

1

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Recent developments in Kovai Agriculture.

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Introduction:

This paper discusses the post contact history of Kovai agriculture as a basis for learning more of the effects of cash cropping on the subsistence economy. As far as I can see now it will be difficult to investigate this since cash cropping is only one of a variety of factors influencing agricultural practices. Since this paper is written in the initial stage of field research, I have not attempted to make a comprehensive discussion of the subject, and I should stress that many of my findings are tentative; additionally they probably have a Barang-Omom bias since I made my field base in these closely-joined villages, and there I got most of my information.

The People and their Environment

The Kovai are shifting cultivators living in the western part of Umboi island in the Vitiav Strait in between the Huon Peninsula and New Britain. Population density in the area is low, about 6.75 people per square kilometer, and large tracts of the island are covered with primary rain forest. Umboi has remained isolated, although Lutheran missionaries settled there in the 1920s; a government station was not opened until 1963. Commercial development has been slight with the only large scale enterprise being a plantation owned by the Lutheran Church. Labour migration started after the first World War and has remained considerable ever since. Many people of Kovai descent now live elsewhere in the country; currently about 3000 Kovai live on the island. They are predominantly land oriented and derive most of their livelihood from inland resources.

Nowadays there are 12 Kovai villages, all, with one exception, situated inland at altitudes between 210 and 575 metres. The present location of almost all villages has come about under mission and government pressure. Before, the people had villages in well defensible locations on spurs and hill tops overlooking the sea. Then, as well as now, residence was varied in that people at times moved to bush houses on their own land.

Village territories form rough segments extending from the mountainous interior of the island downwards to the beach and reef areas. They differ considerably in size. The land used for gardening by Barang and Omom villages is between sea level and about 500 metres, hence all in lowland rain forest areas.

1. PRE-CONTACT AGRICULTURE: VARIATIONS IN CULTIVATION PATTERNS

Since contact Kovai subsistence has radically changed and to stress this I have written the following paragraphs in the past tense. This does not mean, however, that the present day situation is altogether different. The technical side of taro cultivation has not changed, and, to a certain extent men still practise competitive exchange.

The Kovai maintain that their food situation has improved since the arrival of the missionaries. They say that before that time they were often seriously short of food, especially of their staple crop, taro. Its yields were variable in the course of the year. When it was in short supply, people had to supplement the menu with seasonal crops, and gathered various kinds of nuts, with sago, wild yam and so on. This was one of the reasons for the variations of residence patterns in the course of the year. During the taro season people tended to live in the nucleated villages, while the rest of the year they often lived in

bush houses closer to the coast, hunting and gathering in the forest and in the beach and reef areas. Taro, the Kovaï say, does not grow well near the coast. Most Omom and Barang people had their taro gardens near the villages, or a bit further uphill where the higher rainfall and the slightly cooler climate was believed to favour its growth. Taro yields also tended to vary in different years. It is an exacting crop, reacting unfavourably to adverse conditions, and, further, is susceptible to pests and diseases. As far as climate is concerned, insufficient rainfall, coupled with an excess of sunshine, reduced taro harvests sharply. During droughts people took out the taro plants and planted the sticks in swampy areas close to rivers or to the coast to tide the crop over the dry period. They lived in their bush houses attempting to live on emergency foods. Climate conditions vary in the different parts of Umboi and people with relatives elsewhere might temporarily migrate.

Harvests of individual cultivators varied also. A man had to work hard and be observant in order to get a good harvest. Taro cultivation is a seasonal operation and the timing of the operations is governed by seasonal events, primarily the behaviour of a forest species, gaup (Kovaï), the leaves of which change colour around June, in the middle of the dry season when the south easterly trade winds blow. This is the time to start making taro gardens.

Men were eager to get large harvests. They needed them to take part in the large food presentations which took place in Kovaï society. Kovaï men 'fought with food' (Young, 1971); they engaged in competitive exchanges while a wide range of events, primarily rites de passage, were marked by food offerings. The more lavish the presentations, the more prestige the donor or donors acquired.

Men who ignored the seasonal indications and who did not properly time their gardening activities were considered irresponsible. It was

thought they did not look after properly their families who then had to go hungry, and they might have to resort to stealing, either deliberately or accidentally, by hunting or gathering on somebody else's land. This in turn would lead to hostilities and saddle the rest of the villages with quarrels, or even fights.

Magical practices, partly to be performed by specialists, and, on the other hand, restrictions on behaviour were thought to benefit taro growth. I have not so far investigated this aspect of agriculture.

In many cases investigators have concluded that reports about 'seasonal hunger' did not mean that people actually had to go hungry at such times, but only that specific foods were in short supply. It seems possible that this was also the cause with the seasonal shortages in the pre-contact Kovei subsistence economy. Even now, people assert they are short of food, but the comment seems to be prompted by the fact that there is less taro than they would like. But there is evidence that in the past the irregularly occurring shortages owing to bad harvests were serious. First, weather in the Kovei area seems to be variable. In 1978 more rain than usual fell during October, while the rainy season was late to start. A drought causing harvest failure occurred in 1965, necessitating government food relief. Dry weather again occurred in 1972 in the Umboi area, although among the Kovei food support was not necessary. Furthermore, two elderly men, commenting about the past, mentioned the practice of infanticide during famines. One told me that he was a baby boy during a famine and that his father's father had saved his life when his father had wanted to kill him, pointing out that the child could be fed the pith of the limbung (pidgin) palm. The other man said he was born under similar conditions. His twin sister had been killed while he himself had been allowed to live. Finally, I

was struck that several accounts of the introduction of dances started with the remark that men had taken up residence elsewhere to escape local food shortages.

Present day assertions that previously food supplies were generally limited, fit well in my view with the competitive element in the Kovaï economy. In a situation of abundance, individual effort does not matter much, but where supplies are limited greater effort can marginally increase yields which gives a hard worker an advantage over less industrious men.

2. CHANGES IN SUBSISTENCE DURING THE COLONIAL ERA.

The Kovaï attribute the improvement in their food situation since the arrival of the missionaries to several factors. To begin with, their technology has become more efficient. Before the arrival of the white man they had to make do with stone tools which made the establishment of gardens even more laborious than it is now. Gardens were smaller than nowadays and consequently there was less to harvest.

However, besides steel axes and knives, guns were introduced and their effects on the diet are in the long run becoming negative. Game resources in some parts of the island have now decreased. Reports about the pre-contact size of the village pig herds conflict. The majority of men I spoke with said that there are now more domesticated pigs than before. If this is the case the decrease in game has to be tallied against an increase in pork consumption, but it is not possible to assess if the two changes amount to a net gain or loss. In terms of efforts expended on garden cultivation the decrease of the wild pig population has had a benefit, since less labour has to be spent on surrounding gardens with fences.

Before contact, the bulk of the domesticated pigs was obtained by capturing young piglets in the bush and by subsequently domesticating them. Migrant plantation labourers often took pigs with them back to the island, on completion of their contracts. I was told that pigs might form part of their payments. The introduced pigs tended to grow to a larger size than the local ones and as is reported from other parts of Papua New Guinea they may also have produced larger litters; the Kovai have not told me this so far. Finally, pigs are now often given green copra to eat while formerly they got a larger proportion of their food from foraging. Green copra is, probably correctly, believed to fatten them.

Labour migration also resulted in introduction of a variety of crops. Some were taken back home by returning migrant workers, others were introduced by mission workers from other parts of New Guinea who were sent to work on Umboi. Before, people were heavily dependent on taro, supplemented by banana and some yam and mami. Now taro is still an important crop, but it is supplemented by sweet potato, Chinese taro and, to a small extent, cassava. These additions have become essential since taro harvests have declined owing to pests and diseases. The change was not simply one of diet, however, but also concerned labour inputs.

Both with taro and with sweet potato cultivation the land is carefully cleaned. The debris resulting from clearing the land is heaped together and burnt. The Pidgin expression I once heard for this procedure was brumim graun, sweeping the soil. People say taro plants can both benefit from the heat - of the sun - and the cold - of the rain, but very wet, or very dry, conditions are thought to hamper taro growth. Since taro is planted at distances of about 70cm, and since the plant does not provide a great deal of shade, taro gardens have to be weeded regularly.

Sweet potato is planted in small mounds of loose, broken up soil, possibly in imitation of the mounds Kovai evangelists and other church workers saw during work in the Western Highlands. So far sweet potato cultivation has taken more effort than taro, but sweet potato runners cover the soil more extensively, so weeding takes less effort. Sweet potato has larger yields per area than has taro and it is less susceptible to disease. Cassava cultivation is similar to that of sweet potato. Yields are also large and the crop is not yet disease prone. My impression is that it is mainly used for puddings consisting of a mixture of coconut oil and grated cassava, which can substitute for taro puddings. But taro is still the preferred crop. Kovai think that it tastes better and that it is more nutritious than the other tubers.

Chinese taro is planted in garden sites where large quantities of debris are still present. The undergrowth is cut down and not removed. Afterwards taro is planted and subsequently the larger secondary trees are cut down covering large parts of the site again. The taro sticks may be damaged in the process but recover. This technique was apparently introduced by Finschhafen mission personnel working on Umboi. It is much less labour consuming than cultivation of other tubers. In the past Chinese taro did very well, but now it is, like taro, affected by pests and diseases. They distinguish three taro afflictions:

1. a small black beetle, kirkir (Kovai), feeds on the tubers. This is not always noticeable since it does not necessarily affect the leaves.
2. taro leaves turn yellow and wither, and the plant subsequently dies. This disease is referred to as misam (Kovai)
3. taro leaves become twisted and deformed. The disease also affects the tubers. It is referred to as umbur (Kovai).

These afflictions occurred in the past also, but on a much smaller scale

and people are at a loss what to do about it. Many people still attribute their occurrence to magical practices, although at least some young men strongly disapprove of such an idea. One man said that it resulted from the changes in the environment, such as the removal brought about by road building of trees or stones marking historical events.

People seem to try only traditional means to get rid of the afflictions. Affected garden sites are left and new gardens made away from the old ones. Diseases are thought to be contagious so affected plants should be thrown out. However, I could still observe them in gardens. Taro consumed, but suspected of having been diseased should be digested completely before the person who has eaten it enters an unaffected garden. The practical result of these measures is that taro cultivation has become more labour intensive.

Sweet potato, Chinese taro and cassava are only a few of the great many imported crops, but they are the only ones which have appreciably influenced labour inputs. Several greens have been introduced, most notably pumpkin shoots, coco shoots and a variety of crops referred to as kapis (Pidgin) and sayor (Pidgin), but I have no information about these. Other introductions are watermelons, cucumber and pumpkin. Information obtained so far indicates that these crops have neither changed cultivation patterns nor made a quantitative change in the diet. Corn and peanuts are currently cultivated to a small extent, as are vegetables such as tomatoes and french beans.

An important change has been the increased cultivation of coconut. Previously there were very few palms and the nuts were in short supply. As mentioned below palms were introduced for cash cropping, but the nuts are also used for subsistence, directly, for human consumption, and, indirectly, because green copra is fed to pigs. Many families eat coconut oil almost daily and it has acquired a more prominent part of food such as

taro puddings used during celebrations. Coconut oil is said to some extent to have replaced galip (Pidgin) nuts as an ingredient for such foods. It is likely that this change in the subsistence economy has meant an increase in labour inputs, but it seems irrelevant to assess if it has been worth the effort given its results on the diet.

Other changes which have occurred are likely to have affected the subsistence economy, although the exact consequences are again difficult, if not impossible, to assess. Firstly, before pacification, hostilities between Koval villages were frequent. It may have interfered with agriculture, either because people had less time at their disposal, or because gardening exposed them to enemy attacks. Secondly, the Lutheran missionaries attempted to make the Koval discontinue the competitive feasting arguing that such feasts led to rivalry and bitterness, and might result in fights. They also disapproved of the prestige seeking underlying the feasts thinking it unchristian. The missionaries did not succeed in their efforts, although they may have reduced any expansion of feasting, and hence of food production, which otherwise was likely to have occurred (cf. Lacey, 1977:12). Thirdly, household composition may well have changed, directly influencing subsistence efforts. The Koval population is now increasing rapidly, a situation which I don't think occurred in the past. If I am correct there are now often more dependents in single households than before and hence the active members of such households have to work harder. This trend is reinforced by the fact that more adult men than adult women are absent from the village working elsewhere in the country. Finally, one should take into account the changes that have occurred with regard to people's health and how they have affected their capacity to work.

3. CONSUMPTION OF FOODS BOUGHT FOR CASH

A most important change in agriculture has been brought about by the availability of imported food stuffs in the villages and the cash needed to buy them. In all Kovai villages there are trade stores which stock the usual range of imported foods: white rice, navy biscuits, white sugar, tinned mackerel, and tinned 'meat'. I put the last item in inverted commas because most tins contain meat adulterated with cereals and other substances. Because of the lower price, they are in larger demand than the better brands. The dietary quality of most trade store foods is low, if not negative, as in the case of the cheese pops and chewing gum; their availability is to be regretted.

In Barang and Omom many families spend several kina weekly on imported foods. It is done for a variety of reasons. There is still an emotional appeal in consuming the gutpela kaikai bilong masta. People also like the taste of rice and biscuits. Consumption of rice especially is stimulated by the limited supplies of taro for which it now acts as a substitute. Harvesting traditional foods has to happen regularly, almost daily, so on days when there is little time left for harvesting, it is handy to buy trade store foods. Food presentations are easier to make when the amount of food can be supplemented by bought food. A case which happened very recently was of a man who had to offer food to his co-villagers to signal them that his wife was about to end the first phase of a mourning period. He bought a bag of rice and several tins of meat and fish and added traditional food harvested by the wives of close kinsmen. In the past, he said, he would have had to rely more on their support and to organise a hunting party to provide animal food. Large scale food presentations formerly required long term planning, since gardens had to be sufficiently large to provide the amount of food required. Subsequently newly made gardens had to be available to plant the large amount of taro sticks which were the by-products of the harvest. The availability of

Imported goods has made the planning task easier.

Currently the Koval seem to have plenty to eat. However much of the food bought in stores is of dubious quality. Because people have to have access to cash for their normal food requirements, it seems incorrect to me to say that they live in 'subsistence affluence'. It may be better to speak of 'food affluence', and, anyway, my tentative conclusion is that such affluence did not exist prior to contact but results from conditions which have come about only afterwards.

4. TRADE

The Koval are included in the Vitiaz Strait trading network described by Harding (1967). He reports an initial expansion of trade favoured by pacification. Before that time the Siassi^{*} traded with only a couple of Koval communities whence the goods were traded on to other parts of the Koval area. After pacification direct trade between Siassi and all the Koval took place. Harding mentions (1967:221) that in the early 60s, at the time of his research, Siassi imported into Koval clay pots, wooden bowls, pigs, dogs, mats, fish, and lime, against taro, betelnut, tobacco and logs sold by Koval. As predicted by Harding (1967:187) much of this trade has since been discontinued. People claim trade is still going on, but during the three months of my stay there was only one visit by Siassi carvers who were offering bowls for sale. The bowls were originally of Tami design, but are now made by the Siassi themselves. This was also the only occasion Siassi traders attended the main Koval market, held on the government station in the centre of the Koval area. Harding describes (1967:150) an informal market he witnessed on one of the Koval beaches during which Siassi traded with Koval. People tell me such markets still

* I use the name Siassi in this paper to refer to the inhabitants of the small islands off the southeast tip of Unboi.

occur, but I do not know of one taking place during my stay.

As far as the Koval are concerned, trade has declined because there are alternative ways to obtain the above mentioned trade goods. Nowadays the Koval themselves can go to the New Guinea mainland, making use of the regular shipping service. Many Koval have relatives in Lae or Madang, whom they can ask to buy them goods. These observations apply mainly to dogs, pigs and clay pots, which are still used in ceremonial payments. Mats are made locally, as is lime. Fish is usually bought tinned in trade stores. The only goods for which they still rely on the Siassi people seem to be the wooden bowls which, like the clay pots, are still used in ceremonial payments.

5. CASH CROPPING

Some of the cash spent on purchasing imported foods is earned by cash cropping but other important sources are pensions and money transfers by migrants. Cash cropping started around 1930 when the kiap, during a patrol to Umboi, instructed the Koval to plant the sprouting coconuts he had brought with him. The people were apparently confused about this and did not understand why they had to do so. Although many men had been away from the island working as labourers on plantations, their descendants now claim that they had not realised that running a plantation was a way of making money. Hence they thought at first that they had to plant the nuts to supplement their diet. It was only later that they were told they could earn cash by selling the nuts to the nearby plantation. It seems symptomatic of the isolation of Umboi that around 1930 the Koval were ignorant of why Europeans ran plantations and other businesses. Reports from more central parts of the Morobe province make it clear that there people knew what business was about, although they thought it was a European prerogative.

The Koval established communal plantations near the coast. Hence they were situated on the land of only a few men and in at least one village this has led to quarrels over the exploitation of the palms. Still people continue to plant palms used for making copra near the coast since this facilitates transport of nuts and copra. Moreover, Koval say that coconuts planted near the villages do not produce good quality copra. This may be due to the slightly cooler and much wetter climate of the Umboi interior (cf. Harding 1967:122), and/or differences in soil (UNESCO 1977:183).

Selling nuts and green copra remained the only cash cropping activity until after the 50s when people started building and operating copra driers. Koval now give the credit for this to Mr. Ted Foad, an expatriate entrepreneur who ran a ship (Harding 1967:215) which regularly called into Umboi to collect copra. Agricultural extension officers urged the Koval to extend their plantings and also introduced new cash crops, primarily cocoa and, to a much smaller extent, Robusta coffee.

Nowadays people spend a lot of time away from the villages, in make-shift buildings near their coconut holdings. A few families spend most of their time there, looking after their pigs also. The central government and the local government council have long campaigned against letting pigs run free in the villages, partly for hygienic reasons, but partly because the animals may destroy food or cash gardens. For the Koval themselves the latter argument seems to be the more important one. The number of pigs in villages is indeed small and many people have made pig enclosures, often near the coast.

Food gardens are mainly situated near the villages since the people think that taro does not grow well near the coast. I am not sure of the effects of the absences on subsistence production. In the past such absences also occurred (see p. 2), then, however, for hunting and gathering purposes. Hence these sectors of the subsistence economy may be most affected by cash cropping.

Cocoa holdings are often closer to the villages. As happens elsewhere in Papua New Guinea, holdings are established by interplanting young cocoa seedlings with food crops in newly made gardens. This means that since the introduction of cocoa, food garden areas are being increasingly converted into cash cropping areas. I doubt if this will lead to a shortage of good garden land given the low population density. It will, however, lead to more distant and hence less accessible gardens.

The history of cash cropping is one of slow expansion accompanied by frustrations and setbacks. Transport has remained a major problem throughout the period. Road construction on the island has literally almost bogged down. The proposed road system encircling the island and linking all villages - which early patrol officers seem to have been confident would be built in a few years time (Siassi patrol reports) - has not come about. There is now a road leading from the plantation inland to the government station, and another one linking most of the Koval villages. They have to be maintained at great cost. The road system will have to be upgraded if the increasing cocoa harvest is to be transported to the coast.

A second bottleneck in the transport system is that the Koval area has only one wharf with easy sea and land access. It is part of the plantation facilities. A second wharf has no good road access. At other points produce has to be collected from anchorages and is not possible throughout the whole year because seas in the Vitiaz Strait are seasonally very rough.

The third bottleneck is the shipping service. The Koval cash croppers have become share holders in the Finschhafen Marketing and Development Society. The Society runs a ship, the m.v. Vitiaz, which infrequently and irregularly called in Umboi. Hence a lot of coconuts were either not harvested at all, or, when they were, copra might go bad, because it was not collected. This problem is mentioned again and again in patrol reports. Various sailing schedules for the Vitiaz were designed, all

without the desired result. Owing to such frustrations copra sales varied greatly in the course of the years. They seem to have never been at maximum capacity. With the other Umboi islanders, the Kovai planned to purchase a work boat which should travel around the island picking up copra and delivering it at the two wharves where it could be picked up by a larger vessel. When after many delays the ship arrived, it very rapidly broke down. After a long absence it returned to the area to break down again on the same day (Siassi patrol reports). Nevertheless people have started to raise money for another work boat. Negotiations to buy this ship have now started. In the meantime the Kovai still have to rely on the services of Lutheran Shipping and a ship of this company calls at the plantation wharf twice every three weeks.

Of all the Kovai villages Barang and Omom are least bothered by these bottlenecks. They are located on the road to the plantation and their cash crop holdings are close to the wharf. It may be that Barang and Omom people consequently earn more cash and that the food expenditures which I noticed in the two villages are accordingly higher than elsewhere in the Kovai area.

Notwithstanding the uncertainties about transport the Kovai are extending their cash crop holdings and they are now forming a Farmers Association to boost and vary cash cropping and to make purchases of equipment easier. Generally people keep showing great interest in business ventures and, given the many setbacks, their persistence in this regard requires an explanation which, so far, I am not able to give.

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