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FROM SUBSISTENCE AFFLUENCE TO SUBSISTENCE MALAISE: CASH CROPPING AND THE SUBSISTENCE SYSTEM IN THE HIGHLANDS OF PAPUA NEW GUINEA

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Introduction

In describing some of the subsistence systems of the Pacific, Fisk (1966:23; 1971:368) has used the terms 'primitive affluence' and 'subsistence affluence':

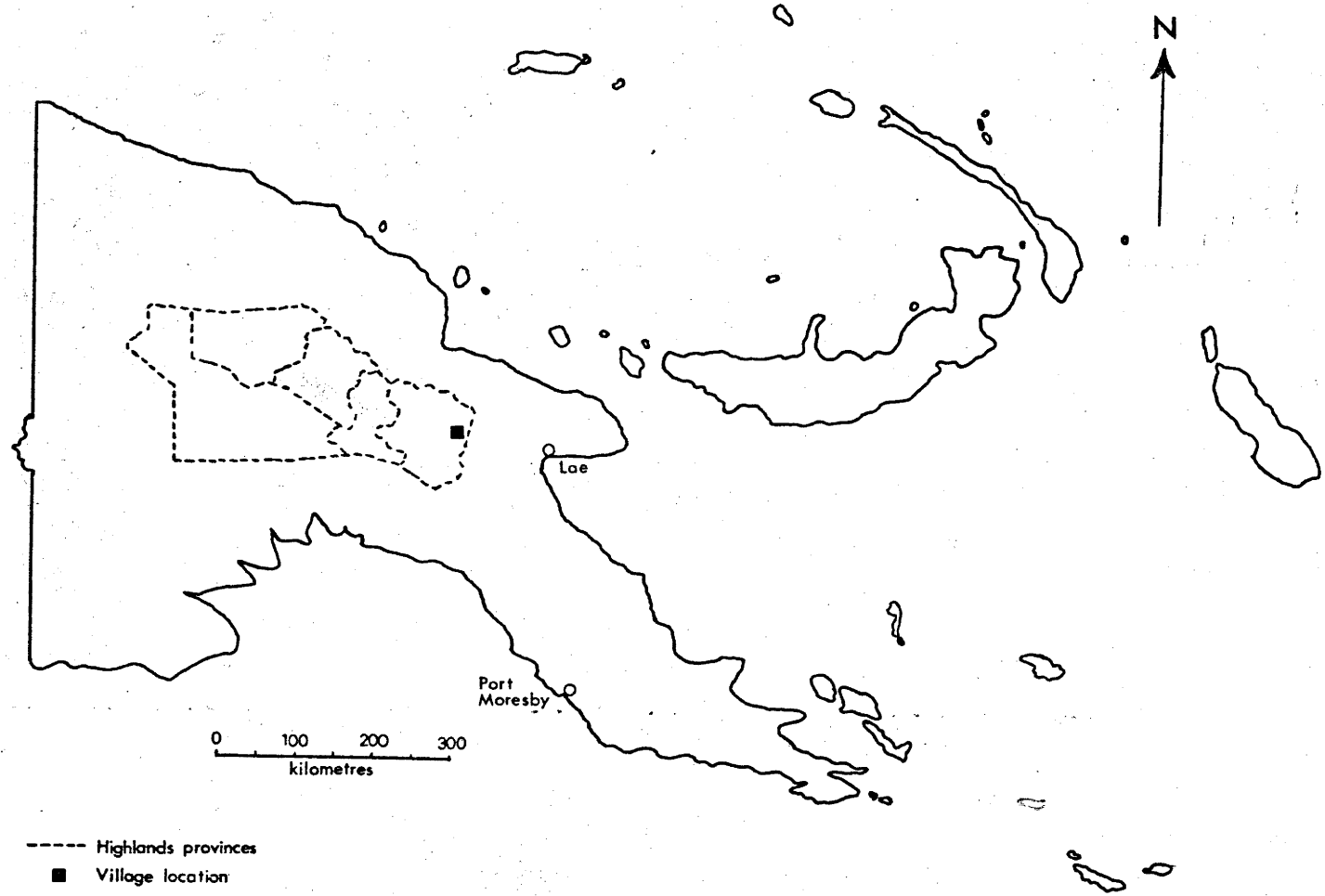
> a condition in which population pressure on land resources is relatively light, productivity per unit of applied labour (as distinct from available labour) is very high, and most subsistence agriculturalists are able to produce as much as they can consume (with satisfaction) of their main essential requirements, and to sustain an adequate level of living by their traditional standards, at the cost of as little as fifteen to twenty hours labour a week.

Fisk considered that the initial adoption of cash earning activities would not conflict with the subsistence base because of the existence of surplus labour and land in the affluent subsistence sector but was potentially limited by the disparity of returns between subsistence production and cash earning activities. In several parts of the highlands of Papua New Guinea, income earning activities now seriously compete with subsistence production for land and labour and have undermined the condition of subsistence affluence.

In order to examine the relationship between cash earning activities and subsistence, I investigated the impact of coffee production and smallholder cattle projects on village subsistence systems in the highlands of Papua New Guinea (see Map 1). Most of my research was conducted in one village in the Tairora language area of the Kainantu District of the Eastern Highlands Province though I visited many others to establish the extent of certain changes.

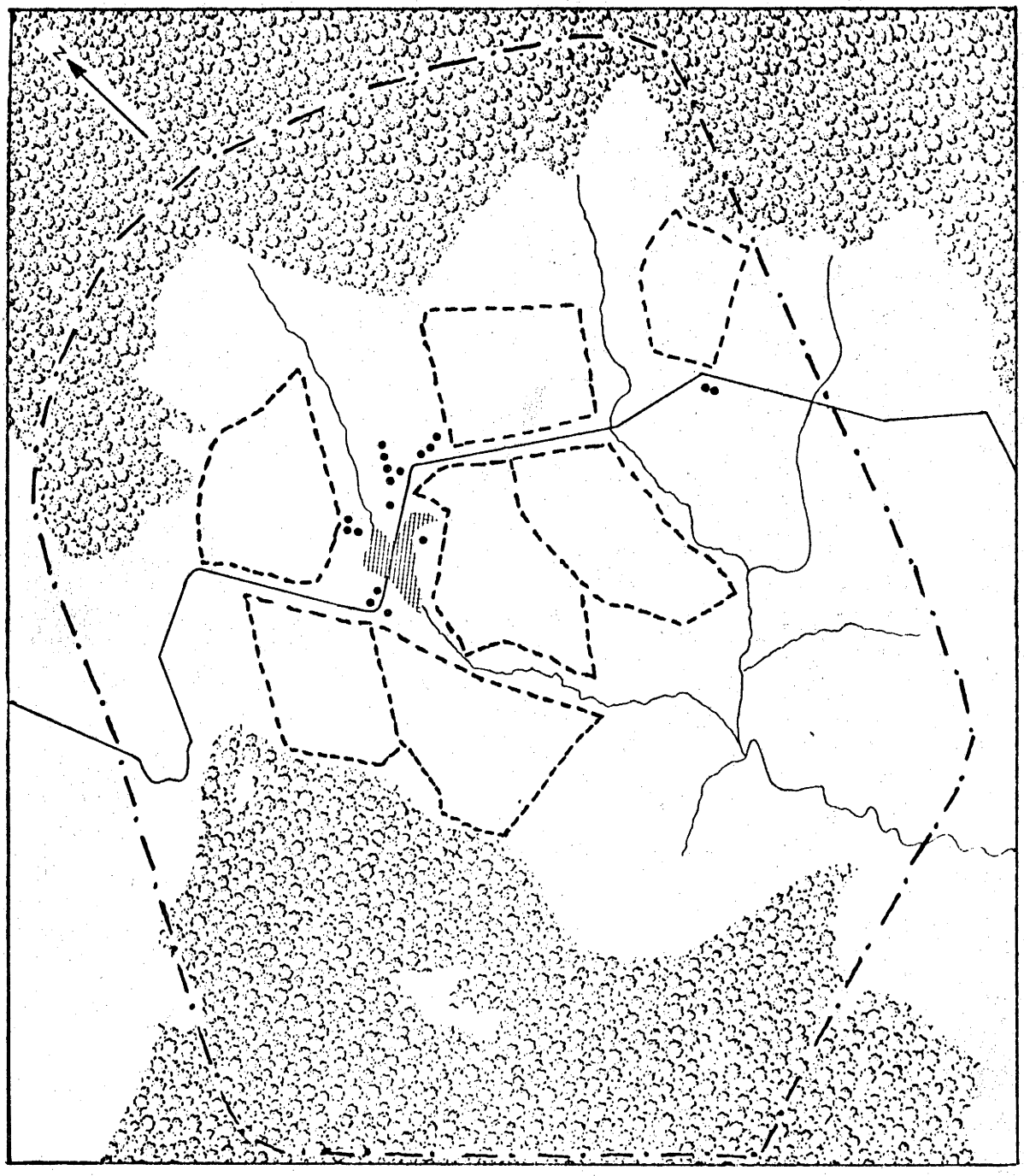
The Village Setting

The village territory (see Map 2), composed of both rain forest and grassland, supports 441 people, giving a population density of 11 people / km^2 which is low for the highlands. People live in nucleated hamlets adjoining the road that bisects the village territory. They are primarily horticulturalists using a system of shifting cultivation with sweet potato as the diet staple. By traditionally planting a range of crop combinations at different times of the year in a variety of culturally recognised ecological zones, villagers have developed a flexible, diversified subsistence system which provided adequate returns even during periods of unseasonal weather. In addition to gardening, people also raise pigs, most households having between one and five pigs. The amount of accumulated wealth in cash and material assets is quite small as the average household income is less than k200 per annum. Traditional leaders are 'big-men' who acquire influence by force of personality, demonstrated competence in certain activities, and generosity, and



Map 1

VILLAGE LOCATION



Map 2

VILLAGE TERRITORY

are able to organise their followers in endeavours designed to increase both their own prestige and that of their followers. Big men attempt to assert their influence in only a limited number of situations and in most daily affairs people are left to their own initiative. Villagers are also involved in cash earning enterprises or *bisnis* such as coffee growing and cattle raising.

Coffee Production and Cattle Raising

Coffee and cattle production differ significantly. Individuals own coffee plots and thus proceeds from coffee are widely distributed. The total area under coffee is only 0.20 km^2 or 1 per cent of the grassland area. Villagers devote a significant amount of labour to coffee harvesting and processing during the flush from May to August. In contrast, cattle projects are, at least initially, communally organised, though most of the benfits are monopolised by a few (Grossman 1978). The total area enclosed by the 7 village cattle projects is 5.49 km^2 or 28 per cent of the village grassland area. Except for the large initial labour input into constructing the cattle projects, people spend relatively little time working on the projects; they do much of the work of either maintaining the fences or building fence extensions in September and October after the coffee harvesting season is over. The two cash earning enterprises can also be differentiated by the degree of external control. Although the villagers receive coffee husbandry advice from agricultural extension officers, they determine the extent of their inputs into coffee production. In the organisation and operation of the cattle projects, the people are subject to a variety of regulations established by the Papua New Guinea Development Bank (PNGDB) which provided loans for the projects, and by the agricultural extension officers who are the Bank's field agents. Coffee, the major source of income for the village, was first planted in the mid 1950's. Villagers built their first cattle project in 1970 and the last 4 in 1975.

The Impact of Coffee

Villagers have planted coffee largely on prime agricultural land, with 88 per cent of the coffee located within 1 km of the hamlets. The degree of displacement of the agricultural system has not been a particularly serious problem as the coffee groves are relatively small and agricultural land is abundant in the village territory. Nevertheless, men planted a considerable amount of coffee in 1976-77 in response to high coffee prices. In a survey of the coffee holdings of a sample of 13 households in mid-1977, 29 per cent of the coffee planted was 3 years old or younger thus revealing a recent major expansion of coffee. Continued planting of coffee near the hamlets will eventually mean a lack of easily accessible

land for gardening. Although the spatial impact of coffee on the agricultural system was not substantial by 1977, the time spent on coffee production and the use of money earned have had a more dramatic effect.

In response to abnormally high coffee prices in 1976 and 1977, villagers spent a considerable amount of time harvesting and processing coffee. They picked all the available coffee and even collected seeds which had fallen to the ground.

The village economy and society are heavily influenced by coffee production. As more money is available from the sale of coffee, the frequency and scale of parties, the number of trade stores operating in the village and the amount spent on beer and gambling increases. A party in the village with no beer is no party at all, and beer is now a major component in most exchanges. An individual rarely drinks all the beer he purchases, but instead exchanges bottles of beer with many individuals in a single night. Drinking begins about 8 p.m. and lasts until dawn the next day, though sometimes drinking parties last several days. After such parties, people are too hung over to work. As a rough approximation, I estimate that the villagers spent K 10,000 on beer in 1977. People play cards throughout the year, but the number of games and the size of the stakes increases during the coffee flush. As in beer drinking, both men and women gamble.

The inputs into coffee production and the time spent playing cards and drinking beer result in decreased labour inputs into gardening activities. During the coffee flush, villagers weed gardens less frequently, and they do not properly maintain garden fences to keep out pigs. In addition, they feed their pigs less frequently which makes the animals hungrier and more likely to attempt to break into gardens. Complaints of damage to gardens by the village pigs and the number of pigs killed because they spoiled gardens increase during the coffee harvesting season. Wives complain about their husbands' reluctance to help in gardening and the elderly admonish the younger people for drinking so much beer and spending so much time in gambling during this period.

Villagers are complacent about subsistence production because they can purchase imported foods such as rice, tinned fish and tinned meat in trade stores in the village. One villager said:

> Before we used to think — if I want to pick coffee tomorrow, I'll harvest sweet potato today and have some for tomorrow. This year (1976) we have a new custom. People just go and pick coffee and forget about the gardens. The money they get from coffee they spend at trade stores on rice and fish.

Villagers can cultivate new gardens from May to August, especially in the extensive swamplands which can be planted at most times of the year because production is not seriously affected by the dry season which occurs from May to September. In addition, they formerly began clearing forest gardens in July and August in order to plant before the onset of the heavy rains in December. However, forest clearing is often delayed by coffee harvesting and processing. As one villager stated in *Tok Pisin*, '*kopi kalabusim mipela*' or 'coffee imprisons us'. Additional inputs into cattle projects in September further delay forest clearing. The reduced labour inputs into subsistence activities during the period May to September increases the seasonality in subsistence production and makes the subsistence system more vulnerable to unseasonal weather patterns.

The Impact of the Cattle Projects

In February 1975, villagers began constructing the last four cattle projects. One hundred and thirty adults were involved in the endeavour. According to informants, the pace of work was intense because members of each project competed against those of the other projects to complete the task of building the project. The group finishing first demonstrated its competence, skill, and strength in contras to the other groups. Such intergroup competition is a traditional aspect of village life and makes laborious tasks more exciting.

The tasks involved in starting a cattle project demand considerable time: felling trees, splitting fence posts, carrying the posts which weight approximately 16 kg each distances sometimes greater than 2.5 km, clearing a path through the grass for the fence, digging holes for the posts and setting them in, nailing up and tightening barbed wire to the fence posts, and finally constructing a stockyard. I estimate that the 130 adults worked 17,413 hours in the 3 months devoted to building the projects, or 45 hours per month per adult. The total work effort was extraordinary. The villagers spent 3400 hours carrying 66.5 tons of fence posts, cleared 5.23 ha of grass, erected 4152 fence posts and nailed up 48.8 km of barbed wire. The data indicate only a part of the labour lost to alternative activities. The people do not continually work at arduous tasks day after day. After several days of sustained work efforts, they usually rest one or more days before beginning other demanding tasks.

Because of the demanding nature of the work, many villagers stated that they made few inputs into either preparing or planting new gardens even though they could normally have done so in several ecological zones. The resulting food shortage

caused by a decline in garden planting occurred 5 to 6 months later, the time for sweet potatoes to mature. The food shortage might have lasted only 3 to 4 months because gardens could have been planted after finishing the projects, but the village pigs exacerbated the problem. Villagers feed pigs the smaller sized tubers which many consider too small for human consumption. However I have seen old men and women eating tubers which others would have given to the pigs. What is considered suitable for the pigs is partly dependent on the supply of sweet potato. When food is in short supply the pigs are first to feel the pinch as villagers consume part of the rations usually fed to the pigs. Because less food was available, the pigs were fed less and as a result they made more determined raids into fenced gardens and went further afield to find unfenced ones. This set in motion relationships of positive feedback or deviation amplification (Maruyama 1963); the less the pigs were fed, the more they raided gardens which in turn meant less food was available to feed the pigs, and so on. Certainly pig damage to gardens is as old as pig husbandry itself, but people declared that the intensity of the damage since independence (September 1975) was unprecedented. Not coincidentally, independence was achieved 5 to 6 months after building the cattle projects.

The food shortage lasted from late 1975 until the end of 1976. No one starved, but many complained of hunger and some had to occasionally rely on gifts of food from relatives in nearby villages. The problem was ameliorated largely by killing a large percentage of the pig herd; from July 1976 to March 1977, the size of the village pig herd declined by 43 per cent.

A compass and tape survey of all the gardens of a sample of households between August and October 1976 confirmed extensive damage by pigs. I surveyed producing gardens as well as gardens which would have been producing during the survey period had pigs not destroyed them. Of the total cultivated area, 23 per cent was totally ruined by the pigs, an extraordinary amount. Complaints about pig damage were widespread. In a sample of all the households in the village, I asked each household how many of its gardens were either fully or partly damaged by pigs from the period July 1976 to February 1977. Most households have between 4 and 8 different producing gardens. Table 1 lists the results:

TABLE 1

Number of Gardens Damaged by Pigs

Number of Gardens Damaged	Number of Households
0	19
1	41
2	25
3	9
4	4
5	2

Eighty one per cent of all the households had at least one garden damaged by pigs.

The labour input into building the cattle projects created problems temporary in nature. Government policy, by influencing the size and location of the projects, has had a more lasting effect on the subsistence system. The government requires all projects built since the late 1960s to enclose all land used for cattle grazing within a barbed wire boundary fence, a policy which in effect often removes a considerable amount of land from the agricultural system. The PNGDB has a preferential policy of lending to projects which it believes are large enough to be economically viable; it prefers projects to have the capacity to support at least 15 breeders or are 80 ha or larger (McKillop n.d.:12), though smaller projects have also received funding. Nevertheless, agricultural extension officers who are the PNGDB's agents preferred the larger projects because a multitude of smaller ones are too difficult to service. They thus informed villagers of the importance of fencing relatively large areas. Extension officers had also persuaded the villagers to build the projects near the road so that the officers may have easy access to the projects when delivering cattle or providing veterinary services. Thus, as the hamlets adjoin the road, they are also near the cattle projects (see Map 2).

However, the government's policies have not been the only factors influencing the size and location of the projects. The government's emphasis on relatively large projects was consistent with the desires of villagers wanting to start projects. The people realised that the larger the area enclosed, the larger the

loan they could obtain and hence the more cattle that would be delivered.

As a result of government policies and the desires of those starting the projects, the cattle projects have enclosed a considerable amount of grassland near the hamlets. The ground enclosed by the projects is not only steep, well drained *Themeda* grassland of little agricultural value, but prime garden land as well. Due to restrictions placed by cattle project leaders and the people's general reluctance to garden within the confines of the projects because they fear the cattle will destroy their gardens, few gardens are located within the projects.

Previous gardening patterns reveal the agricultural utility of the land enclosed by the cattle project fences. Concerning the land enclosed by each of the seven cattle projects in the village, I asked all the households in how many of the projects did they previously cultivate at least one site. Table 2 lists the frequency of the responses:

TABLE 2

Previous Use of Land for Gardens in Area Enclosed by the Cattle Projects

Number of Projects Within Which Households Previously Cultivated At Least One Site	Number of Households
0	17
1	22
2	16
3	16
4	15
5	5
6	3
7	4
No Response	2
	Total = 100

Eighty-three per cent of the households responding had cultivated at least one site within one or more of the projects. However, the data in Table 2 do not reveal the true extent of the agricultural utility of the enclosed land. Many individuals previously cultivated more than one site within a particular project. In addition, a number of those listed as never cultivating land within the projects were only married after many of the projects were constructed.

In reaction to the large area of land enclosed near the hamlets, villagers state that they are preparing more gardens at a greater distance from the hamlets than previously. Table 3 lists the percentage of land cultivated at varying distances from the hamlets during the period August to October 1976 for a sample of households; the distances are based upon straight line measurements on aerial photographs.

TABLE 3

Distances from Gardens to Hamlet

Distance (m)	Percentage of Total Area Cultivated
0-100	20
101-500	12
501-1000	6
1001-1500	18
1501-2000	3
2001-2500	23
2501-3000	9
3001 +	9

In a review of distances to garden sites in Melanesia, Brookfield with Hart (1971:225) stated:

> In Melanesia, in areas where only foot transport is available, we can empirically suggest that, as a norm, about half the garden land of a community, or of individual farmers in dispersed settlements, will be found within 1.0 km of the residence, while we will often find at least 75 per cent within 2.0 km.

Brookfield (1973:149-50) later stated:

> A distance range of 1,000-1,500 m crops up rather frequently in Chimbu. Within it lie the range from residence within which lie 75 per cent of gardens... In Chimbu, as in many other societies, there is a strong suggestion of a 'tolerable distance' limited somewhere within this range, and beyond which the separation of everyday activities becomes onerous and unusual.

In the village, only 38 per cent of the gardens were within 1.0 km of the residences and 59 per cent within 2.0 km. The difference between the norms suggested by Brookfield with Hart and Brookfield and the distribution of gardens in the village is due largely to the existence of the cattle projects. In addition, some villagers stated that they wanted to cultivate far from the hamlets to escape the pigs, though the pig depradation problem was related to the cattle projects.

The increase in distance to the gardens has several implications. First, the energy expended on travelling to the gardens and carrying home the food harvested, a burden falling mainly on the women, has increased. The elderly especially complain of the problem of having to travel further to harvest. Second, as a rule the quality of garden care as evidenced by the thoroughness of weeding and fence maintenance generally declines with increasing distance from the hamlets. Third, more gardens are now located in the zone of maximum danger from sorcery and the related *sanguma* attacks by members of other villages. Sorcery danger has spatial dimensions. A direct relationship exists between the distance from the hamlets and the level of danger according to villagers. Members from other villages practising sorcery and *sanguma* hide and wait to attack a lone individual. The closer a place is to the hamlets, the more likely other villagers will discover the hiding sorcerer and either kill or rout him. Thus, sorcerers prefer to attack far away from the hamlets to lessen the chance of their discovery. Prime victims of such attacks - women, children, and the elderly - often refuse to go alone to far away gardens because of fear of sorcery or *sanguma* attack. After the death of an individual from a nearby village results in accusations of sorcery, men also will not travel alone to far away gardens. Occasionally, people who wanted to go to their far away gardens did not do so because they could not find anyone else to go with them.

Cattle have also been a problem as direct competitors for food. Villagers do not always properly maintain the barbed wire boundary fences, and as a result cattle have occasionally escaped from the confines of the projects, wandered through the village, and destroyed village gardens. Cattle eat the leaves of various crops, knock over and trample them, and compact the garden soil. This problem is not only confined to the village but is widespread in the highlands. In fact, the problem is so common that various local government councils have published lists of standardised

compensation payments for different crops destroyed by cattle. Using the compensation list established by the Kainantu Local Government Council, one anthropologist working near Kainantu has reported that cattle from one large project damaged over K 1600 worth of crops (G. Westermark, personal comm. : 1977). Although such a level of damage represents an extreme, it does indicate the potential impact of cattle.

The Lure of *Bisnis*

The allocation of land and labour to cash earning activities has been made to the detriment of the subsistence system. Villagers find *bisnis* activity so attractive because of the need for money in the village economy, the nature of the ideal man, traditional interpersonal and intergroup competition and the villagers' contrasting attitudes towards cash cropping and subsistence production.

Money is needed for many purposes - school fees, taxes, transportation, clothing, entertainment and to purchase certain necessities and items of consumption which are part of the currently accepted standard of living. Village life is also intensely social, and money is required to fully participate in many aspects of social life from beer drinking and gambling to certain pig exchanges and payment of bridewealth. Generosity is the mark of a respected man and the more money an individual has, the more his potential for generosity. *Bisnis* activity has entered into the characteristics defining a man of respect and prestige, one held in esteem by his fellow villagers. A respected man is one who helps his kin, is generous, a hard worker with many gardens and pigs, and provides adequately for his family. However, this is not enough. He must also be a man of *bisnis* who is engaged in various cash earning enterprises. What is significant for the man of *bisnis* is not so much the amount of money he makes, though this may be important, but that he <u>is</u> involved in *bisnis*. Such activity, in and of itself, is considered to be good. This is regarded as a self-evident truth; it is evidence of one's character. Not to be involved in any form of such enterprise invites the label of *baehi-bainte*, or *rabisman* in *Tok Pisin*, a person of no worth or consequence, lacking in prestige. Just as individuals must demonstrate their ability in cash earning endeavours so must kinship groups. I am not arguing that people will engage in any *bisnis* activity no matter how unprofitable. Some enterprises, such as passionfruit growing and goldmining, were abandoned either because the returns were poor or the labour inputs were considered too demanding. But this in no way negates the belief that cash earning activities *per se* are worthwhile. One does not question whether *bisnis* is a good thing. Rather, the question is which cash earning activities are good.

A further reason for the popularity of *bisnis* lies in another traditional characteristic of Highlands societies, competition between individuals as well as social groups. The outcome of such competition is the basis for much of the renown and prestige that can be attained, and the sphere of exchange is a major centre for such activity. Some form of cash earning activity is usually a prerequisite to support participation in exchanges in which beer, cattle, pigs and such store bought foods as rice and tinned fish are given.

Stimuli for continued cash cropping also comes from outside the traditional system of relationships and exchange. Economic development is official government policy, and occasionally government officials come from Kainantu to visit the village to stress the importance of business, self-reliance, and economic development for the good of the newly independent nation. For inspiration, accounts of the economic progress of villagers in other Third World countries are also presented. Other government agencies, most notably the Department of Primary Industry, have been instrumental in influencing people to start such enterprises as coffee growing and cattle raising. In addition, the Councillor representing the village often returns from Local Government Council meetings in Kainantu with reports of new potential programmes of economic development, how *bisnis* will help the country, and the part that the village must play. Whatever the source, the message is the same: *Bisnis* is good.

Cash earning was originally an expatriate activity. The villagers' understanding of and relationship with expatriates provides another clue to the commitment to cash earning activity. People were often awed by and envious of the superior technology and wealth of the Europeans. To successfully emulate Europeans in business enterprises showed fellow villagers one's prowess, ability, and competence in accomplishing feats previously performed only by expatriates. This was clearly illustrated at a party given by a leader of one of the village cattle projects. While intoxicated and supervising a beef distribution, he boasted to those assembled that he was just like the white man because he had many businesses: cattle, coffee, a trade store and previously a public motor vehicle. In addition, the sometimes racist, paternalistic, and intolerant treatment of villagers by some of the Europeans le no doubt in the people's own minds that they were perceived as being inferior by a segment of the white population. To adopt *bisnis* was one way of maintaining equivalence with the Europeans in the people's own perceptions. The Europeans' life appears relatively luxurious and easy when compared to the small amount of physical labour they perform. In contrast, the villagers view their own lives to be just the opposite - consisting of hard, sometimes physically painful work, yielding little in luxury or comfort. *Bisnis*, the European way, is thus a more satisfactory means of obtaining a livelihood. In essence, it is so much easier.

Villagers view subsistence production as an integral part of their life but currently value cash earning activities more. This disparity in evaluation is reflected in many of their statements:

> Before we planted gardens at all times [of the year]. Now *bisnis* has arrived and we think only of *bisnis*.

> Before we thought only of gardens and building strong garden fences. Now, this time, everyone plays cards, forgets about the fences which rot, drinks beer all the time and is lazy; people don't care for gardens either. They are bored with gardening. If they are hungry, it is their own fault.

In a dispute over the use of land within the confines of a cattle project, a magistrate from another village admonished the people for their over-enthusiastic commitment of land to cash earning activities:

> Later, your children and grandchildren will be born and there will be many people here. Where will they live and cultivate gardens? Where is there room for them to live? ... There will not be enough land. You think only of *bisnis*... You have used all the land for cash activities. You are only happy with *bisnis*. You must leave some ground [for gardening and other uses].

I do not claim that this relative evaluation of cash earning activity and subsistence endeavours is the same throughout Papua New Guinea, though I have found evidence for it in other villages in the Eastern Highlands Province. The Prime Minister, Mr Somare, has commented on a similar problem (quoted by Stayte 1978):

> I am concerned that our people are becoming more interested in businesses like trade stores and trucks than in growing food for themselves and for sale.

Conclusion

Although coffee production and cattle raising differ significantly in their organisation and spatial and temporal characteristics, both have significantly undermined the subsistence system. Cash earning activities have lulled people into a false sense of security. Part of the flexibility in the traditional subsistence system has been lost, its level of production lowered and its resilience has declined.

Several researchers have noted that the returns to both labour and land in cash crop production are lower than in subsistence production (Eder 1978; Harris 1978;

Nietschmann 1978) and that this disparity increases with inflation in the price of food purchased by villagers (Nietschmann 1978). However, the loss of efficiency is only part of the problem. Because of the linkages within the subsistence system, such as those between agriculture and pigs in this case study, the allocation of resources to cash earning activities can be detrimental to the subsistence system (see also Brookfield 1968). In essence, cash cropping and subsistence operate as conflicting variables; further developments in cash cropping will be made only at the expense of the subsistence system.

As a result of the enthusiasm for cash earning activities, subsistence affluence has been replaced by what I call subsistence malaise, a condition in which the previously strong commitment to subsistence production has declined because of a negative comparison to cash cropping endeavours and other externally derived activities with a resulting reduction in the productive level and resilience of the subsistence system.

A subsistence system can only be understood in the total context in which it functions, and that context is continually changing. Subsistence systems are dynamic entities heavily influenced by events external to the local system. Just as Brookfield (1977:138) has warned that subsistence affluence must be treated as an historical concept, so too must subsistence malaise. Abnormally high coffee prices in the mid-1970s and high expectations about cattle raising are partly responsible for subsistence malaise. The extent to which a dramatic fall in coffee prices or a breakdown in the cattle marketing system would influence subsistence malaise is not known. Nor it is clear whether villagers, driven by traditional interpersonal and intergroup competition, would enthusiastically adopt new forms of *bisnis* which appeared lucrative, to the detriment of the subsistence sector.

Both Brookfield (1973) and Nietschmann (1978) have argued that long term studies are necessary to understand the interaction of subsistence and cash cropping, and tha village societies display a high degree of resilience in absorbing innovations. Nietschmann (1978:2) has warned that we must distinguish 'perturbation from continuin process' though in this study I have emphasised perturbation in the system. A longer term study is needed to determine the significance of two critical variables which influence the level of perturbation in the village system: first, the structural characteristics of the social system which enable it to absorb changes; and second, the failure of the international capitalist system to continually provide high levels of incentives to part subsistence economies, which can result in a decline in cash cropping endeavours. Given a world system devoted to economic growth and the close linkage between the subsistence sector and cash cropping, the failure of the international system to continually offer high prices for primary products is one

of the saviours of subsistence systems.

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