa economy; thus there was a continuous supply of funds for trade store development. This did not of course ensure profitability but, because it was relatively easy to ensure profits from cocoa growing, it did mean that stores remained in existence

much longer than would have been possible without this external source of funds. By the end of 1967 there were a small number of stores which seemed to display sufficient potential to suggest long term success. The resident *kiap* singled out two stores, from the twenty or so then existing, those of Hatah and Paul Tupana. There were also four bakeries and from these he singled out that of Luke Pauru as the one with the greatest potential, especially since Pauru had just become the first person in Siwai and possibly in the whole country, to apply for a loan of \$400 from the newly formed Papua New Guinea Development Bank to extend his bakery. At that time Pauru was still a clerk with the Methodist Mission at Tonu but he had a trade store and a sound knowledge of accounting procedures. Less than a decade later Pauru was the leading Siwai businessman, Hatah was making the greatest income in Siwai from purely rural interests whilst Tubana's stores and visions had long since collapsed in disarray (pp.215-8). On the other hand not everyone was familiar with trade stores and some apparently long-established trade store goods still had an uncertain place in village diets; in May 1966 a senior administration official answered queries at a Siwai Council meeting emphasizing that tinned fish were not really snakes.

At the end of 1968 there were enough successful stores for the Siwai Society directors to consider setting up a separate wholesale co-operative society which could distribute trade store goods within Siwai. The Motuna Wholesale Society was not however officially established until April 1971 partly because of opposition from the Department of Trade and Industry who believed that there were already enough wholesale societies (Busiba, plus the Telei and Tutuna Societies in Buin and Nagovisi respectively) in south Bougainville. The Motuna Society purchased goods from Rabaul and Kieta and sold them to trade stores within Siwai at a mark up of 5 per cent. Despite brief periods of profitability the Society was run extremely inefficiently, mainly because the directors were on the whole trade store owners with their own interests to maintain whilst the secretary was eventually gaoled for misappropriation of the cash. Until the completion of the trans-island road it performed the function of providing trade store goods in Siwai; after that it could not compete with direct purchases by trade store owners in Kieta and faded away until its eventual demise at the end of 1974.

By 1970 Luke Pauru had already demonstrated most of the characteristics that ultimately emphasized his success in

business. Early in the year he claimed to the *kiap* that his stores had an annual turnover of \$20,000; the new *kiap*, F. B. Donovan, provided a potted biography of him in his patrol report:

Age 35. Business Manager to Tonu. Fluent English. Operates the local Commonwealth Savings Bank agency. He buys and re-sells cocoa, has a tractor and two more motorcycles, all for hire. He also has the most sophisticated trade store in the area - glass showcases, cold drinks, ice cream, fresh bread and a local style cafe, plus a small plantation. Travels regularly to Rabaul for stock therefore his goods are cheaper than in Buin. Buys bicycles in lots of 50 from Rabaul.

Donovan provided a similar brief biography of Hatah who, he felt, was the only other outstanding entrepreneur in Siwai and whose business career was quite different from that of Luke Pauru.

At the same time, late in 1967, that Siulai was becoming concerned over the lack of ground for Rataiku cocoa planters (p.165) it was becoming more than apparent that some men were doing exceptionally well out of cocoa, not so much because they were the first planters but because they were investing their incomes in various kinds of business enterprise. Demand for land was going to grow. It is useful to examine Hatah's career since it provides a short sketch of the extent to which economic differentiation was already possible, with reference to the early career of one Siwai businessman.

James Hatah was born in Kohkui around 1938; he had about three years in the Musiraka village school before going to Kangu. There he was allowed to look after the school store since he was not interested in carpentry. After that he worked as a store boy for Ton Lep in Buin, who subsequently sent him to work in his brother's store in Rabaul where he stayed for about five years at the end of which he was reportedly earning about £40 per month. Whilst he was there he sent money back to his brother to begin a cocoa plantation; with a *kiap*'s assistance seven acres of ground were purchased for £175 [the first recorded instance of land sales in Siwai]. After three years, when

the cocoa began to bear, he returned to Siwai. Around 1962 he began a small store at Kohkui, with some assistance both from the missionary and Luke Pauru, modelled on that of the Methodist Mission at Tonu. There were five shareholders in the store: he and his brother, his father, mother's brother and wife's brother. This store made a small profit which was used to develop a second cocoa plantation on the far side of the Mobiai river and to build a modern store with metal roof and walls. In 1966 a second store and bakery followed at Rano. Again there were five shareholders each of whom deposited \$10 each. By this time Hatah was using the name J. Arthur and writing paper headed 'Rano Plantation' which gave him a certain advantage over other local storekeepers in obtaining credit and stock from European and Chinese businessmen. Nevertheless he became involved in a land dispute in Kohkui and was also unable to pay his creditors; his stores were closed for a time and Burns Philp recovered various goods. Following these troubles he moved to Rano and became heavily committed to cocoa; the earliest records of his cocoa sales are from the period March 1965 to October 1966 when he sold \$1,415 worth of cocoa (and also \$71 of rice and two baskets at \$4). Since he earned at least \$1,200 in the last six months of 1966 his sales were growing rapidly; in eleven months from April to March 1968 he earned another \$1,900 from cocoa sales to the society. However by 1967 he had discovered that profits were greater by selling direct to traders such as Peter Chung and Roger Porteous in Buin or even Rabtrad in Rabaul. Peter Chung, especially, helped him to start up his stores again. In 1967 each of these traders purchased dry beans from his fermentary and he himself was buying wet bean from areas as far away from Rano as Unanai and Mamagota, at a price 1d. per pound above the Siwai Society price. It was his own idea since there were no private traders in New Britain whilst he was there and he was the first in Siwai to try this. Consequently in 1968 he again had two stores in operation, was selling dry bean to various traders including, occasionally, Siwai Society and he was also dealing in baskets. Cocoa censuses at this time suggest

that he had about 4,000 trees although the number was rapidly increasing. Since most of his trade was private there are no records of the income from these operations, which went almost entirely to him and his brother, but it was enough to enable him to purchase a Land Rover in 1969, one of the first private vehicles in Siwai. Hiring of this became another strand in his business empire which by 1970 included 7,500 cocoa trees and over a thousand coconut trees. By then he had begun to use hired labour to look after the stores and the plantations.

Hatah, after an early set back, became an extremely successful businessman, going on to become the largest, rurally based, Siwai entrepreneur. He was not typical of the other early cocoa growers; although most tried their hand at some kind of business development none was really successful. Nevertheless, although untypical in the sense that he was extremely successful, his drive was almost a prototype for the development strategies that other Siwais subsequently tried, and indicated the possibilities that were then open to entrepreneurs in the area.

### Cargo

The existence of cult movements in Bougainville was first reported as early as 1913 when a group of leaders was arrested by the German administration at Lontis in Buka. Subsequent movements have occurred intermittently in other parts of Buka, where they have been amply documented (Worsley, 1968), and to a lesser extent in parts of eastern and north-western Bougainville. The phenomenon has not escaped Nagovisi but in both Siwai and Buin there is scanty evidence for cult movements and what little evidence there is indicates that cult movements were quite unimportant there, especially in comparison with other parts of Bougainville and most other coastal areas of Melanesia. Why this should be so is not readily apparent.

In his account of the Nasioi of the east coast of Bougainville, Ogan considered cargoism to be simply a belief system involving 'the belief that supernatural assistance is absolutely necessary to achieve the material and social well-being which Melanesians perceive as possessed by Europeans' (Ogan, 1973:15), and therefore can be carefully distinguished from particular organized movements or 'cargo cults', which

demanded some form of collective, co-operative operation. In this latter context the earliest recorded cult activity in Siwai was in 1961 when the two Catholic villages of Kaparo and Hire were recorded as 'actively participating' in cargo cults by the *kiap* who investigated the problem (this may not have been the first cult movement in Siwai since the *kiap*, A.I. Redwood, referred to the 'usual spotless cemeteries' although this norm could have been that of other parts of Bougainville or elsewhere).<sup>1</sup> After an inquiry, which included a twenty-four hour watch on the villages, Redwood reported that villagers were being organized by a young A-grade teacher called Tuhori from Kaparo village, and that the cemeteries were spotless with all the grass and shrubs removed and gravel brought in and laid out. Tuhori's followers explained that white men had hidden from them the road to finding easy money; tree crops were a hard way. They felt that silver coins and steel could be made in Siwai but the white men were not showing them how this could be done. They believed that in some way the cemeteries were the key to this wealth since in Australia they were always kept neat and tidy but here, when villagers cleaned them up and kept them tidy, the Native Affairs Officer always got extremely angry. Moreover, on some important days in the mission calendar, such as All Souls' Day, the Catholic priest usually conducted mass in the cemetery. Tuhori was soon sacked from the Monoitu primary school teaching staff by Fr Lebel but, although Redwood recorded that a few months later the movement had died, some manifestations of this almost 'classical' cult lingered on in several villages for about a decade.<sup>1</sup>

This particular form of cultism was only expressed in Catholic villages including Siroi, Kotu, Matukoli and Tokonoitu and was closely associated with the Legion of Mary,

<sup>1</sup>In May 1961 the Siwai Council discussed the possibility of obtaining a film that would counteract the influence of those people in the district 'who think that cargo just comes out of cemeteries'. In the end they decided not to. The reference here to 'district' may have only referred to Siwai yet it is probable that councillors were considering the influence of the opinions of people from the nearby Banoni and Nagovisi areas where cargo beliefs were much more prevalent. Despite the widespread political support for Paul Lapun, who was believed in many parts of Bougainville to be something of a prophet, and who came from a nearby part of Banoni, there is relatively little evidence of Siwai cargoist support for him.

a Catholic devotional association which aimed at strengthening the faith of local people through a combination of good works and regular prayer meetings (often three times a day at its peak of popularity).<sup>2</sup> The Legion first reached Siwai in 1956 but there was little interest until late in 1962 when it was revived by a lay catechist from Buka, Sylvester Carley, who as part of his teaching made the mistake of recommending that graveyards be kept clean. This then escalated to the extent that in some villages prayers were being said and even meals cooked there; in four or five villages bones were disinterred, covered with calico and used for worship. The bones from previously scattered burials were also centralized in the cemeteries where 'they could be looked after properly'. The minutes of the Maria Kwin bilong ol Apostel (Mary Queen of the Apostles) Praesidium which covered Siroi, Amio and Kaparo villages (although they existed for only a few months in 1970) reflect some of the confusion. In March 1970 one of the members was warning them against 'the custom of the people of Aitara of removing bodies from graves in the cemetery and bringing them back to the village' whilst three months later they were concluding that it was best to pray in the church but it was also good to pray 'in other places' on some occasions. The praesidium owned a secret pouch (*NM-sikrit paus*) where money donations were held, which was passed between members at meetings so that the money could be felt. The theology was confused and the apparent emphasis was very much on the potential wrath of Satan and the necessity for regular attendance at mass, prayer meetings and confessions. Especially during the late 1960s considerable pressure was placed on those who did not participate regularly in religious affairs; this kind of religious revivalism also existed in several other Siwai villages. On one occasion, in Unanai, a villager entered a shaking fit, claiming that he could see Jesus and Mary and that cargo was on its way. This particular form, more common elsewhere, apparently occurred as no more than this single episode. Although the resident Catholic priest, Fr Lebel, continually railed against the foolishness of cult activities, and in July 1967 devoted two pages of his monthly newsletter, *Catholic Action*, to a diatribe against the practice whilst Carley himself circulated in April 1970 a small booklet *Tok na Pasin Kago* warning that the practice of saying rosaries in the cemetery would not bring cargo,

---

<sup>2</sup>The same link between cargoism and the Legion of Mary had also been earlier present in Buka (cf. Rimoldi, 1971:138-9).

these efforts did little to convince the small number of practising cultists that there were not alternative routes to affluence, that the church was responsible for hiding from them, so that it was not until the early 1970s that the Legions and the cults collapsed more or less simultaneously.

A more obviously secular variant of cargoism flourished briefly around 1959, thus preceding a similar movement in Nasioi (Ogan, 1973), when Ariku, a Tonu leader, declared that Bougainville should no longer be administered by Australia but that the English should give Bougainville aid. At the same time he set up a 'cultural centre' - a small men's clubhouse (*S-kaposo*) which incorporated a 'bank' and various traditional artefacts, such as coconut implements and so on. This early indication of incipient or 'proto-nationalism' (Valentine, 1963:39-40) was not however subsequently reflected in opposition to the Local Government Councils as it was in parts of Nasioi.

A further element that might have been construed as a cult movement in Siwai was a brief attempt by a nineteen year old Musiminoi man to establish a Baby Garden, following what he had heard or possibly observed of the Hahalis Welfare Society in Buka. In 1964 he requested land to establish such a place but was turned down by his mother's brother and the councillor for Ruisei. The *kiap* interviewed him and a group of villagers at Musiminoi and reported that none was interested in the idea. According to the *kiap* 'they were not at all inclined the same way at the Kunnu debauchers' (whose debauchery is left unrecorded) and some men swung axes and knives in the air at the originator of the idea. The *kiap* duly reported, 'The Siwais are a happy contented people and although they are not Puritans they are by no means a morally loose people'. Everything in this brief attempt, the only one of its kind recorded in Siwai, is indicative of a single young man's move to introduce sexual licence rather than a cult movement. Unlike the Buka experience a sexual element was never a component of cult movements in south Bougainville.

Following his experiences in the Kaparo cult and as a teacher at Monoitu, Tuhori became the secretary (NM-*kuskus*) of a set of stores that was being established by Tubana, a middle-aged man from Kotu who was also a Catholic catechist. (Catechists were appointed in each of the Catholic villages to carry out the work of organizing and teaching the village people, especially by carrying out church prayer services

and acting as a link between priest and people. Carley was also involved in training catechists and even in 1970 in a pamphlet *Ol Kateket* (Catechists) he was comparing the Legion of Mary to an army in which the catechists were the captains and the priest was the general. This was naturally an image that appealed to memories of the effective wartime organization of the Japanese army in Siwai. Tuhori himself, although no longer a teacher, was still the President of the Kaparo Praesidium of the Legion of Mary and Vice-President of the Legion for the whole Siwai area. The organization of this particular business venture was to some people, Siwais and *kiaps* alike, indistinguishable from the cult activities that preceded it and the stores that Tubana and Tuhori organized became the focus of another administration inquiry because of a complaint about suspected cult activities made by the Siwai council president in May 1967. The investigating *kiap*, R.E. Dargie, recorded in a patrol report:

The activities are suspected to involve worship of ancestors in cemeteries so that cargo may appear. It seems that the whole village may be involved so no definite proof is available. A man named Paul Tupana is suspected of having some connection with these activities. Paul Tupana has established a 'company' called Paul and Company, Kotu, which is believed to have financial assets to the value of \$1200. This money has been collected from people in seven villages surrounding Kotu, plus village people in the Arawa area of the Kieta sub-district. The patrol officer examined Paul Tupana's register of shareholders and found that some men have invested as much as \$20 in the company. He aims to establish a chain of trade stores throughout the Siwai and purchase a tractor.

Later that year Dargie revisited Kotu and made no reference to any cult-elements in Tubana's organization, commenting only that the organization was chaotic since he and his assistants were not very literate and that dividends of 'shares' were paid out in the form of trade store goods. Dargie did however pursue his concern over cargoism elsewhere in Siwai, noting that 'beliefs in the occult remain in certain communities, i.e. Kotu, Tohu, Ru'nai, Kaparo and Siroi villages', all of which were Catholic villages, but that overall 'they had not really got to cargo cult thinking yet'. Towards the end of 1970 another *kiap* recorded that 'cargo cults are not a going concern', while Tomlin could not

'detect any vestige of cultish belief' in Siwai and the annual reports for the sub-district and for Bougainville had never expressed concern over cultism in south Bougainville in the same way that they worried over such problems elsewhere.

The organization of stores that Tuhori began lasted for at least four years between 1963 and 1967. The finance to start the company was obtained from copra selling, essentially by the villages of Kotu and Ru'nai, but also by other villages as far away as Kaparo and Siroi. All the copra was sold from the beach at Aitara. In its earliest years it was known significantly as 'Advance Government Solomons Society' and, in this period, it was described by its secretary as being just like a Development Bank, with returned plantation labourers trying to follow white men. In 1965 it became known as 'Paul and Company'. The Catholic mission directly encouraged the establishment of stores, believing that this would foster a measure of economic independence. The main store was at Kaparo, where Tubana had rights in land; this lasted for about three years and at various times there were branches (NM-*han*) in Unanai, Laku, Kotu, Siroi, Siuruhino, Lakempa, Hire, Ru'nai and more briefly elsewhere. (Some of these, like that at Laku, still existed in 1975.) There was also a branch store on the east coast at Arawa, which was then simply a Nasioi village near the Catholic mission at Tunuru. The mission assisted in obtaining store goods, from Wong You's trade store in Buka and sometimes from Rabaul; the mission ship 'St Joseph' sometimes delivered these to the coast at Managota and at other times they were brought from Kangu on the Buin coast. The variety of goods that were obtained, including mattresses and blankets, made the main store 'just like a Chinese store' in variety and quantity and therefore somewhat larger than other Siwai stores.

Like almost every business that went before or afterwards large numbers of people, certainly over 200, purchased shares in the company at £5 each, often using the proceeds of their earlier sales of rice and peanuts. There were certainly over a hundred shareholders from a large number of Siwai villages, including villages, such as in Rataiku, that did not have a store. Tubana was unable to keep proper accounts of the company's operations and when a secretary was employed who had had some experience of store work and had attended Co-operative College, it was too late to restore solvency. Goods had gone to different branches without accounting and, like many other owners, Tubana had given away various goods

freely. For example, the store at Siroi was run by Ham, a relative of Tubana's; at first he received no pay for looking after the store but on complaining was given a lump sum of \$30. All the profits of the store went to Tubana and the store was reasonably well patronized although as Ham observed, 'there was no money in this village'. Other stores operated in much the same way. There was also a bakery at Kotu and copra driers were in operation at Kaparo, Hire and Kotu; these may well have provided some profit for the company to balance against the store deficits. In the end, in the same way that other Siwai businesses similarly foundered around this time, the debts became so great that no more goods could be obtained and, in this case, Tubana was brought to court in Rabaul. The Catholic mission organized a defence lawyer for him and he managed to avoid gaol. Again, fairly typically, most people could not believe that their money had disappeared in this manner and various store managers and secretaries were blamed for having 'eaten the money'. Tuhori and others attempted to collect the debts, by then between \$1000 and \$2000, from the different branches but it proved to be impossible. Tubana managed to organize some of those involved into smoking copra at Mamagota, which reduced some of the debt, although it was never completely cleared. The problems of organization and administration, without knowledge of accounting procedures, had once again triumphed over Siwai attempts to increase their degree of participation in the cash economy.

Paul and Company is unique for two separate reasons. Firstly, although it shared almost all the organizational characteristics and the same eventual reasons for failure as contemporaneous Siwai stores, it was much larger than anything that had gone before. Hitherto stores had not been jointly operated in this way; nor were they generally so well and widely supported. Secondly, there was a ritual element in the management of the stores. Tuhori encouraged people to carry out traditional wealth magic (*S-sinapo*), which is 'directly and exclusively concerned with accumulating capital' (Oliver, 1955:356), for the success of the store and the eventual formation of wealth (*S-manunu*). Wealth magic involved traditional ritual practices (which sometimes involved storing the fingernails or hair of the dead in a box) which are still used in some parts of Siwai. At the time, Tubana and Tuhori, and at least some of their supporters, believed that this alone was sufficient to ensure success and that money would eventually be heard arriving in the box. The failure of the practice was then attributed to the fact

that the correct form of invocation was no longer well known, especially since each matrilineage segment had its own particular rite, and may therefore have been carried out incorrectly. Now *sinapo* is believed by them to be merely of some possible assistance in these kinds of business activity and not to be the only important factor; thus a decade after the eventual failure of Paul and Company the ritual element was still emphasized as at least a partial explanation for that failure. At the same time that some Siwais were incorporating ritual activities into business activity, shareholders in the Arawa branch of the store were engaged in cult activities; indeed Tuhori subsequently disparaged their heaping bones into boxes in their attempts to ensure the success of the store. By contrast a single branch of the store was established at Ohai, near Ruisei, and the Methodists who operated that branch took no part in any of the ritual activities. The role and extent of ritual in business activity was therefore quite variable and may have played a role in other similar Siwai ventures.<sup>3</sup>

---

<sup>3</sup> Around the same time in a number of Catholic Siwai villages, including Siroi and Kaparo, but probably not in United Church villages, individual matrilineages organized what was known as a Family Bank. All the members of a matrilineage would contribute money to the bank and other money was obtained by forming themselves into work groups for various kinds of activity (for example clearing land for cocoa plantations). The money that was raised in these ways was often used to establish trade stores, or set up other kinds of business activity, for the benefit of the members. Again there was a ritual element involved since each matrilineage had spirits (*S-mara*) attached to it and occasionally these had to be placated in particular ways. Moreover although the Family Banks were essentially a modern concept, they were generally equated with the traditional *nunoku*, the hoard of usually high value shell money (*S-tonui*) which was maintained by almost every matrilineage group. This was traditionally organized by the matrilineage leader (*S-mumi*) or the first born (*S-simiri*) of the lineage (cf. Oliver, 1955:111, 345) who would accumulate shell money from, amongst other things, pig sales, and this could be used in various ways such as waging fights and organizing feasts, for the benefit of members of the matrilineage. Indeed contemporary theory also held that the money in the family bank could be used for the modern requirements of matrilineage members such as payment of school or hospital fees. The welfare functions of the family bank, or *nunoku*, had scarcely changed.

In contrast to a number of other societies in Melanesia and, in particular, those of the Madang coast area, traditional Siwai belief systems demonstrated the 'relative unimportance of religion as an exhaustive, overarching cosmological system' (Worsley, 1968:300); more immediate entities, such as earth-spirits (*S-mara*) are the common manifestations of the other world whilst 'each matrilineage may be said to have a common and more or less systematic body of beliefs and practices' (Oliver, 1955:444). Knowledge of this belief and ritual system is often quite limited. Moreover the Siwai do not 'practice many daily, monthly, or annually repetitious ritual acts by which they could reassure themselves that they, having done their parts, might reasonably expect the supernatural to do the rest. They possess countless magical devices for effecting desired ends ... but it was our observation that many of even these are performed with an air of some scepticism, which is probably not entirely attributable to the inroads of Christianity alone' (Oliver, 1955:444). The absence of an active superior being (quite unlike the Madang coast) coupled with the absence of a 'literally memorized system of religious myths ... and ... an institutionalized tribal priesthood' (Oliver, 1955:444) enabled Siwai religious beliefs and practices to change continually. Thus it was possible for the different organizational and ritual structures of Catholicism and Methodism to invoke very different forms of response; the greater emphasis that Catholicism placed on ritual and on the role of Mary (in particular through the Legion of Mary) were amongst the specific differences that enabled such a diversity of response.

Other factors emphasised Siwai epistemology. None of those who were identified with cult movements in Siwai was a charismatic leader, hence the leadership that was provided was never transformed into authority. Nor were many prophetic assurances offered. Those who were leaders at this time were either, like Tom Sipana the Council president, strongly opposed to any indication of cult movements, or were ambivalent or closely associated with other activities like the Siwai Society. Thus the audience that were responsive to Paul and Company never became a following, and hence never became a movement and an organization, in the manner that cults had grown elsewhere (Worsley, 1968:312). Both the Society and even the Council (cf. Connell, 1977d) were rather closer to this scheme of development. The cult leaders offered little challenge to traditional leaders and the social order was not disrupted. By contrast to areas of more intense cargoism Siwai had relatively slight contact with

Europeans, although during the war that contact was undeniably traumatic, hence any sustained comparisons between European material and social wellbeing and their own were effectively dulled. Moreover there was no sense of relative deprivation compared with other Bougainvilleans who were never seen as being in a superior situation. Otherwise at least one of the times when sustained efforts at business development failed might be expected to have been the precipitating 'crisis of development' in the same way that Rimoldi (1971: 311) observed the emergence of the Hahalis Welfare Society of Buka in response to divergences of opinion over the worth of European developmental institutions. This was not the case, thus emphasizing that the resort to cults was far from simply an economic phenomenon; on no occasion was cultism isolated from other endeavours.

Although the conditions in Siwai that promoted the desire for European goods were similar to those elsewhere in Melanesia, the means adopted were different. For those means to become a deeply ingrained cargo movement it was necessary to have a highly intellectualized traditional religion, the assumptions and beliefs of which could explain the origin of cargo. Christianity could be interpreted in the same way so that a series of permutations might be worked out by taking and combining different strands of traditional religion and Christianity (Lawrence, pers. comm. 1978). This is what occurred around Madang, and in other coastal areas of New Guinea, but was so conspicuously absent from Siwai. Siwai epistemology did not take this form; Christianity was rarely interpreted in the same way and cultism was trivial and unimportant.

At the time that Paul and Company existed Oliver's account of pre-war practices of capital accumulation remained in essence true:

The Siwai recognize perfectly clearly that prosperity depends mainly on hard-work and intelligent enterprise, but they also seek supernatural aid in accumulating wealth. I was never able to obtain an explicit statement about the relative importance to prosperity of industry and wealth-magic, but formed the very firm impression that these hard-headed rationalists look upon the magical component in wealth accumulation as supplementary insurance (Oliver 1955:356).

Throughout Siwai in a period of over a decade, some degree of active participation in cargo cult activities occurred in probably no more than about a dozen villages but in a variety of forms. Even there not all villagers took part. In Methodist villages, a third of all the villages in Siwai, there was almost no indication of cultism, although one Panake man had built a house in the shape of an aeroplane. Throughout the period when cultism occurred, mainly in the early 1960s, coinciding as it did with a lengthy period when, as Tuhori's followers had pointed out, cash cropping seemed to be producing little return for the time and effort involved there was nevertheless a continued and much greater interest in the extension of cash cropping. Although traditional wealth magic was practiced in conjunction with one group of stores, there is no evidence that it was in any general use, whilst garden magic (*S-maki*) was not a component of the communal ricefields of the earlier post-war years. Despite constant unexpected failures Siwai commercial activities were generally practised without recourse to ritual assistance; in this respect Siwai practice was relatively unusual within Bougainville, since in most areas cargoism was much more pervasive, but was much more akin to that of east New Britain in its negative response to cults. Despite the longevity of Tubana's experiment it seems to have been, in the end, little more than a rather different form of diversification; like so many other attempts it too was unsuccessful.

### Business diversification

In the 1950s organization and management of trade stores proved to be exceptionally difficult; without the war damage payments few would have existed and none could have survived for several years. The range of difficulties generally prevented outside interest in business development within Siwai; within Siwai too the small number of stores meant that there was relatively little competition. During the 1960s familiarity with business practices increased, the returns to cocoa cultivation introduced a measure of affluence into Siwai, competition ensued, essentially within Siwai but to some extent from beyond, and business enterprises began to expand and diversify.

As early as 1955 the Administration had established the Native Loans Board, which was a forerunner to the Development Bank. It was intended to make loans for rural development, as well as commercial and industrial purposes, and most loans were in conjunction with rural settlement schemes (Crellin,

1972:507-8), Siwai was too far away on the periphery for this scheme to have had much influence there. There is only one record of a Siwai, Tumam of Usokoli village, applying for a loan; in October 1966, when Tumam applied, he had 1300 cocoa trees and, with the Buin Assistant District Commissioner's encouragement, he was applying for a loan to enable him to extend his plantation. No record was kept of whether Tumam's application was successful; it is probable that it was not and that he, like all other Siwais, had to develop his business venture with his own or his kin's capital and labour.

The newly formed Siwai Local Government Council began to take an interest in agricultural development and, subsequently, in the organization of business and marketing in Siwai. Thus in July 1961 the Siwai Council discussed the manufacture of baskets; the Assistant District Officer had pointed out to them that many orders were coming in for baskets but there was insufficient supply. The council decided to establish a basket committee who would travel between villages encouraging basket manufacture and collecting baskets from producers. (The committee probably never existed but the decision enabled the council to satisfy the ADO.) A year later the Society decided that all baskets should be sold to the Siwai Society, rather than to the Methodist Mission store at Tonu which paid a slightly higher price or to those Europeans who wished to buy them. Although one councillor complained of the necessity for individual freedom it was generally agreed that without their sales of baskets, and also rice, the Society might easily die. Despite council resolutions the same problem recurred repeatedly. Basket manufacture, albeit on a small scale, had always proved to be a success in Siwai so it was scarcely surprising that competition for basket marketing opportunities developed early.

The councillors themselves suggested some possibilities for new kinds of agricultural development within Siwai and occasionally beyond. At some time in 1964 the Council had sent a motion to Bougainville district leaders asking if the administration would set up a sugar factory on the island. However, later that year when the Siwai Council itself discussed it they eventually decided that it would be too much work; cocoa would be enough. (How the idea originated is not clear; it may have come from a few Catholic Siwais who had gone to Fiji for religious training.) The Council itself never became involved in business development in the

same way that many councils elsewhere in New Guinea did; indeed in 1968 when the council decided to establish a cocoa plantation of its own to generate finance this was only at the instigation of the European adviser. Moreover the council never even found a site for such a plantation. (Almost the only business income that the Council ever received was from the hire of the council tractor.) Business was always either an individual or a Siwai Society activity.

In the mid-1960s when it became apparent that profits could be made from Siwai cocoa Buin traders, who had hitherto purchased only the small quantities of dry bean that had been brought to them by the early businessmen, attempted to gain a stronger foothold in Siwai to purchase wet and dry bean there. The infant cocoa fermenting business managed to gain some nominal protection when the Council resolved in 1966 that 'no Chinaman or anyone else could come into Siwai to start such a business or else it would ruin the work of the Society'. A number of later efforts were made by Chinese traders to participate in the Siwai economy, the last of these applications probably being that of Len Seeto in November 1972, but the Council turned him down, arguing that he already had much money and that he understood business extremely well so that local people would not be able to compete (*NM-wokim resis*) with him inside Siwai. Tomlin explained this attitude:

Being business minded and frugal they would prefer that they operate all retail business themselves and do not want competition from outsiders. They would prefer to make do with small stores and put up with shaky management and inflated prices in the interim period before development of large locally-owned stores, than have stiff competition come in to retard development of their own enterprise. This attitude is a general one and extends to all spheres of business activity and land. Thus no land is made available to outsiders, other than the Missions, and when in one instance it was proposed to subdivide the Agricultural Centre at Konga and zone some blocks for business purposes, very vocal objection was made. They stated that the reason for its original release was only to allow the *didiman* space to establish himself because he was an integral part of their development needs. The same is said of the land used for education purposes (Tomlin, 1969:1).

Only Justin Seeto of the Chinese traders ever did manage to trade directly within Siwai and then only for a month or so in 1969 although all the traders in Buin continued to deal with Siwai buyers and sellers. By the time that Len Seeto was being turned away there were already a considerable number of Siwai cocoa traders, although few of them were then capable of competing with him.

An important phase in Siwai business development began in 1967 when Hatah started purchasing wet bean in different parts of Siwai to dry in his own fermentary; he was the first of the private cocoa dealers (S, NM-*praiwet*). It was an innovation which reflected the problems that the Society occasionally had in payment (since as late as 1969 cocoa growers had to wait several weeks for the Society payment to come from Rabaul before they could be paid), the distinction that the Society had just made between Society members and non-members (who received 1½c. per pound less) and, most important of all, the ability of individual Siwais to organize and develop their own cocoa purchasing, drying and marketing organization. It also reflected the fact that there was now sufficient cocoa produced in Siwai and prices were high enough for individuals to dry their own cocoa to acceptable standards and sell it beyond the Siwai Society. By June 1967 the Society directors were concerned at this development, '*Ol man nau ol i wok long salim nabaut ol drai cocoa*' (Men are now selling dry bean cocoa all over the place)', and attempted to increase the purchase price of dry bean. In 1970 there were perhaps only four important Siwai cocoa dealers: Hatah, Pauru, Kapaama and Joseph Honna (of Hiru Hiru village). All of them had passed through the two preliminary stages of selling wet cocoa beans to the Society, later fermenting their own wet bean (invariably supplemented by local purchases) and selling dry bean to the Society, transporting it to Buin port and trading directly with Rabaul. If these were the four largest private dealers they were not the only ones and a number of other Siwais occasionally followed suit, all bypassing the Siwai Society, but most selling to larger Chinese and European traders in Buin. Cocoa prices had reached their highest post-war levels whilst the completion of several bridges between Buin and Konga coupled with the emergence of vehicle ownership within Siwai (and, to a greater extent, in Buin) meant that transport costs had also fallen. A number of fermentary owners could make profits from occasional trips to Buin.

Although the Monoitu Catholic mission had a car around 1956, a lack of roads prevented its use for anything other than occasional trips to collect cargo from Mamagota, whilst the Society tractors of the 1960s rarely ventured far beyond Siwai and then never for anything other than Society business. It was not therefore until sometime in 1969 that Joseph Honna introduced the first Toyota landcruiser into Siwai; Pauru, Hatah and Joseph Lue, the Member of the House of Assembly, soon followed suit and once again there was a further basis for diversification within the Siwai rural economy. By mid-1971, a year before the trans-island road had been completed, there were about a dozen utilities in Siwai. Almost all the owners were those who early on had become involved in private cocoa dealing although, seemingly inevitably, few vehicles were individually owned. Once again each vehicle had its particular set of shareholders although, as with the stores, few became involved in the operation and management of the vehicle.

In 1969 some concern was expressed in the Siwai Council on the emergence of private cocoa purchasers within Siwai which, like the private sales of baskets and even rice beforehand, was causing some local discontent. For the first time, however, this was a development entirely indigenous to Siwai so that the ability of councillors and others to object to this competition with the Society was substantially impaired. Although the Council subsequently discussed these changes on other occasions and were inevitably concerned about them they appear never to have passed any motion opposing them. Too many councillors had a particular interest in cocoa trading. A year later the problem was raised again in a Siwai Society meeting when one of the directors complained that they thought the Co-operative Officer was hiding something from them since the Society were buying wet bean at 5 cents a pound whereas 'businessmen' were buying at 6 cents. They attempted to set up a meeting with Hatah, Pauru, Kepoama, Honna and also Toriou (Haisi), who were then the most prominent Siwai businessmen. There may have been a meeting; if there was it did not solve the problem and the European co-operative officer subsequently reported that because of this, 'enthusiasm in the Society is at a low level'. However the Council eventually decided that private dealers must have official licences and in 1971 Hatah, Kepoama and James Iroro (Maisua) were the first to officially apply for and receive pedlar's licences from the Siwai Council.

A month later the familiar cry was raised in the Council that the Society would die if more licences were granted. It was then decided that all cocoa fermentary owners would have to register their driers (at \$2 each) and that fermentary owners could not purchase cocoa from other individuals unless they also had a trade store licence (which cost \$6); moreover if they travelled about to purchase cocoa they then had to obtain a pedlar's licence (at \$30). There were strong objections to this within the council and although many people did register their fermentaries, few obtained trade store and pedlar's licences and the whole scheme proved almost completely inoperable. Only the few who were interested in maintaining the Council's revenue and ensuring that the Society did not collapse were interested in legislation of this kind which most individual Siwais saw as opposed to their own interests. For the first time it became apparent that the collective interest and responsibility that had fostered and maintained Siwai Society was insufficient to withstand the affluence that had followed the rise in cocoa prices and the desire of individuals within Siwai, both cocoa buyers and sellers, to benefit from the emergence of a successful cash crop in whatever way they chose. As had happened with rice production before, collective organization gave way to individualism.

Despite the emergence of the private dealers and their success in undercutting the Society's prices it appeared that few of them were making substantial profits from the operation because of the problems of cocoa quality and transport. The 1969-70 Annual Report for the sub-district even observed that 'They cannot compete with the societies, all of which are installing modern equipment with the intention of producing a standard export quality cocoa and most of them can be expected to cease operating eventually'. This was not an unreasonable conclusion and indeed it was repeated word for word in the following year's report, yet it proved to be quite untrue since at the end of 1972 the completion of the trans-island road from Buin to Kieta and the simultaneous rise in cocoa prices resulted in the balance of advantages swinging dramatically to the private producers.<sup>4</sup> (A couple of years later it was not the future

<sup>4</sup> Even early in 1972 it was clear that some traders were marketing such large quantities that they must have made large profits; in the records of shipments for the four months January to April, 1972 (the only period for which records are available), Honna, Pauru, Kepoama and Toriou

of the private businessmen but the future of the societies that was beginning to cause concern.)

By the end of the 1960s, although the rapid expansion of cocoa growing was universally welcomed by the administration, concern was being expressed in patrol reports and repeated at sub-district and district level, that there was a labour shortage in some areas, especially in south Bougainville, that would soon slow the planting rates. The emergence of the Panguna mine workings as a source of employment was held to be mainly responsible for this problem. The district Annual Report for 1969-70 noted however that the 'more enterprising Buka farmers' were employing casual labour from the New Guinea mainland or from the poorest parts of Bougainville, Torokina and Keriaka. In this context the cocoa growers of Siwai, who had not been dignified as 'farmers' by the administration, were no longer so 'enterprising'; their sources of labour were almost entirely local and casual, working more in a traditional context of co-operation than as wage labourers. More or less standard wage rates then existed for casual labour throughout south Bougainville. In January 1969 and for at least a year afterwards the standard wage on a locally owned plantation was sometimes \$1 per day (which could be compared with the wage of \$1.40 per day then available to casual labourers building the Konga-Boku road, through Siwai, for the administration) although late in 1969 rates of 70 cents per day were being paid in Musiminoi and Ieku, and in the following year were still 70 cents in Mamagota. Apart from about a dozen employees of the Siwai Society, who were semi-permanent, and a number of more temporary employees of businessmen like Hatta, there were no permanent wage labourers within Siwai. It was economically more attractive to work elsewhere.

For at least some Siwais the external climate had changed substantially; many were working in well paid jobs in the various exploration and establishment phases of Bougainville Copper Limited. Others were employed in skilled  
4 (continued)

shipped 219 sacks of cocoa through the port of Kangu. The value of this cocoa at the prevailing prices was probably around \$1700 hence, after transport and purchase costs, Honna and Pauru, who sold three-quarters of this cocoa and also had their own transport, must have received a reasonable income for this time of the year. The impact of the trans-island road will be examined in a later publication.

and semi-skilled jobs elsewhere whilst Joseph Lue from Amio village, the Member of the House of Assembly for the Bougainville Regional electorate, had been on a trip to Washington for consultations with the World Bank. A handful of others had visited Australia for military training or education. From each of them in different ways skills, information and capital were filtering back into the villages, enabling business activities especially to more readily adapt to and adopt new techniques of organization and management which eventually enabled a more secure long term future.

By the end of the decade, following the success of Luke Pauru, a number of individuals or groups had managed to obtain loans from the Papua New Guinea Development Bank, mainly for the purchase of vehicles or the establishment of cattle projects. Several of them were able to maintain their repayments satisfactorily, often completing them well within the allotted time, hence Siwai entrepreneurs, despite the early evidence, were beginning to prove themselves to be good 'risks' for the Development Bank's capital, especially by contrast with those in some other parts of Papua New Guinea.

It is naturally difficult to estimate how much cash was actually circulating in Siwai in the post-war years; much of the evidence suggests that the earnings from migrant labour and from cash crops can not have been great until the late 1960s when the copper mine and cocoa provided substantial incomes. However saving, by storing cash or by converting cash into shell money, was always a part of Siwai life even for those who had few cash earning opportunities. There are few hints of this in the Siwai patrol reports. However there is some indication of what these cash reserves might have been since in the fairly remote Buin village of Lobigou, considered in 1964 to be one of the poorer villages of south Bougainville, seven houses were simultaneously destroyed by fire and the *kiap* recorded the wealth that had been destroyed. Since there was no compensation he believed that the claims were probably accurate. Six owners claimed that they had lost between them a total of £144 and also £16.10s. worth of shell money (PR Buin 5/64-65). The *kiap* also carried out an inventory of 'modern' goods in all the twenty-three villages of western Buin, finding, amongst other things, 149 bicycles, 16 radios, 3 cameras, 3 record players and 8 sewing machines. At a time when cash crops had scarcely brought lasting benefits in south Bougainville these sums attested both to the local propensity to save and to the possibility of

accumulating some money even in the early 1960s. It is probable that both savings and the acquisition of material goods were greater in Siwai than in Buin.

The *kiap*, F.B. Donovan, made estimates of Siwai incomes for the financial year 1969. He calculated that from primary produce (\$100,000), local labour on the Konga-Boku road (\$44,000), migrant labour (\$170,000) and baskets (\$19,000) there was a total income of \$343,000 which gave an annual per capita income of about \$45. Ward (1975:87, 97) derives a mean per capita income for 1971-72 of about \$25, excluding the earnings of migrant workers, and \$34 when it is included). Whilst for southern Buin, the *kiap*, C.A. Rivers, estimated that the average income, including migrant labourers' earnings, was \$43.50 per capita (PR Buin 1/71-72). In the absence of any more specific data these are probably reasonable estimates for this particular period.

By the middle and late 1960s the emergent affluence that followed the successful establishment of cocoa growing was enabling the resuscitation of almost forgotten bank accounts which had begun after the distribution of the war damage payments. At least as early as January 1966 an officer from one of the main Australian banks was regularly visiting both Tonu and Konga to handle deposits and withdrawals; his activities were probably to generate publicity as much as business but they are indicative of savings also being made in the 'modern' sector rather than through either hoarding, conversion into shell money or expenditure, although each of these were going on simultaneously. In 1970 the *kiap* recorded that there were 1243 savings bank accounts from Siwai - almost exactly one per household.

Another development associated with the cash economy was the establishment of small markets in Siwai. During the 1960s more than a dozen Europeans, engaged in different kinds of administration activity, were living close to Konga; it seems that their vegetable requirements may have stimulated the emergence of a market there at some time in the late 1960s. From the start Siwais also proved to be purchasers in the market and by 1971 it had become large enough for the council to construct permanent concrete buildings and tables for the sellers. At the start of the 1970s, two more rural markets emerged, the first near the Monoitu Catholic Mission and another close to the crossroads at Osokoli, and not far from the Tonu Methodist mission. Once again the presence of workers from outside Siwai, in

these cases teachers and nurses mainly from elsewhere in the country, proved to be a stimulus to development but it was Siwais themselves who were the main purchasers in these markets. Although earnings from cashcrops enabled some people to supplement their garden produce by food purchases, the majority of purchases were by those who had permanent wage employment locally or required food for some particular short term need. Purchase of vegetable foods was emphatically not a common or regular feature of the Siwai economy but the existence of the markets was indicative of the increasing economic differentiation.

The spread of the cash economy was not without its disadvantages. Gambling was established by the mid-1950s, as a by-product of plantation labour migration, although in Siwai it never came close to the proportions it reached in other parts of New Guinea. For the first time in January 1967 a Council agenda item was tabled to discuss the fact that there was too much stealing in Siwai. Whereas Oliver was able to write, 'there is not much thievery' (1955:375), and then invariably only of drinking coconuts, contemporary theft had become more widespread and diversified.

Towards the end of 1962 the administration relaxed its policy on alcohol; New Guineans were at last allowed to drink spirits in hotels and beer could be taken home. The Siwai Council decided shortly afterwards that beer should not however be given to any women. A month later the villagers of Ruisei banned the carrying and consumption of beer in the village. Whether this was merely a manifestation of Siwai fears over the effects of alcohol or whether it was a response to events that had already followed beer drinking in Siwai is no longer clear. It merely suggests that what a decade later, was to become a problem in parts of Siwai may have already taken some Siwai purchasers beyond the traditional range of trade store goods. In 1970 the *kiap* was disturbed to note the number of people who had recently been prosecuted for selling alcohol without a licence; he commented 'there's no doubt there is great demand for alcoholic beverages and consumption of alcohol may become a problem'. During that year the first licensed liquor store in Siwai opened at Konga, prompting the *kiap* to comment, with some exaggeration: 'The Siwai men are prolific drinkers and attack the amber with abandon. Their only blemish is the parties which sell stubbies for 40c-60c and the promoter makes a whack of a profit. However this has greatly declined with the opening of a liquor store in the area'. Apparently

the first real council debate on drinking was in November 1971 when it was certainly apparent that beer had become something of a problem. In a debate suffused with moral injunctions, '*Ol tumbuna bilong yumi ol i no save dring* (Our ancestors did not drink)' and '*Man god i wokim i no bilong yusim nogut bodi bilong em* (Men created by god should not mistreat their bodies)', demands were made that beer drinking should be permitted only in a special building (*NM-haus dring*), whilst spirits should be completely banned. No motion followed from this and the problem was not solved.

By the start of the present decade Siwai had become incorporated into a modern, commercial economy. Cocoa and, to a lesser extent, wages beyond Siwai provided an income level substantially greater than it had been even half a decade earlier. This had resulted in considerable economic differentiation as successful businesses and wage labourers simultaneously emerged within Siwai, a differentiation that did not parallel more traditional forms of social and economic differentiation. The first Siwai business men had been *mumis* but their places were eventually taken by younger men who had often benefited both from formal education and some kind of practical training. These younger men also had little belief in the need for supernatural assistance. Increasing income levels resulted in a proliferation of stores and a great increase in the range of goods; as Siwai needs were more easily satisfied their wants shifted towards the conspicuous consumption of alcohol and with that some social problems emerged. In three post war decades a cash crop economy had emerged and, following its successful establishment, trade stores that had earlier failed became viable, commercial interests further diversified, although not all were successful, and business appeared to have established a firm foundation in Siwai life.

## Chapter 9

### *Taim bilong mani: the process of incorporation*

Is it any wonder that these people are proud people. An infant could be born, delivered, attend school, attend an option of religions, work at any number of jobs, have a house built, marry, raise a family, grow cocoa, have his vehicle fixed ... without having left his home (Donovan, 1970).

An accurate perspective on the evolution of Siwai agriculture is impossible. Statistics are neither comprehensive nor good and reliance on the existing data can only be undertaken with some discretion because of unknown biases in the data and, to a much greater extent, in the descriptions of change. Both administration and Siwais had their own desires, hopes and expectations, all of which changed over time, and none of which was always reflected in the realities of change. The lack of unequivocal standards of evaluation ensures a partly inconclusive analysis of the course of change; especially in the earlier periods educated guesses must be resorted to. There my own perceptions and biases, especially in the selections from existing reports and narratives, may further distort the analysis. Conclusions are sometimes tentative; indeed the quotations that began Chapter 4 indicate the variation in conclusions that are possible even over one short time period.

A number of analyses have been made of the transition of traditional village subsistence economies into cash crop economies in the Pacific area; one of the earliest of these was Salisbury's comparison of the Siane of the Eastern Highlands and the Tolai of New Britain (Salisbury, 1962), which was followed by Epstein's parallel analysis of changes in Tolai (T.S. Epstein, 1968). A more theoretical model of the process of transition was provided and subsequently refined by Fisk (1962, 1964 and 1975) and his model has been independently applied to a number of regions of the Pacific including parts of Guadalcanal (Bathgate, 1975), Samoa (Lockwood, 1971), and Fiji (Barnard, 1974; Knapman, 1976), whilst others (e.g.

Stent and Webb, 1974) have suggested refinements to the basic model for Papua New Guinea.

Epstein outlined a more general descriptive sequence for the Tolai of east New Britain with four stages identified as the 'transition period, 1870-1895', 'agricultural investment period, 1896-1930', 'investment trial period, 1931-1944', and 'tertiary investment period, 1945-on' (Epstein, 1968:Chap.3). The first stage was one of early contact with traders involving substantial copra sales and the expansion of coconut growing; the second stage saw a rapid extension of coconut planting until the third stage when rapidly falling coconut prices resulted in some diversification, including truck ownership. The fourth stage, following the war, was a period of much greater and more successful diversification coupled with the introduction of local government councils. Bathgate has compared this sequence with that for the Ndi-Nggai of western Guadalcanal concluding that the first three stages are also appropriate analyses of economic change there, although in a more attenuated time period: 1850-1915, 1915-onwards, and 1950-onwards, with the final stage not yet being reached (Bathgate, 1975:840-1).

In Siwai it is not possible to articulate stages of economic change with this degree of clarity because the stages are unsatisfactorily defined and because historical data on Siwai is inadequate; it is impossible to state when either the 'transition period' or the 'agricultural investment period' began. Nor is it clear when or why they ended. Thus, in the 1930s, there seems to have been a lengthy period when agricultural investment, in the sense of coconut planting, was discontinued and labour migration enabled the tenuous maintenance of a partial cash economy. 'Agricultural investment' restarted following the war and rapidly diversified into an 'investment trial period' which in the late 1960s, after another period of regression, incorporated the 'tertiary investment period'. None of these phases is discrete; individual households and villages were simultaneously in different stages whilst in some cases regression was occurring at the same time as evolution. Moreover, for long periods of time labour migration contributed much more to the cash economy than crop production. Identification of stages with this degree of generality is not a particularly useful task; by contrast the more specifically articulated stages in Fisk's model suggest a valuable basis for comparison.

Fisk considered that although 'in this transitional process there are many possible stages that could be defined, presenting an almost continuous range of degrees of market participation' (1975:53) it was possible to pick out four key stages that could be identified roughly in the real world. These were:

- (a) Pure subsistence in isolation. At this stage there is no effective contact with the monetized sector, all consumption depends on self-subsistent production, and there is no specialization, no trade, and no division of labour outside the group.
- (b) Subsistence with supplementary cash production. At this stage the essentials of life are still mainly produced by the group that consumes them, but supplementary production is undertaken in order to secure access to market goods and services not obtainable directly from the group's own resources. Examples are the subsistence gardener who produces some extra staple foods for sale, or who adds a small grove of coffee trees to his garden, or who leaves his family on the subsistence garden and works for a time for wages.
- (c) Cash orientation with supplementary subsistence. In this stage, the producer is oriented mainly towards the monetized economy, and his main productive efforts are directed at earning a money income; however, some, even a substantial part, of his basic foods and other necessities may be home produced because, in terms of factor cost, it is more economical to do so. An example is the sugar farmer in Fiji who may, as a sideline, produce the main food requirements of his family from land not in use for sugar production.
- (d) Complete specialization for the market. This is the stage where specialization and division of labour are exploited to the maximum, and the producer is dependent on the market for all the goods and services he requires. This is, of course, rarely reached in practice, even in the most sophisticated economies, for some of these goods and services will normally be produced internally within the family group. However, it is a stage approached closely by substantial components of the population of advanced countries, and, for

social requirements) which enables some trade, some specialization and some division of labour. Because of this, subsistence production does not go on in total isolation although it must necessarily have often presented that appearance. What effectively differentiated this mode of production from what was to follow was its absolute separation from European influence; until as late as the nineteenth century the trade and specialization that had previously existed had been independent of European trade. There was therefore a long period in Siwai history when the subsistence economy was modified by a number of small changes at the margins; these changes must have been undramatic and sanctioned by Siwai leaders (*S-muni*). But what perhaps characterized this period was that the changes that occurred within it were not designed or destined by the commercialization of the external world.

If the bulk of Siwai history is characterized by the minor, incremental changes of several thousand years, then more recent history is characterized by a number of dramatic changes that directed the Siwai economy apparently irrevocably in new directions. As in other Melanesian societies European innovations were irresistible; iron tools reduced demands on garden labour providing a surplus of time (cf. Salisbury, 1962:338) which, following the consolidation of larger social groupings, was eventually used in the production of commodities that could be exchanged for trade goods. Since pre-contact Siwai was a world of 'subsistence affluence' (pp.46-7), where needs could be satisfied with small inputs of labour even before the introduction of steel tools, the incentives to cash crop production had little to do with time; they were a combination of market prices, access to markets and a desire for particular goods. Despite the introduction of iron tools, probably around the mid-nineteenth century, accompanied by minimal labour migration to German plantations, which resulted in the introduction of other new goods, there is no evidence that there was any demand for trade goods until at least the start of the present century. In perhaps half a century of indirect, and occasionally direct, contact with traders there is no indication of increased interest in the production of commodities that might be traded. It may well have been, however, that contact was so slight (especially since most Siwais lived some miles inland), few commodities were storeable for long periods and local warfare was so common, that any Siwais who were by then aware of the potential of trade were effectively prevented from participating.

Between the first two stages in Fisk's model there was therefore a period of at least half a century when iron tools had dramatically changed the nature of Siwai isolation, and altered the mode of production, without bringing about any more significant incorporation into the commercial, trading economy than was already present in many other parts of coastal Melanesia. Following the establishment of an Australian administration, incorporation into the cash economy became more general, yet there is still no evidence that this incorporation resulted from Siwai wishes. Indeed the administration resorted to two devices to encourage participation in trade: firstly, villagers were ordered to plant ten coconuts a head and, secondly, taxes were levied on almost all able-bodied males between the ages of sixteen and forty. It is not apparent that the first rule was widely observed in Siwai, other than by a number of prominent individuals such as Kope who saw their political interests as being allied to those of the administration, whilst the second forced plantation migration rather than cash crop production (cf. Oliver, 1955:325). Once again, however, surprisingly little is known about the trading conditions of the pre-war years; at the time that Siwais could have become involved in copra production prices were extremely low and traders may have been conspicuous by their absence. On the other hand stores almost certainly existed in the inter-war years whilst both copra and the main trade alternative, the ivory nuts of the sago palm, could be stored for periods of over a month. At least as late as the early 1920s clothing was not in general use and the European trade store goods that then existed in Siwai seem to have come from plantation earnings rather than trade.

Thus during the 1930s the fall in copra prices reduced the incentive to make copra or plant coconuts, since the cost of goods was high (where they were available) relative to the labour input required to obtain them. During this period the Siwai domestic economy retracted towards an absolute concentration on food production, as also occurred in a similar situation in Ndi-Nggai (Bathgate, 1975:850), with the distinction that labour migration provided the cash required for taxes and a small number of necessities.

During the pre-war years although direct trade in cash crops was minimal there was a flow of both cash and trade store goods into Siwai; although virtually all food was still produced in individual gardens a number of trade store goods (especially knives, cloth and lamps) were coming into general

use. Yet, using Arrighi's (1970:206) distinction, the use of most of these was 'discretionary' rather than 'necessary'. There were two possible exceptions: metal tools (knives and axes), since they massively reduced labour time, and cloth, which mission teaching had effectively turned into a necessity. Beyond these indispensable necessities there was relatively little demand, thus goods that had long been indispensable elsewhere such as soap, saucepans (cf. Knapman, 1976:185) and salt, were still generally produced within Siwai. No purchased foods had become, in any sense, subsistence necessities.

In the pre-war years the Siwai economy lurched towards participation in the external cash economy, more at the instigation of the administration (and, to a lesser extent, the missions) than as a result of Siwai needs and wants. Access to market goods and services was not obtained from the group's own resources, but through labour migration (rather than cash crop cultivation); the subsistence economy continued to evolve but by incorporating cash crop production only at the margins. It is difficult to balance remoteness from markets against obtaining plantation wages (although for most Siwais the latter must have generally proved easier) and impossible to assess the relative significance of administration pressure and Siwai wishes. Perhaps the main impact of the two pre-war decades of Australian administration was in the more widespread distribution of trade store goods, as a result of the establishment in the twentieth century of plantations (and also mission and government stations) in Bougainville, and the emphasis that was placed on the acquisition of cash and goods by both Europeans and plantation labourers. Siwai had scarcely begun to enter Stage Two, 'subsistence with supplementary cash production', when the war precipitated a dramatic shift in the organization of agricultural production.

Following the war Siwais made every possible effort to involve themselves in the cash economy. Despite constant problems enthusiasm waned only rarely and indeed, in contrast to the pre-war years, it was invariably greater than that of the administration; however it was the relationship between Siwai requests and administration response that characterized the organization of the post-war agricultural economy.

No single crop ever seems to have been wanted as a cash crop by both Siwais and the administration together. Siwais initially wanted rice; the *didimen* advised caution. The

*didimen* recommended peanuts and corn so Siwais grew them but rarely with enthusiasm. When the administration reverted to the idea that rice was indeed the best possible cash crop the rice was dying, the mills breaking and there was little local enthusiasm for their belated interest. Paradoxically the first cash crop to be introduced into south Bougainville by a Bougainvillean and ultimately by far the most successful, cocoa, was initially discouraged by the administration. Even when they had reconsidered, the encouragement of the Society directors, who unknown to themselves had seen their future working, was not sufficient to ensure that cocoa got started throughout Siwai. Only too clearly it seemed to be another false dawn; there was a slow response to yet another possibility.

The risks involved in planting a long maturing crop like cocoa were generally avoided until it became obvious that cocoa was the most promising cash crop. If the adoption rate for each new crop introduced into Siwai gradually declined, as the evidence suggests, this reflects no more than a growing disillusionment with the long term returns to innovation. It is no paradox that cocoa, ultimately the most successful cash crop of all, was perhaps the most slowly incorporated into the Siwai economy. When cattle were introduced into Siwai it was partly a response to the possible eventual failure of cocoa. Nothing could be so successful for so long after an era of disappointments. If there was an element of fatalism inherent in this, it was nevertheless a logical response to previous events.

In contrast to rice, the actual production of cocoa, after the early disasters that at some point attended every new cash crop, at last brought in substantial cash flows and success seemed assured. This success, for the first time both continuous and increasing over a period of years, ensured that cocoa would dominate cash crop production. In little more than a decade cocoa went from being merely a doubtful economic prospect, to an established position as by far the most important cash crop throughout most of the island. This, it subsequently transpired, was only the beginning; by the end of the 1960s it had almost too effectively disposed of competition from other cash crops. In the 1969-70 financial year the Siwai Society (which then handled most of Siwai agricultural production) had a turnover of \$168,376 from cocoa, compared with \$18,961 from baskets and \$530 from copra. Rice and coffee sales were insignificant (PR Konga 1/70-71). Cocoa alone was triumphant; no new introduction nor subsequent

revival could compete. After two decades, a cash crop economy, based upon cocoa, had become established. Again in contrast to the pre-war years, whenever trade conditions proved unfavourable (with prices falling or markets disappearing) there was never a move to withdraw from the cash economy (by abandoning cash crop production) but always renewed attempts to seek out better conditions, usually by diversifying production.

Siwais were responsive to market prices, although possibly not, at least in the early stages of post-war change, to variations in the amount of labour required to produce particular crops; that is, there was no differentiation between rice and peanuts, according to the labour input required, only to the comparative prices. By the time that coffee and cocoa were being grown simultaneously a more sophisticated distinction was possible, based on the returns to labour. Information on the relationship between market prices and planting rates is quite inadequate yet after the initial period, when a small number of people planted coffee and cocoa (for reasons other than the expected returns), qualitative evidence suggests that short term trends in cocoa planting were influenced by past income from cocoa sales rather than by current prices, and longer term trends were influenced by the availability of the one occasionally scarce factor of production, labour. Prices from the first harvests provided the basis for the expected future cash returns from cash cropping (cf. Epstein, 1970:195). Given the uncertainty of future prices (and also that planters had no means of assessing even short term price fluctuations) it seems that Siwais have tended to plant more cocoa trees when labour was available rather than when prices were high or moving upwards.<sup>2</sup>

By the start of the 1970s almost every Siwai household was more or less in Fisk's Stage Two, 'the essentials of life are still mainly produced by the group that consumes them, but supplementary production is undertaken in order to secure access to market goods and services not obtainable

---

<sup>2</sup>A number of studies have examined the relationship between cocoa prices and planting rates both in New Guinea (Epstein, 1970, 1971; Jones and Stent, 1971) and elsewhere. These have not been examined in detail here, primarily because of the dearth of comparable material on historic changes in Siwai, but will be examined in more detail in a subsequent monograph on contemporary agriculture.

directly from the group's own resources' (Fisk, 1975:53-4). Almost every household (except some of the most elderly) sold some garden or cash crop produce but only a tiny minority (entirely consisting of some of those with wage employment) had their 'main productive efforts ... directed at earning a money income' (Stage Three) (Fisk, 1975:54); even then almost all of this small group still produced most of their own food and constructed their own houses. The vast majority of Siwai households produced both food crops and marketable crops and, in terms of the distribution of household labour, spent more time on food crops than on cash crops.

There had been little substitution of purchased foods for grown foods, and no evidence that the subsistence acreage had declined as a result of this substitution although there was renewed hiring of wage labour. Despite the rapid post-war increase in the Siwai population there was scant evidence that any of these changes were related to population growth, either as catalyst or response.

The changing use of time in Siwai, which is not discussed in detail here,<sup>3</sup> is an important factor in the transition of the subsistence economy towards a cash economy. Thus the basic model provides for the adequate performance of social obligations as they are defined by the society; time and labour must be invested in this performance. Bathgate (1975: 852) argues, on the basis of his observation in west Guadalcanal, that as involvement in the cash economy increases so participation in ceremonial obligations decreases. This may take two forms, either some ceremonials are discontinued or they are maintained on a reduced scale; both of these forms existed in Guadalcanal. In Siwai it seems that at least until 1939 there had been little decline in ceremonials and ceremonial obligations (Oliver, 1955) but after the war this was no longer true; a number of customs, notably those connected with child growth magic, were almost completely abandoned (although there was also an important element of mission disapproval) whilst feasting on the scale of earlier years was less common.<sup>4</sup> On the other hand, in

<sup>3</sup>The distribution of labour time in contemporary Siwai agriculture at least as it was in 1975 will be discussed in detail in a subsequent monograph.

<sup>4</sup>This extremely important transition can not be examined in detail here, although further data and evidence is presented in an unpublished paper (Connell, 1977e), since it will be the partial subject of a separate paper. In very recent

contrast to the evidence that Bathgate provides and more especially in contrast to Ogan's (1972) account of economic changes amongst the Nasioi of eastern Bougainville, it is apparent that this decline in ceremonial activity was much less marked in Siwai. However there is some evidence that pig husbandry, oriented towards the fulfilment of social obligations, has given way to cash crop production. In this important sense, *taim bilong pasin* was indeed giving way to *taim bilong mani*.

Although there is evidence that time was being diverted from social obligations towards cash cropping there is no evidence that time was being diverted away from subsistence gardening as seems to have happened in Guadalcanal (Bathgate, 1975:852-3). Almost all households were generally able to provide their own food requirements at the start of the 1970s whilst there had been no introduction of crops, tools or techniques, other than those that accompanied the necessary transition from taro to sweet potato, that might have reduced labour input times (although it is doubtful if, apart from any fertilizers, there were possible changes in the gardening economy that would have enabled this). However it is possible, although the evidence is inconclusive, that women spent more time on subsistence activity whilst men diverted their own labour towards cash crops. Cash cropping in most time periods therefore seems to have used labour that had a low opportunity cost.

In the post-war period a number of trade store goods that had previously been simply 'discretionary' purchases became necessary, whilst the earlier necessities became commonplace purchases. The number of manufactured products that were necessary increased to include lamps (and the kerosene for them), saucepans, nails and soap whilst a number of foodstuffs had also become occasional necessities. The most important of these were salt, rice, tinned meat and tinned fish, sugar and coffee. Although only salt was essential to general household food preparation the others were necessary since almost every household at some time called upon work groups to assist in either house-building or gardening activities; following this work a meal was always provided containing some or all of these 'modern'

---

4 (continued)

years both trends, the abandonment and attenuation of ceremonials, have been reversed following a general increase in income levels.

ingredients. Needs in this case were group determined. For work groups meals solely from garden produce were no longer considered to be adequate reward; in this context, but not generally, garden produce was an inferior meal. Of course most of these foods, and several others, were eaten more regularly in the same way that many people preferred to smoke trade store (twist) tobacco or cigarettes rather than locally grown tobacco. Similarly, although surprisingly few trade store goods had become necessities, most stores regularly sold a wide range of goods.

As in all stage models the important questions are what actually happened when Siwai society, or part of it, moved between stages and what were the mechanisms that prompted this movement? As Fisk observed, 'the problem is either to lift the subsistence group over the humps where the incentive factor is inadequate, or to remove the humps' (1964:172). Fisk suggested three non-market influences that would effectively overcome this problem; the first of these was an 'artificial increase in the level of cash production', carried out by persuasion or compulsion; in Siwai this represents the inter-war situation of directed coconut planting. The second was an 'artificial increase in the cash return per unit of labour' which could be achieved by the temporary subsidization of marketing, transport and processing facilities; in Siwai the period of direct government interest in encouraging cash cropping, especially in the 1950s with the establishment of the Konga agricultural station (and the emergence of Siwai *didimen*) and the co-operative society, both of which were subsidized for considerable time periods.<sup>5</sup> The third was an 'artificial increase

<sup>5</sup>As administration and Siwai interest in agricultural development increased so the role of the missions declined; even so, the position of missionaries as long-term residents with substantial influence in local affairs, enabled them to remain important in shaping agricultural changes. Cattle first came from the missions and Tonui villagers remember Mr Joyce demonstrating rice planting to them, whilst Tomlin, typically, noted in 1954 of the Catholic priest at Monoitu that 'the O.I.C. of this station is a keen agriculturalist'. Indeed this was a role that Tomlin, and other administration officials, expected from the missions. Yet the role of the missionaries was increasingly one of emphasizing and legitimizing the decisions of the administration and, to a lesser extent, supporting those of the Siwais themselves. As in other areas of development the missions were superceded by specialists and their concerns became more exclusively spiritual.

in the utility of money' which could be accomplished by temporary subsidization of the provision of goods and services; in Siwai medicine (and, for that matter, mission schools and churches) have always been subsidized but the inadvertent subsidies provided by the earliest post-war trade stores may have been the most significant influence on the utility of cash. Through these means Siwai became more dependent on a continued relationship with the external commercial economy. Each of these three non-market influences was clearly exogenous to Siwai social and economic structure and each, especially the first, was of limited impact. There was however one influence within Siwai that was of great significance and that was the nature of the leadership system.

For at least the first two decades after the war the structure and process of economic development in Siwai followed very closely the model that Salisbury has outlined for the Tolai village of Vunamami, especially since in both areas the major dynamic forces 'were seen as the perfect elasticity of political activity by big men' in the early phases; then

In the next phase came emulation of the leaders by the population at large, and an increased tolerance for individualism ... In the final phase of capital investment (and possibly new innovation) two forces were active: economies of scale or organizational efficiency facilitated production, and affluence permitted the establishment of new inventions (Salisbury, 1970:11).

Siwai leaders had become involved in cash crops, essentially for prestige and power rather than immediate economic returns, and it was this demand for prestige that enabled continued innovations to go beyond the apparent barriers that low prices, inadequate markets and limited demand for cash and store goods provided for continuous incorporation into the cash economy. (Before the war a combination of unfamiliarity and inaccessibility had effectively prevented this process which was essentially one of maintenance of the traditional social structure through economic manipulation rather than a more narrowly conceived economic phenomenon. Even so leaders like Kope had made significant starts.) This demand for personal achievement (motivated not by profit but nevertheless measured predominantly in terms of economic criteria), formulated as a concern for the status of the leader's own matrilineage group rather than of the leader himself (in the sense that leaders claimed

to be concerned with performing a service for others rather than maintaining a selfish profit (cf. Salisbury, 1970:238)), was sufficient to push much of Siwai society over the 'humps' in the Fisk model. Again, as in Tolai: 'The mark of the successful leader is that he can convince others that they are not followers but partners in an enterprise' (Salisbury, 1970:331). Most of these enterprises were decidedly risky so that in the drive to achieve additional prestige leaders were staking their reputations on the success of the new ventures despite the communal organization. It was indeed essentially the same process that has earlier been documented in Tolai (Epstein, 1970:186-7).

Leaders were able to undertake innovations largely because of their control over access to land. A.L. Epstein has stated that in Tolai the coconut, because of its longevity could be planted only on land to which a man held 'title' (that is, his rights were not merely usufructuary) with the effect that 'participation in the cash economy, indeed, buttressed the traditional system rather than disrupted it (1963:211). Although there is no evidence that in pre-war Siwai restrictions on land tenure affected coconut planting, even in the early post-war years there were problems of access to land for planting coconuts which became greater in the 1960s with the establishment of cocoa. Coconut planting and subsequently cocoa-planting proved initially to be a force of conservatism, reinforcing the status of Siwai leaders, by buttressing their control and administration of descent group land. Eventually younger men planted their own plantations and that status and authority declined.

In the 1960s a new trend in the response to economic opportunity emerged; for the first time some Siwais moved away from the line villages to take up more distant matrilineage land where there was more opportunity to develop their cash crops. Although few moved more than two or three miles and almost none moved beyond Siwai (although a number of matrilineage groups had access to land elsewhere) this was nevertheless an important change. In the same period there were also a small but significant number of outright land purchases, again entirely within Siwai, although since adequate land was generally available to almost any prospective cocoa planter this was not the significant tenurial change it might have been elsewhere. Both of these trends represented a movement, albeit tiny, towards a more individual form of control of land, with the traditional use-value of land gradually being replaced by its exchange-value. Siwai land

has begun the transition from resource to commodity.

The emergence of communal cash cropping of rice was associated with the leadership and guidance of Siwai big men (*S-mumi*) although in New Guinea, as elsewhere in the Pacific, co-operatives and communal activities were welcomed and encouraged as the form of cash enterprise most suited to the 'communal' ethos of traditional society. Thus Stanner commented: 'The communal system is admirably suited to co-operative development and the idea appeals strongly to the Fijians' (1953:228). But these were often assumptions without a basis; co-operation proved to a relatively sophisticated, western form of enterprise that had no inevitable appeal to traditional sentiments where the communal ethos was often rare. Subsistence cultivation of sweet potato, to an even greater extent than taro, which required greater inputs of labour, was such that it left big men considerable leisure to direct the efforts of their fellows, a position with which they were entirely familiar. Indeed organization of large-scale ceremonials gave such leaders some experience in the organization of large numbers of people, production for exchange and the handling of some kinds of exchange transactions. Moreover much of the communal organization of cash cropping could be directed in precisely the same way that earlier administration activities, such as road-building or house-building, had been done previously, whilst influenced, in different ways by the kind of labour organization involved in pre-war plantations and Japanese war-time agriculture.

Leaders were far from conservative; individually or in groups they made the initial decisions about the direction cash cropping might take although they had no more experience of cash cropping than their fellows. Indeed technical knowledge was quite irrelevant; the benefits of greater wealth were known and labour and rice seeds were available. There was nothing else to know, even though rice cultivation was quite distinct from anything that had gone before since it was a new crop with a new form of land tenure and an entirely different form of labour organization. The most obvious explanation for the direction in which cash cropping moved, towards communal rather than individual gardens, may be more simply explained by local observations of Japanese and European practices yet there is also a more complex explanation. If leaders had begun cash cropping on their own, success would have ensured both a rise in individual wealth and prestige, yet there was always the possibility that such a novel scheme might fail; retrospectively the

risk was probably one of labour management rather than accessibility to markets or climatic disruption, yet any innovation on this scale inevitably took place in a situation of uncertainty. Consequently organizing communal gardening enabled a leader to guard against the risk of failure (which could then be attributed to the disappointing efforts of his supporters, a familiar complaint of Siwai leaders) and moreover enabled him to claim that communal gardens enabled wealth to be spread more widely. A successful garden would in any case enhance his prestige. Thus, although the development itself was not conservative it was framed in a conservative context, which enabled easy explanations of failure, and, at the same time, maintained dependence on subsistence production.

Introduction of cocoa took a different form. The earliest innovators were not *mumis*; they were individuals who had become aware of the possibilities of cocoa as a cash crop and had begun early. Their interest was entirely centred upon the economic potential of cocoa and they were interested neither in demonstrating high status through the successful direction of group labour nor in acquiring prestige through ceremonial distribution of the income. This Siwai response to cocoa was mediated by the *didimen* who quickly became convinced of its value and so encouraged Siwai leaders to participate in communal cocoa growing. Although because of this communal emphasis most big men gained their own cocoa plantations early on, they did not develop them quickly and other men almost entirely with experience gained from working outside Siwai became both Society directors and the leading *bisnismen* in the area.

A Siwai *mumi* was essentially the representative of a matrilineage group exercising a measure of control over its resources, especially land, on behalf of the members. He did not 'own' these resources and moreover was open to challenges for leadership from those who had been frustrated in their attempts to gain access to land. In a situation in the 1960s where most men were able to obtain at least some land either through matrilineal or patrilineal inheritance, and hence were in a position to support different *mumis*, the authority with which leaders could deny access to land to potential members of their own matrilineage groups was therefore limited. The flexibility of social group formation, after an initial period of uncertainty, eventually enabled almost universal access to at least some land on which cash crops could be planted. The role of big men in the early

stages of cash crop and business development, and especially the manner in which they operated essentially through the opportunities and constraints of a more traditional Siwai social and economic structure is sufficient indication that the values and institutions of societies that have experienced little contact with Europeans can be entirely adequate for rapid post-contact economic change. Siwai values and institutions helped rather than hindered the course of economic change, especially in the first couple of decades after the war, although they hampered some individual strategies. Much the same conclusions on the significance of 'traditional' values and institutions have been made for Tolai (Salisbury, 1970), Goroka (Finney, 1973) and some other Pacific areas. This is not to deny the considerable significance of a number of exogenous changes which provided the framework within which the Siwai economy could operate in a different manner. The three non-market influences were important whilst one component of what Fisk calls the 'response factor', that is the 'personality and character' of officials and other agents of change (1964:158-9), especially in the form of K.I. Tomlin, was significant during one particular time period. Endogenous and exogenous influence have always been co-existent. Moulik's conclusion that 'the emergence of new needs is one of the major stimuli for indigenous participation in cash cropping and the cash economy' (1973:123) is therefore open to criticism. The 'needs' that were critically important to continuous Siwai participation in cash cropping were generally not the acquisition of material possessions or foodstuffs but a drive towards status, self-fulfilment and self-respect. After the coconut planting of the pre-war years, and despite a growing dependence on external trade, the level of participation in the cash economy, perhaps surprisingly, became to a greater extent to depend on their own terms.

As Finney observed, in his comparison of leadership and economic development in Goroka and Tahiti, it is however often true 'that any initial attempt to adapt existing means to modern economic ends, within a society undergoing rapid change, may well result in a synthesis of the "traditional" and the "modern" that may not support cumulative economic growth and development' (Finney, 1972:129). Within Siwai the early stages of economic change, organized by big men in a context of communal enterprise, were based on some traditional forms of economic co-operation but on an entirely new and larger scale and with external links to the cash economy. These early co-operative enterprises, stores, rice

fields, cocoa *plantations* and *kamponis*, were essentially transitional institutions, a synthesis of old and new. In the earliest years the big men were the economic innovators and, as Geertz has observed in a different context, 'it is in their ability to operate at once in the traditional world of established custom and in the modern world of systematic economic rationality which is their chief resource' (Geertz, 1963:152). Eventually their ability proved insufficient to adapt these traditional institutions to a world of systematic economic rationality; support for stores fell off in the same way that it did for the rice gardens. Although store shareholders and supporters believed that this management by the leaders had prevented profits being distributed to them, especially because of the free distribution of some of the store goods (which, of course, had actually gone to many of those shareholders) they did not accuse the leaders of stealing from the stores, complaining instead that the money had been 'eaten'. Shareholders were probably aware that there was both an element of risk in new economic ventures of this kind and that leaders, at that time, were the only appropriate individuals who could provide the necessary expertise and management.

Despite the persistent failures of the earliest trade stores, enthusiasm for stores, just as for cash crops, never diminished although it was not until the late 1960s that they began to make a consistent profit. By this time few traditional leaders were still concerned with trade store management and the successful stores were those that were run by younger, educated men, often without a large number of shareholders. In this way therefore the successful stores were divorced from the social and economic milieu in which the older stores had operated and failed. Business diversification, incorporating *bisnis* ownership and cocoa buying, also tended to take the new individualistic form. Older leaders who persevered with businesses found they had to abandon the 'more antique props to innovative activities and rest their economic leadership on more technical economic bases' (Geertz, 1963:153). Not all these 'antique props' have been removed and, as Finney notes, this may not be absolutely necessary to ensure sustained economic growth and development (Finney, 1972:129). What is however apparent is that at the start of the 1970s the most successful Siwai businessmen were those, like Hatah and Pauru, who had received a commercial education apart from Siwai traditions and had built up their own enterprises primarily through their own resources. At the same time a number of more

traditional leaders, like Haranu, had achieved significant and continued levels of success in a variety of economic spheres through a more traditional dependence on co-operative finance and labour organization. Emphatically there were not two distinct spheres and strategies of economic development; individual businessmen and their enterprises, however much they seemed part of 'the modern world of systematic economic rationality' also remained a part of a traditional Siwai economy and society. Rapid economic change had not resulted in a dual economy.

By the mid-1950s *bisnisman* had become a standard term in Siwai as of course was the basic noun, *bisnis*, which essentially referred to the management of trade stores (NM, *S-stua*). At much the same time small plantations of cocoa and coffee were planted and a second European term, plantation, became, as *plantessin*, a further contribution to the Siwai language; village plantations were simultaneously developed and were known as *kampanis*. Thus at least four distinct forms of hitherto alien enterprise had become established in a rather different form in Siwai. The major difference was the initial communal organization of the Siwai form which was sometimes maintained for decades. The advantages to scale that the communal organization of cultivation allowed were minimized by the particular form of subjection of individual interests to those of the co-operative group; those who put most work in were often not those who took the most rewards out. The same basic principles also applied to the Siwai Society; there individual interests were less subsumed to those of the totality of the members whilst the superior economic management of the Society enabled greater returns to go to those who did contribute the most. On their own, individuals were often able to follow the practices of the communally managed gardens, plantations and stores through their own initiative. Few were able to challenge the Society until late in the 1960s when a small number of Siwais, primarily with experience gained in more cash-conscious environments, were able to achieve the level of management necessary to market their own produce and so bypass the co-operative and its smaller profit margins. By 1972 this process of competition had scarcely begun and the Society remained an emphatic success in contrast to the communal production ventures, most of which had long since collapsed.

Despite the disenchantment with administration interest and assistance, especially with rice cultivation, and the frustrations of two decades of disappointment with the effects

of their attempts at participation in the cash economy, Siwais essentially persisted with practical rather than with ritual means of obtaining new wealth. The few cult movements were essentially desultory and undramatic, unaccompanied by the emotionalism and hysteria of some of those elsewhere in Melanesia, and confined to a minority. They represented both an attempt at diversification and an attempt to establish relations with the administration on a morally acceptable basis. But cultism represented an alien intellectual system that could not replace the indigenous system; Siwai leaders played little part in those cult movements that did exist even when their own status and power were declining compared with younger men. By contrast cash cropping represented an extension of traditional economic interests and could be incorporated with little difficulty into the existing economic system. That cultism scarcely existed even during the more dramatic failures of cash cropping, and then was confined almost entirely to one of the two religious groups in Siwai, suggests that cargoism and business were quite distinct entities and, above all, refutes in Siwai the anti-epistemological basis for cargo cults that Finney claims for Goroka where 'business ... has been ... a cargo cult that works' (Finney, 1973:144).

For the whole of Siwai the visible effects of the move from *taim bilong pasin* to *taim bilong mani* have characterized the post-war years and yet, what is apparent is that custom has only marginally been neglected or abandoned. By 1972 a growing acquaintance with the cash economy had only begun to influence the organization, scope and content of social behaviour and obligations. What had changed, however, was the nature of leadership. Before the war Siwai *mumis* were powerful leaders with the authority to determine the course of a range of social and economic events. Following the war their influence was responsible for the main economic developments within Siwai; when these finally became successful on an individual basis, rather than on the collective basis that the *mumis* had planned, their authority declined. New economic institutions, such as the co-operative society, emerged with the ability to make decisions in areas where the *mumis* had restricted competence. At the same time political institutions, and especially the council, began to erode another basis for the big men's authority. The Council especially was an alien institution that was not generated from the needs or wishes of the Siwai themselves and caused some resentment on the part of big men some of which was almost immediate but was sufficiently continuous to eventually

provoke a change in the system of local government and administration that marked an eventual reversion to a more traditional customary form of village or community government (cf. Connell, 1977d). The more obvious success of economic institutions did not generate opposition to their partly-alien structure; for some time more individualistic household forms of cashcropping and business enterprise and the communal forms of enterprise that had been largely fostered by the big men, had run together, with the latter invariably giving way to the former as their superior short-term economic benefits became more apparent to the individual participants.

In the past there was a clear link between political authority and economic resources but this could not be maintained throughout the different phases of post-war economic developments. Initially leaders readily involved themselves in the new forms of cash crop development, because of their own control over rights in land, whereas for the same reason younger men were not easily able to participate on an individual basis. Although in some respects traditional leaders combined both 'traditional' and 'progressive' qualities they were ultimately unable, despite their diversification into business activities, to combat the individualism and fragmentation that followed the success of cocoa. By the 1960s traditional leaders were no longer able to control and monopolize the finances of their supporters; most individuals could get by, even in accumulating shell money for marriage payments, without the support of their big man although few wished to do so. Although big men were often able and willing to provide the same range of services that leaders had performed in the past, other institutions and individuals were also able to do this, so that their prestige and authority were inevitably diminished although it was only in the economic sphere that this was clear.

The Siwai enthusiasm for change had brought them the agricultural station and the first effective *didimen* in south Bougainville but it also brought them many false dawns and failures; others envied their progress but in the end the cycle of starts and stops gave Siwai the present agricultural system no faster than any other area of south Bougainville. At the start of the 1970s the Siwai agricultural economy had almost reached its contemporary situation; subsequent events partly stemmed from one more important change, the construction of the trans-island road in 1972 which, without changing the essential nature of Siwai agriculture, effectively changed many of the existing relationships of production in agriculture

and especially business. Nevertheless by 1970, irrespective of these subsequent changes, a successful cash economy had become unequivocally established in Siwai; the era of uncertainty was apparently over. It was *taim bilong mani*.

## Appendix I

Ten year agricultural development plan Buin Sub-district  
Bougainville 1956-1966

This plan has been tended on request for the District Commissioner, Bougainville, so that it may be included in a single plan for the Bougainville District. Plans of this nature can be very useful in both present and future administration of the area; however, one which covers such a long period cannot be expected to be particularly accurate since we are only able to evaluate the priority of certain fields of development, from circumstances which exist at the moment. Additionally, since we know not how policy will change during the period we cannot form any idea of what financial assistance would be available to enable us to bring the plans which we now lay down into effect at later date. The second hinge is the availability of staff to carry on with each development project. These two factors, finance and staff, broaden the gap in the accuracy and usefulness of such a long term plan. Since most other factors such as our resources, population and things of that nature are relatively stable, our knowledge of these enables us to treat them as more-or-less definite entities and bearing them in mind we cannot err seriously in predicting what developmental trends we must follow, allowing us then to scheme accordingly and make use of our long range planning as a very useful guide as we progress and look forward to the next stage of development.

It is suggested that because of unknown factors, the following plan be reviewed and amended at least every two years in order to enhance its usefulness to officers who take over duties in the district later.

The plan is set out in the following sections.

- Section (i) Development of economic crops
- (ii) Organization of production and marketing
  - (iii) Development and improvement of existing services and facilities
  - (iv) Resources and research
  - (v) European settlement
  - (vi) General
  - (vii) Conclusion

Section (i) Development of economic cropping

The aims of Agricultural Extension are as follows:

Part 1. Permanent tree crops

- (a) Coconuts  
Every encouragement to plant up as great an area as possible in the Buin Linguistic area with a view to extensive copra production. In all other areas to completely rehabilitate war damaged groves and to make new planting for food needs and copra production where the latter is practicable.
- (b) Cacao  
To embark on a Sub-District-wide planting programme to supplement present plantings. Future central fermentary sites have already been chosen, taking into account all appropriate considerations.

## (c) Coffee

A planting programme has been started in the more inaccessible areas, and in higher regions. It is also being planted in the same areas as cacao. This crop is expected to share importance close to that of cacao growing, in the ten year period.

Part 11. Annual Crops

## (a) Rice

This will be a particularly important crop in the Siwai area in the immediate future, however rice growing in Buin area will be increased and will be introduced as a home consumption crop in the other subdivisions.

## (b) Peanuts

A crop which does particularly well here, and is expected to increase greatly.

## (c) Potatoes

This crop was recently introduced to the higher areas of the Sub-District and has a great future, it is hoped that at least Bougainville will be self-sufficient in potatoes later in the period planned for.

## (d) Other Cereals

Maize, sorghums and millets are now being grown for stock food, and extension of growing will be seen shortly, and is expected to continue.

## (e) Native foods and vegetables

These will remain at subsistence level until such time as a market outlet is found. At the moment approximately 100,000 lbs of sweet potatoes is bought from Buin natives per annum.

Section (ii) Organisation of production and marketing

In the area such as this, where there are no inland transport services in existence and there is no intra-area shipping because of lack of harbours, organised production and marketing is very essential since it involves the provision of these services. The area is concerned with primary production only and this requires machinery for processing the different types of crops such as rice and peanuts, which can be very expensive. Hence if organisations are formed which can own both transport and processing machinery and provide these services to the producers from central establishments placed at strategic points, organisation of both production and marketing is greatly simplified and the capital necessary to start and maintain them is minimised.

The ideal organisation to do this is either the Rural Progress Society or the Co-operative Society. The former has already been started in Siwai area, and although only in its second month is flourishing from support given it from the natives in the area.

Once the natives running this Society are in a position to look after it by themselves, we can then start to organise similar bodies in the other subdivisions. The plan at the moment is to move to Buin later on, then Nagovisi and the Banoni.

The basic function of this Society is to provide

- (i) Transport
- (ii) Rice milling machinery
- (iii) Peanut shelling and grading machinery
- (iv) Central cacao fermentaries
- (v) Central coffee fermentaries
- (vi) Central copra driers

On-the-spot purchasing and guarantee of continual purchasing are the things which will ensure support for these bodies from the native producers.

Should village councils be formed during the ten years, and I imagine they will be, local organisation of production and marketing will be further simplified.

### Section (iii) Development and improvement of existing services and facilities

#### Roads and bridges

There is nothing more important than good roads in this area. Since there are no harbour facilities except in isolated points along the coast it is essential that road transport handle nearly all produce hence the road system must be made permanent and be in all-weather condition. Bridging of more rivers will be necessary.

The re-opening of all the prewar roads is progressing but needs to be speeded up. The only solution is to obtain heavy machinery. There is room and necessity for many new roads to link the more remote parts with Buin. In quite a few cases the roads have been surveyed, but the natives have not sufficient population to handle the extra work.

#### Shipping

Apart from greater frequency of services, we must have wharfage facilities and stores sheds at the wharf. The breakwater at present being built is the start of this, but the project itself must be speeded up. The amount of cargo that will be handled once production is organised is going to increase sizeably and better facilities will be necessary to deal with it in the near future.

### Section (iv) Research

Resources research surveys will be necessary particularly if European settlement is contemplated. The most important of these is a complete soil survey, of which a preliminary has already been made.

An entomological survey would be of assistance so that plans for eradication of certain pests such as Elephant and Rhinoceros beetle can be formulated.

Visits of overseas experts on different crops would benefit local production.

Fisheries resources surveys may lead to development of local fishing on a commercial basis.

Surveys of animals and hydro-power could also be useful. There has been a forestry survey of the Luluai valley and Tonolei Harbour areas but I consider that extension of this work will reveal quite a lot of hitherto unknown stands of good timbers which may have commercial possibilities.

### Section (v) European settlement

There are extensive tracts of land which could be opened up for European settlement as agricultural leases. Possible fields of production are copra, cacao, coffee, etc. However there must be a guarantee of availability of imported labour since the local population could not possibly stand the additional drain on manpower, particularly if they intend going into economic cropping on any scale themselves.

If timber leases are made available there will undoubtedly be interest shown in them. There is also a chance that secondary industries such as ply and paper manufacture may eventuate.

Section (vi) GeneralDepartmental

|                 |  |
|-----------------|--|
| Staff necessary | Two immediately and possibly a third later. Acquisition of trained native staff essential.   |
| Establishments  | Extension centre at Konga in Siwai and a sub-station at Taruba in the Nagovisi. These both staffed by Europeans. A third centre will be established in the Buin linguistic area later. At the moment I can see no point in stationing an officer at Buin itself. |
| Transport       | Light vehicles will be necessary at Konga and Taruba.  |
| Finance         | Sufficient to support centres and to open up new ones, as per annual estimates.  |

Section (vii) Conclusion

As we picture it, the above is what we see open to development in the current ten years period 1956-1966. Administration and technical departments will no doubt combine to see that we progress along the lines roughly mapped out.

The main points in the plan are

- (a) Development of economic cropping
- (b) Organisation of production and marketing
- (c) Development and extension of existing services and communications
- (d) Surveys of our local resources.

K. I. TOMLIN

Konga. Siwai.  
September 1956.

## Appendix II

Siwai Rural Progress Society: trading accountsA. June 1958 - November 1958 (5 months)

|                    | <u>Baskets</u> | <u>Cane chairs</u> | <u>Peanuts</u> | <u>Rice</u> | <u>Corn</u> |
|--------------------|----------------|--------------------|----------------|-------------|-------------|
| Stock (21.6.1958)  | 78. 8.0        | 15.10.0            | 18. 3.0        | 1054.18.6   | 124. 0.0    |
| Purchases          | 299.12.0       | 33. 5.0            | 2118. 8.3      | 521. 7.0    | 57. 2.7     |
| Sales              | 232. 5.8       | 58. 6.8            | 1324. 1.6      | 528. 8.6    | 56. 0.0     |
| Stock (26.11.1958) | 225. 3.0       | 44.10.0            | 914.11.0       | 1021. 3.6   | 77.11.0     |

B. May 1959 - October 1959 (5 months)

|                    | <u>Baskets</u> | <u>Cane chairs</u> | <u>Peanuts</u> | <u>Rice</u> | <u>Corn</u> | <u>Copra</u> |
|--------------------|----------------|--------------------|----------------|-------------|-------------|--------------|
| Stock (16.5.1959)  | 137.18.3       | 1.10.0             | 514.11.8       | 93. 9.6     | 50.12.6     | -            |
| Purchases          | 73.11.0        | -                  | 775. 6.0       | 814. 7.8    | 9. 9.0      | 45.0.0       |
| Total*             | 229. 7.11      | 3. 0.0             | 1674.12.6      | 1419. 5.10  | 275. 5.6    | 59.7.7       |
| Sales              | 97.14.8        | 3. 0.0             | 2. 3.9         | 1402.14.1   | 270. 4.6    | 59.7.7       |
| Stock (19.10.1959) | 131.13.3       | -                  | 1260.11.5      | 16.11.9     | 5. 1.0      | -            |

Balance Sheet (21.6.1959)

|                        | <u>Rice</u> | <u>Peanuts</u> | <u>Corn</u> | <u>Baskets</u> |
|------------------------|-------------|----------------|-------------|----------------|
| Sales                  | <u>1866</u> | <u>3074</u>    | <u>111</u>  | <u>292</u>     |
| Purchases from members | 1678        | 1876           | 67          | 244            |
| Hire of tractor        | 104         | 374            | 20          | 11             |
| Sack purchase          | 30          | 120            | -           | -              |
| Hire of rice machine   | <u>75</u>   | -              | -           | -              |
| Loss                   | 21          | -              | -           | -              |
| Profit                 | -           | 704            | 24          | 37             |

C. October 1959 - January 1960 (3 months)

|                    | <u>Baskets</u> | <u>Peanuts</u> | <u>Rice</u> | <u>Corn</u> | <u>Copra</u> | <u>Cocoa</u> |
|--------------------|----------------|----------------|-------------|-------------|--------------|--------------|
| Stock (20.10.1959) | 131.13.2       | 1260.11.5      | 16.11.9     | 5.1.0       | -            | -            |
| Purchases          | 14. 6.0        | 200.13.0       | 253.18.4    | 6.0         | 15. 8.0      | 2.8.0        |
| Total              | 172. 7.0       | 1908.12.5      | 434. 4.5    | 86.4.1      | 76.10.0      | 3.0.0        |
| Sales              | 47.15.0        | -              | 349. 2.3    | 70.0.0      | 70. 3.7      | 3.0.0        |
| Stock (11.1.1960)  | n.d.           | n.d.           | n.d.        | n.d.        | n.d.         | n.d.         |

D. April 1960 - August 1960 (5 months)

|                   | <u>Baskets</u> | <u>Peanuts</u> | <u>Rice</u> | <u>Corn</u> | <u>Copra</u> | <u>Cocoa</u> |
|-------------------|----------------|----------------|-------------|-------------|--------------|--------------|
| Stock (6.4.1960)  | 46.17.0        | 700.19.4       | 69.11.3     | 24.6.7      | 31. 4.2      | -            |
| Purchases         | 80. 5.0        | 81. 8.0        | 340. 5.0    | 20.0.0      | 34.13.2      | 39.14.0      |
| Total             | 173. 9.10      | 782. 7.4       | 595.10.9    | 88.4.8      | 136. 6.8     | 101. 7.8     |
| Sales             | 141. 2.7       | 648.10.0       | 588. 1.4    | 10.4.0      | 129.10.4     | 31. 1.10     |
| Stock (30.8.1960) | n.d.           | n.d.           | n.d.        | n.d.        | n.d.         | n.d.         |

\* This total includes 'stock (16.5.59)', 'purchases' plus all other expenses - milling, bagging, handling, freight, etc. and, apparently, some disaggregation of administration costs. Wages must have been very small; in 1962, the secretary, Luke Pauru, was getting £10 a month and there were no other qualified staff.

## Appendix III

Copra and cocoa prices 1947-1974

|              | Copra<br>(hot-air)<br>(ton)<br>in store,<br>Rabaul | Cocoa<br>(ton)<br>ex-wharf,<br>Sydney |              | Copra<br>(hot-air)<br>(ton)<br>in store,<br>Rabaul | Cocoa<br>(ton)<br>in store,<br>Rabaul |
|--------------|--|---------------------------------------|--------------|--|---------------------------------------|
| 1947 January | £28  | n. d.                                 | 1962 January | £55  | £212                                  |
| July         | £31  | n. d.                                 | July         | £55  | £212                                  |
| 1948 January | £38  | n. d.                                 | 1963 January | £55  | £190                                  |
| July         | £47  | £240                                  | July         | £59  | £225                                  |
| 1949 January | £48  | £240                                  | 1964 January | £59  | £200                                  |
| July         | £48  | £240                                  | July         | £62  | £175                                  |
| 1950 January | £48  | £240                                  | 1965 January | £72  | £100                                  |
| July         | £49  | £250                                  | July         | £72  | £ 81                                  |
| 1951 January | £49  | £250                                  | 1966 January | £72  | £133                                  |
| July         | £55  | £300                                  | July         | \$143  | \$416                                 |
| 1952 January | £65  | £285                                  | 1967 January | \$143  | \$350                                 |
| July         | £69  | £290                                  | July         | \$120  | \$450                                 |
| 1953 January | £69  | £275                                  | 1968 January | \$126  | \$520                                 |
| July         | £69  | £290                                  | July         | \$156  | \$490                                 |
| 1954 January | £69  | £370                                  | 1969 January | \$151  | \$780                                 |
| July         | £75  | £580                                  | July         | \$126  | \$750                                 |
| 1955 January | £75  | £505                                  | 1970 January | \$118  | \$760                                 |
| July         | £70  | £340                                  | July         | \$140  | \$470                                 |
| 1956 January | £70  | £305                                  | 1971 January | \$131  | \$520                                 |
| July         | £63  | £235                                  | July         | \$123  | \$360                                 |
| 1957 January | £63  | £245                                  | 1972 January | \$110  | \$300                                 |
| July         | £58  | £245                                  | July         | \$103  | \$440                                 |
| 1958 January | £47  | £350                                  | 1973 January | \$108  | \$550                                 |
| July         | £47  | £400                                  | July         | \$127  | \$880                                 |
| 1959 January | £55  | £340                                  | 1974 January | \$200  | \$750                                 |
| July         | £55  | £276                                  | July         | \$334  | \$1100                                |
| 1960 January | £73  | £233                                  |              |  |                                       |
| July         | £65  | £255                                  |              |  |                                       |
| 1961 January | £55  | £210                                  |              |  |                                       |
| July         | £55  | £200                                  |              |  |                                       |

Source: *Pacific Islands Monthly.*

## Appendix IV

A note on documentary sources

The most important patrol reports and agricultural patrol reports relevant to the Siwai area are separately listed below rather than referred to in detail in the text. Thus 'PR Boku 1/72-73' refers to the report of the Patrol carried out by G. Schweinfurth in Banoni, Baitsi and Nagovisi in July and September 1972. Patrol reports up to and including 1955 are stored in the Papua New Guinea Archives (here referred to as PMA) in Port Moresby and subsequent reports are filed in various locations including Konedobu (Port Moresby), Arawa and sometimes the patrol stations involved. The following is a list of all patrol reports known to me on the Siwai area; those marked with an asterisk are particularly useful accounts of the social and economic conditions at a particular time. It is almost certainly incomplete especially for the period between 1959 and 1965. The following sections list all other documentary material referred to in this monograph, classified according to the chapter or section in which it is used.

Patrol reports

|                                      |                         |                                  |                   |
|--------------------------------------|-------------------------|----------------------------------|-------------------|
| Special Patrol Flight<br>n.d. (1944) | J.M. Joyes              | Southern Bougainville            | 11 May 1944       |
| *PR Bougainville<br>10/47-48         | R.R. Cole               | Siwai/Nagovisi/Baitsi/<br>Banoni | Feb.-March 1948   |
| PR Boku 1/48-49                      | C.W. Liddle             | Banoni/Baitsi/Siwai              | May 1949          |
| PR Boku 4/49-50                      | C.W. Liddle             | Siwai                            | September 1949    |
| *PR Buin 5/50-51                     | A.K. Jackson            | Siwai                            | March-April 1951  |
| PR Buin 4/51-52                      | J.F. Norton             | Siwai                            | March 1952        |
| PR Buin 1/54-55                      | A.J. Humphries          | Siwai                            | August-Sept. 1954 |
| *PR Buin 1/55-56                     | D.J. Hook               | Siwai                            | July-August 1955  |
| PR Boku 3/55-56                      | D.J. Hook               | Siwai                            | June 1956         |
| PR Buin 6/56-57                      | G.R.G. Wearne           | Siwai                            | Jan.-Feb. 1957    |
| PR Boku 1/57-58                      | R.J. Giddings           | Siwai                            | August 1957       |
| PR Boku 2/60-61                      | A.D. Pitt               | Siwai                            | Sept.-Nov. 1960   |
| PR Buin 5/64-65                      | A. Wallensky            | Siwai                            | June-July 1965    |
| PR Konga 1/66-67                     | R.E. Dargie             | Siwai                            | May 1967          |
| PR Boku 12/67-68                     | H.Balfour-<br>Ogilvy    | Siwai and Baitsi                 | Dec.1967-Jan.1968 |
| *PR Konga 1/67-68                    | R.E. Dargie             | Siwai                            | Sept.-Nov. 1967   |
| PR Konga 2/67-68                     | R.E. Dargie             | Siwai                            | Feb.-March 1968   |
| PR Buin 2/68-69                      | H.L. Balfour-<br>Ogilvy | Siwai/Baitsi                     | February 1969     |

|                       |                |                    |                     |
|-----------------------|----------------|--------------------|---------------------|
| *PR Konga 1/69-70     | J.G. Steven    | Siwai              | January 1970        |
| PR Konga 2/69-70      | J.G. Steven    | Siwai              | March 1970          |
| PR Konga 1/70-71      | F.B. Donovan   | Siwai              | August-Nov. 1970    |
| PR Boku 10/70-71      | G.Schweinfurth | Siwai              | May 1971            |
| *PR Boku 2/72-73      | G.Schweinfurth | Siwai (Area Study) | Nov.1972-March 1973 |
| PR Boku 1/73-74       | A. McGrail     | Siwai              | August 1973         |
| PR Kieta 1/72-73      | A. McGrail     | Nagovisi/Siwai     | October 1972        |
| + PR Kieta 2/72-73    | A. McGrail     | Siwai/Buin/Bana    | November 1972       |
| + PR Kieta 4/72-73    | A. McGrail     | Bana-Siwai         | Jan.-Feb. 1973      |
| + Unavailable in 1975 |                |                    |                     |

#### Agricultural patrol reports

|                                  |               |              |                           |
|----------------------------------|---------------|--------------|---------------------------|
| APR Buin Sub-District            | K.I. Tomlin   | March 1954   | (Early 1954?)             |
| APR Buin and Kieta Sub-Districts | K.I. Tomlin   | 1954         | June-July 1954            |
| *APR Buin Sub-District           | K.I. Tomlin   | 1955         | August-Oct. 1955          |
| APR Buin Sub-District No.1 141   | K.I. Tomlin   | 1956         | Jan.-March 1956           |
| APR Siwai No.4                   | D.C. Shepherd | June 1956    | May-June 1956) one patrol |
| APR Siwai No.2                   | K.I. Tomlin   | June 1956    | May-June 1956)            |
| *APR Eastern Division Siwai No.9 | G.E. Haling   | 20 Jan. 1960 | January 1960              |
| APR Eastern Siwai Konga No.1     | M.L. Jones    | January 1962 | January 1962              |

#### Documentary sources difficult or impossible of access

##### The environmental stage

- Arndt, F. (1972). 'Investigation on reports of food shortages due to garden damage caused by excessive rains in the Buin sub-district', DASF, Kieta, mimeo (4pp.).
- Bougainville Copper Pty Ltd (1969), 'Bougainville. Results of geological investigations', Panguma, mimeo.
- French, B.R. (1972). Letter to DASF, Kieta.
- Shaw, P.E. (1969). Letter to Rural Development Officer, Konga. 22 September 1969.

##### The war economy

- Anon (1945). Native Interrogation Reports (Australian War Memorial File 506/8/5).
- Anon (1947a). Brief report on a Survey of South West Bougainville, July 1947 (PMA). Typescript.
- Anon (1947b). Operation Aircraft. Destruction of Japanese gardens and the use of napalm bombs, Bougainville area, 1944-45 (AWM File 337/8/1).
- D.L. Campbell (1946). *History of the Japanese Occupation of Bougainville. March 1942 - August 1945*, Fauro (AWM File 535/3/2).

G.E. Haling (1960). Agricultural Patrol. Lugakei (Buin D.O. File 32-lc.)

#### Rice

- R.R. Cole, ADO Buin, Letter to DO Sohano 23 May 1947 (PMA Box 4213, File 33.1.2).  
 L.A. Dornan, Native Rice Project, Monthly Report, May 1949 (PMA Box 4193, File AGR 28.k.1).  
 C.S. Franke, Notes on the Siwai Rice Project, Buin Sub-district, 29 July 1950 (PMA Box 4193, File AGR 28.k.1).  
 C.S. Franke, Annual Report of Agricultural Extension Service, Buin Sub-district July 1949-June 1950 (PMA Box 4241, File 38.2.10).  
 E.R. Wilson, Buin Rice Project, Patrol Report, October 1952.  
 G.G. Wilson, Rice Report, 29 October 1948, 2pp (PMA Box 3902).  
 Rice Project 1948 - Monthly Report March 1951-September 1951, etc. (PMA Box 4193 DASF File AGR 28.k.1).  
 Buin Sub-district Agricultural Office Monthly Reports 1948-1950 (PMA Box 4193, File AGR 28.L.1).

#### Diversification

- A.K. Jackson, Nagovisi (Special Report). April 1952. (PMA).  
 D.C. Shepherd, Rural Progress Society, Siwai. Letter to Chief of Division of Agricultural Extension, Port Moresby, 3 April 1956.  
 K.I. Tomlin, Agricultural Patrol Report. Buin and Kieta Sub-districts. 1954.  
 K.I. Tomlin, Supplement to Special Report on Organization of Production and Marketing, Buin Sub-district, February 1956.

#### Siwai Rural Progress Society

- A.D. Boag. Letter to Regional Agricultural Officer, Rabaul, 23 March 1959.  
 -- Letter to Regional Agricultural Officer, Rabaul, 3 February 1960.  
 D.N. Brown. Letter to Registrar of Co-operatives, Port Moresby, 17 October 1961.  
 Catholic Action. Vol.8, No.2, 1960.  
 -- Vol.8, No.10, 1960.  
 -- Vol.14, No.4, 1967.  
 G.A. Haling. Letter to District Agricultural Officer, Sohano, 12 August 1959.  
 H. Jackman. Letter to Co-operative Officer, Sohano, 20 January 1959.  
 -- Letter to Honorary Adviser, Siwai RPS, 24 December 1959.  
 -- Siwai RPS. Report on 6 months to 19 June 1959, 25 June 1959.  
 -- Letter to District Agricultural Officer, Sohano, 28 October 1960.  
 R. Joseph. Letter to Co-operative Officer, Sohano, 10 December 1958.  
 M.M. Pember. Letter to Assistant Registrar, Co-operative Section, Rabaul, 18 January 1960.  
 -- Letter to Assistant Registrar, Co-operative Section, Rabaul, 29 April 1960.  
 Siwai RPS. Minutes 5 December 1959.  
 -- Trading Accounts 6.4.60-30.8.60.  
 -- Trading Accounts 31.8.60-17.3.61.  
 Territory of New Guinea. *Annual Report 1959-60*, Canberra 1961.

- K.I. Tomlin. Supplement to Special Report on Organization of Production and Marketing, Buin Sub-district, February 1956.
- Special Report Siwai RPS, 18 June 1956.
  - Special Progress Report Siwai RPS, 4 October 1956.
  - Annual Report Siwai Agricultural Extension Centre, 5 July 1957.
  - Letter to District Commissioner, East New Britain, 6 August 1956.
  - Special Report Siwai RPS, 26 February 1957.
  - Letter and Loan Request to Department of the Treasurer, 26 November 1956.
  - Inspection Report and Balance Sheet 22.6.58-26.11.58.
  - Letter to District Commissioner, Sohano, 12 June 1958.

Towards the cash economy

- R. Bassingthwaite, Siwai Area, Department of Trade and Industry, Rabaul, unpub. mimeo, September 1967 (File BD 9.2.6., Arawa).
- Boku Annual Report 1963-64.
- Bougainville District Annual Report 1962-63, 1964-65, 1969-70.
- Buin Sub-district Annual Reports 1961-62, 1963-64, 1964-65, 1965-66, 1966-67, 1968-69.
- I.N. Brown. Letter to Registrar of Co-operatives, 17 October 1961.
- J. Christensen. Letter to Registrar of Co-operatives, Konedobu, 18 March 1964.
- Siwai RPS Balance Sheets, 28 October 1965.
- DASF, Konga. Cocoa Production: Siwai, mimeo, Konga, n.d. [August 1972?]
- South Bougainville Cocoa Production, August 1970, 13 pp. (DASF Konga, File 21.32.1). Typescript.
- B.R. French, History of Konga's station, Siwai Society and Agricultural Extension in Siwai, July 1972.
- R. Frost. Letter to Angco, Rabaul, 28 August 1969.
- M.L. Jones. Letter to Registrar of Co-operatives, Konedobu, 8 April 1962.
- J. Simiri. DASF Field Notes, August 1968 (DASF Konga) October 1969 (DASF Kieta). Siwai Local Government Council, February 1960-October 1975.
- Siwai Rure*, Vol.3, No.4, April 1962; Vol.5, No.7, July 1963.
- Siwai RPS*, Minutes 9 July 1960, September 1964.
- Balance Sheet, 13.9.68-28.2.69.
- K.I. Tomlin. Field Officer's Journal, 5 October 1955 (PMA Box 4145).
- G.G. Tually. Siwai RPS Inspector's Report, 11 October 1963.
- W.T. White. Letter to District Rural Development Officer, Kieta, 27 October 1969.

Pigs and cows

- J.L. Anderson. Visit to Bougainville, 5 June 1969 [Konga File 14-1a].
- D.N. Brown. Letter to RDO Konga, 1 August 1969.
- Letter to RDO Buin, 13 June 1969.
  - Letter to Regional Controller, Rabaul, 27 June 1972.
- DASF Konga. Project Programme, 29 October 1969.
- L.A. Dornan. Rice Project, Monthly Report, August 1949.
- B.R. French. Letter to D.N. Brown, Kieta, 22 May 1972.

- R.D. Hill. Letter to RDO, Kieta, 11 September 1969.
- Cattle situation, Konga. Letter to District Rural Development Officer, Kieta, 18 September 1969.
  - Minutes of Cattle Meeting held by the four Siwai Influentials who toured New Guinea Cattle Projects, 11 October 1969.
  - Present and prospective cattle owners - Siwai area, 20 May 1970.
- T. Konnei. Letter to P. Quodling, BCL; 15 May 1972.
- J. Montoro. *Ol man bilong Siwai lukluk nabaut long bisnis kau long hap bilong Lae* (The observations of Siwai men on cattle projects in the Lae area), 1p., n.d. (Konga, 1969). Typescript.
- J.A. Pitt. Letter to D.N. Brown, 5 April 1973.
- P. Quodling. Letter to Siwai Society, 31 May 1972.
- T. Simiri. Field notes, August 1968 [DASF, Kieta, Archives].
- Siwai Society. General meeting, 28 October 1968.
- Letter to Chief of Division of Animal Industry, Konedobu, 3 March 1969.

#### Business

- Siwai Co-operative Chairman. Letter to Director, Department of Lands, Surveys & Mines, 20 August 1971.
- R.D. Hill. Letter 1 October 1969.
- B.R. French n.d. *Cocoa Production: Siwai*, 4pp. (August 1972). Typescript.
- W.T. White (Buin Co-operative Officer). Letter, 2 October 1970.

#### Cargo

- S. Carley (1970). *Ol Kateket*, mimeo, 10pp. (Bougainville).
- (1970). *Tok na Fasin Kago*, mimeo, 15pp. (Sohano, Bougainville).
- R.J. Giddings (1964). Letter to Assistant District Officer, 11 March 1964.
- A.L. Redwood (1964). Political Development, Patrol Report, 18 December 1961.

References

- Allen, B.J., 1976. Information Flow and Innovation Diffusion in the East Sepik District, Papua New Guinea, unpublished Ph.D. thesis, Australian National University, Canberra.
- Anon, 1931a. 'Agriculture and cattle farming', *Pacific Islands Monthly*, 1(6):7.
- 1931b. 'Botanist's work on Bougainville', *Pacific Islands Monthly*, 2(2):5.
- Arrighi, G., 1970. 'Labour supplies in historical perspective: a study of the proletarianization of the African peasantry in Rhodesia', *Journal of Development Studies*, 6(3):197-234.
- Barnard, R., 1974. 'Deuba: economic change in a Fijian village', *Oceania*, 45(1):1-17.
- Bathgate, M.A., 1975. Bihu Matena Golo: A study of the Ndi-Nggai of west Guadalcanal and their involvement in the Solomon Islands Cash Economy, unpublished Ph.D. thesis, Victoria University of Wellington.
- Blackwood, B., 1935. *Both Sides of Buka Passage*, Oxford.
- Blake, D.H., and Mieзитis, Y., 1967. *Geology of Bougainville and Buka Islands, New Guinea*, Commonwealth of Australia, Bureau of Mineral Resources, Bulletin no.93, Canberra.
- Bogue, D.J., 1969. *Principles of Demography*, N.Y., Wiley.
- Bowman, R.G., 1946. 'Army farms and agricultural development in the Southwest Pacific', *Geographical Review*, 36(3):420-46.
- Bulmer, R.N.H., 1971. 'Traditional forms of family limitation in New Guinea', in M.W. Ward (ed.), *Population Growth and Socio-Economic Change, New Guinea Research Bulletin*, no.42, pp.137-62, Canberra.
- Burridge, K., 1960. *Mambu: A Melanesian Millennium*, London, Methuen.
- Chagnon, N., 1974. *Studying the Yanomamö*, New York, Holt, Rinehart and Winston.
- Cheetham, R.J., 1963. 'The development of indigenous agriculture, land settlement and rural credit facilities in Papua and New Guinea', *Papua and New Guinea Agricultural Journal*, 15(3-4):67-78.
- Chinnery, E.M.P., 1924. *Notes on the Natives of South Bougainville and Mortlocks (Taku)*, Territory of New Guinea Anthropological Report no.5, Canberra.
- Connell, J., 1977a. *Hunting and Gathering: the Forage Economy of the Siwai of Bougainville*, Development Studies Centre Occasional Paper no.6, Australian National University, Canberra.
- 1977b. *The People of Siwai: Population Change in a Solomon Island Society*, Department of Demography Working Paper no.8, Australian National University, Canberra.
- 1977c. 'The Bougainville connection: changes in the economic context of shell money production in Malaita', *Oceania*, 48(2):21-101.

- 1977d. 'The decline of local government councils and the rise of village government', in J. Connell (ed.), *Local Government Councils in Bougainville*, Bougainville Special Publication no.3, Christchurch, pp.132-74.
  - 1977e. The economics of big men: reflections on a Siwai paradigm, unpublished paper.
  - 1978a. 'The death of taro: local response to a change of subsistence crops in the Northern Solomons', *Mankind* (in press).
  - 1978b. 'Cocoa, copper and cash: terminal, temporary and circular migration amongst the Siwai of South Bougainville', in R.M. Prothero and M. Chapman (eds), *Circulation & Population Movement in Developing Countries*, London (in press).
- Corris, P., 1973. *Passage, Port and Plantation: A History of Solomon Islands Labour Migration, 1870-1914*, Melbourne, Melbourne University Press.
- Cottrell-Dormer, W., 1947. *1947 Special Survey for Rehabilitation of Bougainville*, Port Moresby, September (PMA Box 4213, File 33.1-2), typescript.
- Crellin, K.G., 1972. 'The use of credit facilities in rural areas', in M.W. Ward (ed.), *Change and Development in Rural Melanesia*, Canberra and Port Moresby, pp.504-19.
- Crocombe, R.G., 1964. *Communal Cash Cropping among the Orokaiva*, New Guinea Research Unit Bulletin no.4, Canberra.
- Dakeyne, R.B., 1965. *Stability and Change in the Yega Economy: a Geological Case Study of Land Tenure, Land Use and Settlement in Northern Papua*, unpublished M.A. thesis, University of Sydney.
- Douglas, M., 1966. 'Population control in primitive groups', *British Journal of Sociology*, 17(3):263-73.
- Epstein, A.L., 1963. 'The economy of modern Matupit: continuity and change on the Gazelle Peninsula, New Britain', *Oceania*, 33(3):182-215.
- A.L. and T.S., 1962. 'A note on population in Tolai settlements', *Polynesian Society Journal*, 71(1):70-82.
- Epstein, T.S., 1968. *Capitalism, Primitive and Modern: Some Aspects of Tolai Economic Growth*, Canberra, ANU Press.
- 1970. 'Innovation of cash crops in New Guinea subsistence economies', *Economic Record*, 46(June):182-96.
  - 1971. 'Cocoa cash cropping: a reply', *Economic Record*, 47(March):135-7.
- Finney, B.R., 1972. 'Big-men, half-men and trader-chiefs: entrepreneurial styles in Australian New Guinea and French Polynesia', in T.S. Epstein and D.H. Penny (eds), *Opportunity and Response: Case Studies in Economic Development*, London, C. Hurst, pp.114-30.
- Finney, B., 1973. *Big-Men and Business, Entrepreneurship and Economic Growth in the New Guinea Highlands*, Canberra, ANU Press.
- Fisk, E.K., 1962. 'Planning in a primitive economy: special problems of Papua-New Guinea', *Economic Record*, 38(84):462-78.

- 1964. 'Planning in a primitive economy: from pure subsistence to the production of a market surplus', *Economic Record*, 40(90):156-74.
- 1975. 'The response of nonmonetary production units to contact with the exchange economy', in L.G. Reynolds (ed.), *Agriculture in Development Theory*, New Haven, Yale University Press, pp.53-83.
- Fried, M.H., 1975. *The Notion of Tribe*, Menlo Park, California, Cummings Publishing Co.
- Friedlaender, J.S., 1971. 'The population structure of south-central Bougainville', *American Journal of Physical Anthropology*, 35(1):13-25.
- 1975. *Patterns of Human Variation: the Demography, Genetics, and Phenetics of Bougainville Islanders*, Cambridge, Mass., Harvard University Press.
- and Oliver, D.L., 1976. 'Effects of aging and the secular trend in Bougainville males', in E. Giles and J. Friedlaender (eds), *Measures of Man*, Cambridge, pp.142-63.
- Geertz, C., 1963. *Peddlers and Princes: Social Change and Economic Modernization in Two Indonesian Towns*, Chicago, University of Chicago Press.
- Gilbert, G.F.R., 1939. Extracts from a report of a patrol to Kunua and Hahon Subdivisions, Buka Passage sub-district, Kieta district, *New Guinea Agricultural Gazette*, 5(2):40-1.
- Good, K., 1975. 'The static concept and changing reality of tribe: an aspect of the ideology of underdevelopment', *Australian and New Zealand Journal of Sociology*, 11(3):34-7.
- Gostin, O., 1972. 'Ten years of resettlement, cash cropping and change among the Kuni at Bakoiudu, 1961-71', in M.W. Ward (ed.), *Change and Development in Rural Melanesia*, Canberra and Port Moresby, pp.449-88.
- Granger, K.J., 1971. 'Population and land in the Gazette Peninsula', in M.W. Ward (ed.), *Population Growth and Socio-Economic Change*, New Guinea Research Bulletin, no.42, pp.108-21.
- Guppy, H.P., 1887. *The Solomon Islands and Their Natives*, London, Swan Sonnenschein.
- Hale, P.R., 1975. 'An index for the identification of locations in the New Guinea islands with suitable rainfall for upland rice production', *Science in New Guinea*, 3(3):199-210.
- Hamilton, L., 1955. 'Indigenous versus introduced vegetables in the village dietary', *Papua and New Guinea Agricultural Journal*, 10(2):54-7.
- Hasluck, P., 1976. *A Time for Building: Australian Administration in Papua and New Guinea 1951-1963*, Melbourne, Melbourne University Press.
- Henderson, F.C., 1954. 'Cacao as a crop for the owner-manager in Papua and New Guinea', *Papua and New Guinea Agricultural Journal*, 9(2):45-74.
- Hogbin, G.E., 1964. *A Survey of Indigenous Rubber Producers in the Kerema Bay Area*, New Guinea Research Unit Bulletin, no.5, Canberra.

- Hornabrook, R.W., 1974. 'The demography of the population of Karkar Island', *Royal Society London Phil. Transactions*, B.268, pp.229-39.
- Howells, W.W., 1976. 'Physical variation and history in Melanesia and Australia', *American Journal of Physical Anthropology*, 45(3):641-50.
- IBRD (International Bank for Reconstruction and Development), 1965. *The Economic Development of the Territory of Papua and New Guinea*, Baltimore.
- Jeffreys, F.J., 1971. Administration - Indigenous Co-operation: the Mekeo Rice Project, unpublished paper presented to the Third Waigani Seminar, 1971.
- Jones, G.T., and Stent, W.R., 1971. 'Cocoa cash cropping: a comment', *Economic Record*, 47(March):130-4.
- Kajewski, S.F., 1946. 'Plant collecting in the Solomon Islands', *Arnold Arboretum Journal*, 27(3):292-304.
- Keleny, G.P., 1962. 'The origin and introduction of the basic food crops of the New Guinea people', *Papua and New Guinea Agricultural Journal*, 15(1-2):7-13.
- Knapman, B., 1976. 'Indigenous involvement in the cash economy of Lau, Fiji, 1840-1946', *Journal of Pacific History*, 11(3):167-88.
- Langness, L.L., 1963. 'Notes on the Bena Council, Eastern Highlands', *Oceania*, 33(3):151-70.
- Lawrence, P., 1964. *Road Belong Cargo: a Study of the Cargo Movement in the Southern Madang District, New Guinea*, Melbourne, Melbourne University Press.
- Lea, D.A.M., 1972. 'Indigenous horticulture in Melanesia', in R.G. Ward (ed.), *Man in the Pacific Islands*, Oxford, Clarendon, pp.252-79.
- Leadley, A., 1976. A History of the Japanese Occupation of the New Guinea Islands, and its Effects, with Special Reference to the Tolai People of the Gazelle Peninsula, unpublished M.A. thesis, University of Papua New Guinea.
- Lockwood, B.A., 1971. *Samoan Village Economy*, Melbourne, Oxford University Press.
- Lomas, P.W., 1974. Economic and Political Organization in a Northern New Ireland Village, unpublished Ph.D. thesis, Simon Fraser University.
- Long, G., 1963. *The Final Campaigns*, Canberra, Australian War Memorial.
- Luxton, C.T.J., 1955. *Isles of Solomon: a Tale of Missionary Adventure*, Auckland, Methodist Foreign Missionary Society of New Zealand.
- McAuley, J., 1952. 'Mechanization, collectives and native agriculture', *South Pacific*, 6(1):276-81.
- Maher, R.F., 1961. *New Men of Papua: a Study in Culture Change*, Madison, University of Wisconsin Press.
- Marr, C.C., 1938. 'Progress of native agriculture in Madang District', *New Guinea Agricultural Gazette*, 4(2):30-6.
- Massal, E., and Barrau, J., 1956. *Food Plants of the South Sea Islands*, South Pacific Commission Technical Paper no.94, Noumea.

- Mitchell, D.D., 1976. *Land and Agriculture in Nagovisi, Papua New Guinea*, Institute of Applied Social and Economic Research Monograph no.3, Port Moresby.
- Montoro, J., 1969. Ol man bilong Siwai Lukluk nabaut long bisnis kau long hap bilong Lae (The observations of Siwai men on cattle projects in the Lae area), 1p., n.d. (Konga, 1969), typescript.
- Morauta, L., 1974. *Beyond the Village: Local Politics in Madang, Papua New Guinea*, Canberra, ANU Press.
- Moulik, T.K., 1973. *Money, Motivation and Cash Cropping*, New Guinea Research Bulletin, no.53, Canberra.
- Nash, J., 1974. *Matriliney and Modernisation: the Nagovisi of South Bougainville*, New Guinea Research Bulletin, no.55, Canberra.
- Ogan, E., 1972. *Business and Cargo: Socio-Economic Change among the Nasioi of Bougainville*, New Guinea Research Bulletin, no.44, Canberra.
- 1973. Dependence, Inferiority, Autonomy: a Bougainville Case Study in Colonialism, unpublished paper to Association for Social Anthropology in Oceania, March.
- Nash, J. and Mitchell, D., 1976. 'Culture, change and fertility in two Bougainville populations' in E. Giles and J.S. Friedlaender (eds), *Measures of Man*, Cambridge, pp.533-49.
- Oliver, D.L., 1949a. *Economic and Social Uses of Domestic Pigs in Siuai, South Bougainville, Solomon Islands*, Peabody Museum of American Archeology and Ethnology, Harvard, Papers 29(3), Cambridge, Mass.
- 1949b. *Land Tenure in Northeast Siuai, Southern Bougainville, Solomon Islands*, Peabody Museum of American Archeology and Ethnology, Harvard, Papers 29(4), Cambridge, Mass.
- 1954. Somatic Variability and Human Ecology on Bougainville, Solomon Islands, Harvard, unpublished ms.
- 1955. *A Solomon Island Society: Kinship and Leadership among the Siuai of Bougainville*, Cambridge, Harvard University Press.
- 1973. *Bougainville: a Personal History*, Melbourne, Melbourne University Press.
- Packard, J., 1975. *The Bougainville Taro Blight*, University of Hawaii, Pacific Islands Program, Miscellaneous Work Papers 1975:1.
- PCA (Parliament of the Commonwealth of Australia), 1923. *Report to the Council of the League of Nations on the Administration of the Territory of New Guinea from 1 July 1921 to 30 June 1922*, Melbourne. (Subsequent Annual Reports follow the same form hence are not listed here. From 1946 Reports are to the General Assembly of the United Nations.)
- Pitt, D., 1970. *Tradition and Economic Progress in Samoa*, Oxford, Clarendon Press.
- Poggendorff, W., 1953. *Rice Production in Papua and New Guinea*, Sydney, Government Press.
- Ribbe, C., 1903. *Zwei Jahre unter den Kannibalen der Salamo-Inseln*, Dresden.

- Rimoldi, M.R., 1971. The Hahalis Welfare Society of Buka, unpublished Ph.D. thesis, Australian National University, Canberra.
- Ring, A. and Scragg, R., 1973. 'A demographic and social study of fertility in rural New Guinea', *Journal of Biosocial Science*, 5(1):89-121.
- Rowley, C.D., 1958. *The Australians in German New Guinea, 1914-1921*, Melbourne, Melbourne University Press.
- Salisbury, R.F., 1962. 'Early stages of economic development in New Guinea', *Polynesian Society Journal*, 71:328-39.
- 1970. *Vunamami: Economic Transformation in a Traditional Society*, Berkeley and Los Angeles, University of California Press.
- Scragg, R.F.R., 1969. 'Mortality changes in rural New Guinea', *Papua and New Guinea Medical Journal*, 12(3):73-83.
- Scott, R.M., 1967. 'Soils of Bougainville and Buka Islands', in R.M. Scott *et al.*, *Lands of Bougainville and Buka Islands, Territory of Papua and New Guinea*, CSIRO Land Research Series no.20, Melbourne, pp.105-20.
- Sherrod, R., 1952. *History of Marine Corps Aviation in World War Two*, Washington.
- Shoffner, R.K., 1976. The Economy and Cultural Ecology of Teop, unpublished Ph.D. thesis, University of Hawaii.
- Stanner, W.E.H., 1953. *The South Seas in Transition: a Study of Post-War Rehabilitation and Reconstruction in Three British Pacific Dependencies*, Sydney, Australasian Publishing Co.
- Stent, W.R., and Webb, L.R., 1974. *Subsistence Affluence and Market Economy in Papua New Guinea*, University of Melbourne, Department of Economics, Research Paper no.17.
- Stephen, M., 1974. Continuity and Change in Mekeo Society, 1890-1971, unpublished Ph.D. thesis, Australian National University, Canberra.
- Sumbak, J.H., 1970. 'Poor coconut growth in South West Bougainville', *Papua New Guinea Agricultural Journal*, 22(1):1-5.
- Territory of New Guinea. *Annual Report 1959-60*, Canberra, 1961.
- Thurnwald, H., 1934. 'Woman's status in Buin Society', *Oceania*, 5(2):142-70.
- Thurnwald, R.C., 1936. 'The price of the white man's peace', *Pacific Affairs*, 9(3):347-57.
- Tomlin, K.I., 1956a. 'Organisation of production and marketing, Buin Sub-district, Bougainville', mimeo.
- 1969. 'Situation report - south Bougainville', mimeo.
- Townsend, W.H., 1969. 'Stone and steel tool use in a New Guinea society', *Ethnology*, 8(2):199-205.
- Troughton, E.L.G., 1935. 'A new genus and species of giant rat from the Solomons', *Records of the Australian Museum*, 19(4):259-62.

- Tuzin, D.F., 1976. *The Ilahita Arapesh: Dimensions of Unity*, Berkeley and Los Angeles, University of California Press.
- Valentine, C.A., 1963. 'Social status, political power, and native responses to European influence in Oceania', *Anthropological Forum*, 1,3-55.
- van Rijswijck, O., 1966. *The Sillanga Resettlement Project*, New Guinea Research Bulletin, no.10, Canberra.
- van Wijk, C.L., 1962. 'The soils of Bougainville Island - their distribution and main characteristics in relation to agricultural development', *Papua and New Guinea Agricultural Journal*, 15(3-4):123-32.
- Ward, M.W., 1975. *Roads and Development in Southwest Bougainville*, New Guinea Research Bulletin, no.62, Canberra.
- Ward, R.G., and Ballard, J.A., 1976. 'In their own image: Australia's impact on Papua New Guinea and lessons for future aid', *Australian Outlook*, 30(3):439-58.
- Whitmore, T.C., 1966. *Guide to the Forests of the British Solomon Islands*, London, Oxford University Press.
- 1969. 'The vegetation of the Solomon Islands', *Royal Society London Phil. Transactions Bulletin*, 255:259-70.
- Worsley, P., 1968. *The Trumpet Shall Sound: A Study of 'Cargo' Cults in Melanesia*, (2nd edition), London.
- Yen, D.E., 1974. *The Sweet Potato and Oceania*, Bernice Bishop Museum Bulletin, no.236, Honolulu.



DEVELOPMENT STUDIES CENTRE PUBLICATIONSMonographs

- No.1 Labour and the law in Papua New Guinea, D.W. Smith, 1975. 129 + vii pp. A\$4.00.
- No.2 The role of the Papua New Guinea Defence Force, Paul Mench, 1976. 231 + xii pp. A\$6.00.
- No.3 Education, employment and migration in Papua New Guinea, J.D. Conroy, 1976. 248 + xii pp. A\$6.00.
- No.4 Chimbu: issues in development, Diana Howlett, R. Hide and Elspeth Young with J. Arba, H. Bi and B. Kaman, 1976. 384 + xlix pp. A\$6.00.
- No.5 Professional structure in South East Asia, ed. T.H. Silcock, 1977. 306 + xi pp. A\$6.00.
- No.6 Education and Nation-building in plural societies: the West Malaysian experience, Chai Hon-Chan, 1977. 116 + ix pp. A\$6.00.
- No.7 Bougainville in transition, T.K. Moulik, 1977. 200 + xii pp. A\$6.00.
- No.8 Man and environment in Eastern Timor, Joachim Metzner, 1977. 380 + xxi. A\$6.00.
- No.9 Micro-macro links in planning, P.B. Krishnaswamy, 1977. 116 + ix pp. A\$6.00.
- No.10 Appetite for education in contemporary Asia, ed. K. Orr, 1977. 165 + vi pp. A\$6.00.
- No.11 The Adaptation of traditional systems of agriculture, ed. E.K. Fisk, 1978. A\$9.00.
- No.12 *Taim Bilong Mani*: the evolution of agriculture in a Solomon Island Society, John Connell, 1978. 271+xi pp. A\$9.00

Forthcoming

- The rural basis of Fijian communal politics, John Nation. A\$9.00
- Practice Without Policy: genesis of local government in Papua New Guinea, D.M.Fenbury. A\$9.00.
- Design and Evaluation of Projects: a study of Atiu, A. Bollard. A\$9.00.

Occasional Papers

- No.1 Motivational factors affecting Bougainville villager's money earning activity, T.K. Moulik, 1975. 27 pp. A\$2.00. Now out of print.
- No.2 Food dependency in the Pacific: a preliminary statement, T.G. McGee, 1975. 19 pp. A\$2.00.
- No.3 Burma's rice surpluses: accounting for the decline, H.V. Richter, 1976. 51 pp. A\$2.00.
- No.4 The fading of earthbound compulsion in a Hong Kong village: population mobility and its economic implications, Rance Pui-leung Lee, 1976. 15 pp. A\$2.00.

- No.5 The defence forces of small states: a comparison of defence statistics in 26 states of Tropical Africa, Papua New Guinea and Fiji, Paul Mench, 1976. 32 pp. A\$2.00.
- No.6 Hunting and gathering: the forage economy of the Siwai of Bougainville, John Connell, 1977. 28 pp. A\$2.00.
- No.7 The limits of economics for the study of development, R.M. Sundrum, 1977. 16 pp. A\$2.00.
- No.8 Public housing in the city states of Hong and Singapore, David Drakakis-Smith and Yue-man Yeung, 1977. 17 + iv pp. A\$2.00.
- No.9 The island of Niue: development or dependence for a very small nation, E.K. Fisk, 1978. 12 pp. A\$2.00.
- No.10 The regional economy of Bougainville: growth and structural change, M.L. Treadgold, 81 pp. A\$2.00.
- No.11 The structure of rural supply to the Honiara market in the Solomon Islands, M.A. Bathgate, 1978. A\$2.00.
- No.12 Primary industries in Papua New Guinea, Julius Chan, 1978. A\$2.00.

#### MADE Research Series

- No.1 The dynamic replacement problem in the rubber industry of Sri Lanka, S.K.W. Jayasuriya, 1976. 112 + xi pp. A\$5.00.
- No.2 Rational farm plans for land settlement in Indonesia, M.A. Wardhani, 1976. 136 + xiii pp. A\$5.00.

#### Thesis Abstracts

- No.1 Studies in the economics of agricultural development, D.M. Etherington and B. Carrad (eds), 1976. 45 + vii pp. A\$3.00.

#### MA in Demography Research Series

- No.1 An exploratory demographic study of the Nupe of Niger State: the case of Sakpe Village, Abubakar Katcha, 115 + ix pp. A\$5.00.

Publications are available from the ANU Press, P.O. Box 4, Canberra, A.C.T., Australia. Please enclose money including postage with order. Postage rates are:

Monographs: O'seas A\$2.00, Aust.: N.S.W.\$1.15, A.C.T. 90¢, S.A., Vic., Tas. and Qland \$2.25, W.A. and N.T. \$2.60. Occasional Papers: O'seas 55¢, Aust. 45¢.

Subscriptions to the Monograph series are available for five issues for A\$30.00 plus postage (O'seas A\$10.00; Aust.: W.A. and N.T. \$13.00, N.S.W. \$5.75, A.C.T. \$4.50, S.A., Vic., Tas. and Q'land \$11.25. Sets of the first ten issues in three bound volumes are available at a cost of A\$80.00 plus postage (O'seas A\$5.10, Aust.: W.A. and N.T. \$4.60, N.S.W. \$1.55, A.C.T. \$1.10, S.A., Vic. Q'land and Tas. \$3.25.

**Distributed by ANU Press  
PO Box 4 Canberra ACT 2600 Australia**

**ISBN 0 909150 66 4**