PART 2

The Material Framework of Life

One of the most enduring realities to emerge from European records about traditional life in New Guinea has been the primacy for the people of land and material wealth. This is made evident in the two groups of sources that follow. Consideration of these two aspects of what Europeans would class as the material culture and economic life of the people would therefore seem to be the most appropriate starting point in the writing of an economic history of New Guinea. Not all facets of the complex systems of values and ideas associated with land and wealth brought to light by a preliminary survey of the available evidence can be considered here, though it would have to be taken into account in a full-scale study of the questions of economics. What will be considered is aspects of land tenure and use, as well as some of the networks through which goods and wealth are exchanged and traded.

The documents reveal a significant paradox which has bedevilled European understanding of these central features of New Guinea economics. It will be seen that, in the case of both land tenure and the flow of goods in trade, Europeans in the phase of initial contact with New Guineans immediately grasped some of the high value the indigenous people placed upon these elements in their economic life. It is suggested that the reason why the mariners, missionaries and traders saw the surface reality so clearly could have been their need for land and goods for their own survival. But it was then a long time before Europeans went beyond this level of vision to see that there was a logical, consistent and tenacious system of beliefs embodied in the New Guinean’s relationship to his soil and his material possessions. It is only in recent decades that Europeans, embedded in alien material cultures and shaped by Western technology, have understood what New Guineans may well have taken for granted for numberless generations or even centuries. Some of the causes that have shaped this painful growth in knowledge have been sketched below. How it has influenced the relationships between particular groups of Europeans and New Guineans has been hinted. The significance and implications of this paradox still remain to be explored in depth. But each of the documents chosen needs to be located in the context of the history of misunderstanding and misinterpretation so that any distorting factors can be taken into account.

This selection of sources and readings has other limitations. They are chosen to give some sense of the nature of traditional economic life before the impact of settlement and western trade goods. A few also give some indications of the changes brought by contact, but on the whole they illustrate the range of sources that could possibly be employed in constructing a base line in pre-contact society from which to measure the changes introduced.

This economic change and questions associated with modernization and development are central issues in the current preparation of New Guinea for viable nationhood. These are largely the concern of economic analysts, planners and anthropologists to assess and predict. There are, however, two tasks which historians may be able to perform in so far as there are written and oral sources available for them: to trace and interpret the growth of particular economic institutions imported by Europeans into this setting and to evaluate the modifications of indigenous ideas and values about land and wealth within the context of economic change. Whether there has been ‘growth’ in terms of expansion and how deep have been the modifications, if any, are questions which still require close and detailed historical investigation within the guidelines already provided by anthropologists and economists.

RELATIONSHIPS OF MAN TO SOIL: DOCUMENTS A5 to A9

‘Land is the source of all things; a man without land is worse than a demon.’

Siuai, Bougainville.¹

‘Land cannot be lifted up and taken away like a bag of food. It belongs to an ancestor who is like a great tree with its roots in the ground. From that tree grows many
branches. Some branches may die but others grow. The tree remains deep in the ground, no one can move it but all the branches share the life of the tree.\textsuperscript{1} A Koitapu man from Baruni, near Port Moresby.\textsuperscript{2}

These statements epitomise the depth and intensity of feeling that is universal to the people of New Guinea about their relationship to the soil. They also reflect the multiplicity and complexity of aspects that need to be considered if Europeans are to come to a full understanding of land tenure. To speak in terms of conventional categories, there are concentrated in these statements religious, historical, social, legal, economic, and political aspects all centring on man's relationship to this particular segment of his environment, the soil. Understandably, the process by which Europeans have come to know and grasp the meaning of land tenure has been slow and is far from complete. Both the complexity of the reality itself and the process of understanding it need to be taken into account in any historical enquiry concerned with discovering the material framework of men's lives in New Guinea before the days of European intrusion. This task is all the more difficult because, as these statements make clear, a man's relationships with his soil are among his most intense and durable beliefs and sentiments.

The earliest European contacts with New Guineans were those made by mariners with fishermen or beach dwellers in their canoes or at points on the coastline.\textsuperscript{3} These contacts were mostly brief and superficial. Hence these Europeans showed little or no interest in the land or the people's relationship to it, even though some of the goods they gained by trade with these coastal people were products of their gardens, like taro or yams.

A new and more complex pattern of tensions and relationships developed rapidly when Europeans began sustained contact with New Guineans by settling on their lands. Rev. Benjamin Danks, an Australian Methodist missionary who worked in the Gazelle Peninsula from 1878 to 1886, was of the opinion that 'Nothing in the islands brings trouble upon strangers sooner than a tactless method in connection with the buying and occupancy of land.'\textsuperscript{4} He was speaking from experience, sometimes bitter, constantly annoying, as his journals, reports and letters reveal. There was for instance the boundary dispute with the Kabakadai people that he bemoans in January 1879. Land had been purchased, legitimately, as he thought, after careful investigation by himself and his superior, Rev. George Brown, and boundaries acceptable to the people were marked. Trouble came when Danks built a fence to mark off mission property.

'Last night they wanted the fence to go in another direction but I would continue it according to our lines. When I went to look at it this morning I found that during the night they had taken the fence up and planted it where they wanted it to go. I pulled it up again while they looked on and made them replace it in its old and right position. I would not quarrel with them over a few feet of ground, but they must be given to understand that when they sell us anything they have no further hold upon it.'\textsuperscript{5}

It is apparent from this and other documents, that there were almost infinite possibilities for gnarled and highly sensitive points of tension and mutual suspicion to grow between white settlers and local inhabitants. Two ways of thinking about land and man's rights of ownership over it and two value systems embedded in these relationships to the soil often meant that there was little real possibility for the development of adequate understanding and communication between the two groups over these matters. The continuity and universality of these misunderstandings in New Guinea history seem apparent. The Kabakadai case was repeated many times during the rapid settlement of the Bismarck Archipelago in the 1870's and 1880's.\textsuperscript{6} The famous judgement given in the Central Court of the Territory of New Guinea on 22 September 1932 by Mr Justice Beaumont Phillips underlines the problems of communication in protracted land acquisition negotiations during 1901, between the surveyor and agent of the German New Guinea Company, Van der Laan, and the people of the Malala region near Madang.\textsuperscript{7} The clash of two value systems was pointed to by the investigations of Vicedom and Tischner among the Mbowamb people near Mount Hagen in 1938.

'... It was quite obvious at Mt. Hagen that the Europeans were considered members of the tribe on whose territory they lived, respectively the tribe concerned always sided with the European who lived on its soil. Thus the Jamka always said: "We belong to the Kiap ... Because he settled with us." When he moved, they tried hard to keep him. The Mokae considered themselves belonging to Mr Leahy and

\textsuperscript{1}D.L. Oliver, 'Human Relations and Language in a Papuan-Speaking Tribe of South Bougainville, Solomon Islands: An Essay on Methodology', Papers of the Peabody Museum, 1949, Vol. 29 (2), p. 6

\textsuperscript{2}W. A. McGrath, A Selected Annotated Bibliography on Land Tenure in the Territory of Papua and New Guinea, 1st ed., Port Moresby, 1964, p. v


\textsuperscript{4}W. Deane, ed., In Wild New Britain: The Story of Benjamin Danks, Pioneer Missionary, from his Diary, Sydney, 1933, p. 26

\textsuperscript{5}Methodist Church Papers, Rev. B. Danks, Daily Journal, New Britain, 1878-82, Mitchell Library, MS. Meth. Ch. 616, listed at A3013, entry for 16 January 1879, pp. 12-13. See also Section C part I below

\textsuperscript{6}See for instance S. W. Reed, The Making of Modern New Guinea: With Special Reference to Culture Contact in the Mandated Territory, Philadelphia, 1943, pp. 98-103, 116-22

\textsuperscript{7}The Central Court of the Territory of New Guinea, In re Malala Lands, P. J. Quinlivan, ed., September 1932
another part to Father Ross. The Ndika as a body sided with us. Thus the Europeans were treated by the Mbowamb as members of the tribe and even recognised as wua nuim (men of prestige) because of their wealth. Now if a European bought, measured it and fixed boundaries, that did not mean that he had the guarantee that the Mbowamb had completely ceded the land... Only when the European concept of property was made clear to them by continued disputes with the Europeans did they leave the land completely to the Europeans...9

This history of settlement and the ensuing disputes over land purchases is not our concern here. The interests of the settlers, whether they were traders or missionaries, were pragmatic and limited with regard to land. Unless they had the leisure or the moral concern to investigate in a painstaking way the complexities of belief about land and the tenure system in order to establish a just purchase, the records they left behind are inevitably about details of transaction and purchases and disputes about the legitimacy of their tenure.9 Sometimes there was a glimpse betraying their confusion and wonder about the complexity of indigenous ownership. But that was rare. For instance, a contemporary of Danks, Rev. Isaac Rooney, who served in the New Britain district from 1881 to 1888, made this comment in discussing the possibilities of settlement in a letter dated 11 December 1883:

'The tenure of land in this Group renders difficult—almost impossible—the legitimate purchase of large blocks of land suitable for plantations. Every acre of land has its owner, and sometimes several joint owners. The land frequently belongs to one man and the trees on it to half a dozen others. This renders difficult, and sometimes impossible, the purchase of even small blocks such as we require for Mission purposes. Of six joint owners, five are anxious to sell, the sixth refuses, and the negotiations fall through. Then again the proprietor of the land sells his right and title but the owners of the trees refuse to sell, and frequently we have to purchase under these restrictions. Even at our head station here on Duke of York, half the trees within the Mission compound belong to the natives. Of course this could not be tolerated on a plantation. You would require not only the sole control of the land but of everything on it...

'In purchasing a large block the difficulties I have mentioned would be multiplied a thousand-fold as each little block should be purchased from its owner and to hope to get the thousand owners of land and trees all agreed to sell would be out of the question.10

...With the establishment of colonial government in Eastern New Guinea there was a growth of a more systematic body of knowledge about certain aspects of indigenous land tenure. This evolved within a framework of land policy developed by German, British and Australian administrations concerning the legitimacy of local custom and the importance of establishing exactly the pattern of local property rights and ownership in land transactions.11 The documents from this source are therefore heavily biased towards European legal aspects, because they come from people concerned to establish precise rights when disputes over land arise, not only between European and New Guinean, but also between New Guineans themselves.12 These documents are a rich source for the study of customary tenure that has been scarcely touched. (See A5 and the 1893 land enquiry in British New Guinea.) And the source is growing with the expanding work of Demarcation Committees under the direction of the Land Titles Commission. However, much sifting of this evidence would be necessary to establish its validity as a source for understanding traditional systems of tenure before the impact of Western legal concepts and assumptions. We would need to know how much of the pattern delineated by indigenous witnesses was the product of a Western system and how much was rethinking about the dynamics of their own system to ensure a favourable outcome of their dispute. It would seem that sometimes the judgments made by government officers have been dictated more by their concern to establish law and order than by any understanding of the local issues involved. These deficiencies would need to be taken into account when assessing the evidence from such a source. A case in point is that cited by F. L. S. Bell during his work among the Tanga people in 1933-34.

'During my stay on Boenig, I attended a court held by a visiting government official. One of the matters in dispute was the ownership of a certain area of land. Even if the official had had a good background knowledge of Tangan culture, it would still have taken many long hearings and the gathering and comparision of several genealogies before a just decision could have been given. He gave his verdict after hearing evidence from two or three people who had little or no real claim to the land in question.'13

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13W. A. McGrath, op. cit. passim, refers to some of the earlier legal and administrative documents.
On the other side of the coin, around 1939, when Tomu, 'an upstart lad of no consequence in native eyes', was employing his newly acquired authority as the government Kukarai in the Siuai area to make false land claims against Novei the traditional Mumi of Kirisu village, this man composed a special song by which to chide the upstart:

'Harken to my words, Handsome one ...; during these modern times you dispute my claims, you bring about my downfall. But if these were older times I doubt whether you could have done so. Alas, all the great mumi have passed away, and I alone remain.'

One colonial official, involved in the early stages of contact on the Gazelle Peninsula, had the skill, the motivation and the leisure to investigate in some depth local customs among the Tolai of Blanche Bay. This was the young Judge of the Imperial Court at Herbertshöhe (Kokopo), Dr Albert Hahl. In his report 'Concerning the View on Legal Matters of the Natives in Portion of Blanche Bay and the Interior of the Gazelle Peninsula' published in June 1897, Hahl deals succinctly with aspects of land ownership. As in other aspects of his native administration the insights gained by the young Hahl in this early period at Herbertshöhe became woven into his policy as Governor of the colony from 1902 to 1914. His judgements on land disputes may reveal significant evidence of land ownership.

Questions about types of ownership and inheritance, disputed rights and delineation of boundaries, of such primary concern to settlers, missionaries and government officials involved in the business of acquisition and administration, tended to carry over into early anthropological inquiries when they turned to an investigation of land tenure among other questions. But this is only a part of the whole picture, a most important one, but still not the whole.

Bronislaw Malinowski set himself the task of discovering something about the nature of land tenure during his investigations at Mailu between October 1914 and February 1915 as his diary attests:

'I asked about the division of land. It would have been useful to find out about the old system of division and study today's as a form of adaptation.'

His report on ownership and use of land at Mailu is evidence of the success he achieved in answering those questions. Later, when he returned to Papua to do his fieldwork in the Trobriand Islands between 1915 and 1918, he realized that his earlier questions had been too superficial and that there was more to land than the legal aspects. His reflections on this change in thinking, published in 1935, are both revealing and instructive:

'We could lay down at once the rule that any attempt to study land tenure merely from the legal point of view must lead to unsatisfactory results. Land tenure cannot be defined or described without an exhaustive knowledge of the economic life of the natives. This is by no means a truism, for most enquiries, especially the official ones, have been based on the fallacy that land tenure can be ascertained upon the legal aspect alone ... When in one Oceanic colony after another the officials are advised to report on land tenure and do this by stating that land is owned communally here and individually there—that is, "clan property" in one tribe, the "chief's domain" in another, and "apportioned among the family" in a third—the results at best can give only a very rough approximation to the reality. But actually a typical enquiry does worse than this: it proceeds on the basis of a questionnaire inspired either by set and specialized European notions or else by some distinctions conceived a priori, such as, e.g. the underlying fallacy of anthropological work—the opposition between communism and individualism. Any observations thus obtained are then immediately mutilated or placed in a wrong perspective, and the result thus obtained, by giving us a fictitious solution, veils from us the real problem.'

After showing that he had been a victim of this fallacy in his Mailu field work and in the early stages of his investigations in the Trobriand Islands, Malinowski proceeds to sketch the complexity and ramifications of the reality of land tenure that need to be taken into account in an adequate investigation:

'The complications of land tenure go further than this, however. As we know, the purely economic uses of land cannot be separated from rights of settlement, political claims, freedom of communication and transport; from territorial privilege connected with ceremonial, magical and religious life. No doubt the economic utilisation of land forms the solid core of all these privileges and claims. But land tenure must be conceived in a more comprehensive manner; it is the relationship of man to soil in the widest sense; that is, in so far as it is laid down in native law and custom and in the measure in which it controls political life, affects the performance of public ceremonies and gives access to opportunities for recreation and sport. Man's
appointed and culturally defined place on his soil, his territorial citizenship, his type of residence and those rights which underlie the various uses of his soil form an organic whole of which the economic exploitation is but a part, albeit the most important part.\(^{19}\)

Malinowski’s plea for a keen awareness of complexity and organic totality is in many ways a reflection of the same intense awareness of deep relationship mirrored in the statements by men from Siuai and Port Moresby with which we began. With the application of this type of skill and vision which Malinowski found so necessary, there has developed a body of anthropological literature from which the historian can draw evidence of traditional land tenure systems. In the groups for which this is available he has some possibility of tracing modifications in these systems as a result of contact. The growth of these insights and skills has been gradual, largely because the interests of anthropologists have been centred on aspects other than land. In 1953, when F. L. S. Bell published his study ‘Land Tenure in Tanga’ from which an extract appears below (A 7), there was only one other similar study, that of Hogbin on Wogeo.\(^{20}\) Almost fifteen years later, in 1967, Hogbin and Lawrence jointly published three studies to fill this gap in our knowledge of traditional land systems.\(^{21}\) By that stage two of the first full scale studies from an interdisciplinary approach had appeared.\(^{22}\) Perhaps another reason for the meagre output of intensive studies like that on Chimbu land, is the fact attested to by all those students concerned directly with this area of traditional life from Malinowski to Bell:

‘No adequate account of the system of land tenure of any native community can be given without first carrying out a detailed anthropological analysis of its culture.’\(^{23}\)

One major theme which runs through all considerations of land and thus deserves special attention is what in European terms would be classed as the economic or more precisely the productive aspect. Coupled with the Siuai adage about land is an equally forceful one about wealth:

‘A man without mamuna (wealth) is a snake. Worse than a demon, he slides about at night devouring things that others leave. A muni’s mamuna is his strength; his house is filled with shell money and his yard is packed with pigs.’\(^{24}\)

The relevance of notions like this to the present study is that wealth in the form of pigs and food came from the Siuai’s productive relationship to the soil as well as from shell money from exchange relationships with trade partners and debtors. Malinowski also saw the central importance of this relationship in his later reflections on the first impressions he gained of Trobriand Island gardens:

‘It was at that time that I received the first inkling that the Trobriander is above all a gardener, who digs with pleasure, and collects with pride, to whom accumulated food gives the sense of safety and pleasure in achievement … To the Trobriander all that is lovely to the eye and to the heart, or—as he would put it more correctly—to the stomach, which to him is the seat of the emotions as well as of understanding, lies in things which promise to him safety, prosperity, abundance and sensual pleasure.’\(^{25}\)

In the Trobriander’s view the creative horticultural skills practised to yield rich crops of yams, taytu and taro came from their great and beneficent culture hero Tudava, who also gave them these crops. According to the myth, he portioned out his largesse in response to the hospitality of those who received him.\(^{26}\) In that he endowed these people with the knowledge of the skills necessary for them to have a productive relationship to the earth and with the most suitable crops, Tudava was like many other culture heroes held in veneration by other New Guinea communities.\(^{27}\) Since, therefore, as one geographer has recently suggested, ‘traditionally, almost the entire indigenous population was supported by a subsistence economy based on agriculture’,\(^{28}\) an historical enquiry about land would need to pose questions about the development of agriculture and its effects upon New Guinea people. As we shall see below, archaeologists, from the results of their excavations in the Highlands, have proposed a three stage sequence in this development: hunting and gathering; pre-sweet potato horticulture; sweet potato as the staple crop.\(^{29}\) Their excavations have recently

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\(^{19}\) B. Malinowski, ibid, p. 319. See also pp. 341-81 for his study of the four doctrines of Trobriand land tenure.


revealed evidence to suggest that man may have been practising gardening techniques in the Mount Hagen region for at least 2000 years (A 8). Other evidence suggests that he has been engaged in hunting and gathering in the Chuave region since some time around 8400 B.C.30 These discoveries are exciting because they give clues to a fixed chronological depth for the inquiry. But they are only a small part of the evidence needed before the story has any finality to it. The horticultural techniques of Highland populations caught the imagination of European explorers when they first entered the area in the 1930’s. This impression was dramatic and lasting for members of the Archbold Expedition when they flew over the Bariem Valley in 1938 (A 9). The important historical thread linking these discoveries in geographically separate regions of the Central Highlands was the style of gardening. The archaeologists found evidence of a grid-iron system of drainage in the peat swamps of Mount Hagen. The scientists observed and recorded


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**A5 A Government Inquiry into Land Tenure among the Moapa Tribe of the Aroma Region in British New Guinea, 1893**

This document is one of the sixteen surveys of land tenure published in a special Appendix of the British New Guinea Annual Report for 1892-93. In the same Report Sir William MacGregor stated that the subject of native land tenure ‘was felt to be so important that a special study has been made of it, and reports have been prepared on a fixed plan’. In this view MacGregor was consistent with the British policy that had been emerging in this colony. As early as 1886 Hon. John Douglas as Special Commissioner for the Protectorate, had pointed to land tenure as being the cardinal issue of policy.1 The 1893 survey, conducted by Resident Magistrates, Government Agents and Rev. W. E. Bromilow the Methodist missionary, covered tribal groups from the Ture in the Western Division to the Moturina tribe in the Louisiade Archipelago. Each survey was similar in form to this one prepared by A. C. English, Government Agent at Rigo from February 1889 to December 1894. English remarks that his informants were principally ‘chief Koapena and two old men of the village of Moupo’. He also concludes that ‘there are no different customs in any of the villages east of Moupo as far as Bullerupu’. The Aroma area had been under sustained Mission contact since the arrival of the London Missionary Society there in the late 1870’s. Government contact had begun soon after 1885. There may have been influence from bêche-de-mer and sandalwood traders earlier than this. Koapena had a reputation among Europeans for fierce independence and as a man of extensive influence from the time that Rev. James Chalmers met him in 1887 until his death around 1895. How much land he controlled within his community has never been clear. This and the other 1893 surveys illustrate the way in which the British New Guinea Administration sought to understand patterns of traditional land tenure as a basis for its land policy. Four years later Dr Albert Hahl, Imperial Judge Advocate in the German New Guinea Protectorate, published his findings from a survey of Tolai land near Blanche Bay (Concerning the View on Legal Matters of the Natives in Portion of Blanche Bay ...’, pp. 82-3). N. D. Oram (‘Taurama—Oral Sources for a Study of Recent Motuan Prehistory’, *J. Papua and New Guinea Society*, 1969, Vol. 2 (2), p. 80)

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1 *British New Guinea Report for the Year 1886*, p. 6
An Old Woman of Tabar

mentions that there are important oral records in the
Office of the Lands Commission and in the possession
of Land Commissioners such as J. C. Bramell, I.
Champion and W. Giles. The latter prepared such
manuscripts as 'Statement by Igo Ganigo on Galo
Land'.

1 Position of the lands of the tribe: In the central district
about ninety miles east of Port Moresbly, on the sea coast.
2 Boundaries of lands of the tribe: At a point on the west
coast by the name of Puluapaea, to a point east by the name
of Kcalo.
3 How long have they been in occupation? They have
a record of four generations, and no record of ever living at
any other point.
4 Whether they are aboriginal owners or recognise any
other rights in the land? They are the aboriginal owners
and know no other rights to the land.
5 Are planting lands allotted? No; the owner may cul-
tivate or till his land at any time he thinks fit.
6 Is individual ownership recognised? Yes; but a party
of persons may own a portion of land, and their claims to
that will be recognised.
7 What land is held in common by the tribe? No land is
held in common by the tribe; there are mangrove swamp
and swamp on the land which no person claims.
8 Is individual property hereditary? If so, does it descend
in the direct line or in a collateral line? Individual property
is hereditary; the eldest son takes the father's property,
unless otherwise specified.
9 Do women own land? Yes, in case the female is the
only child. On her marriage, should she possess any relatives,
the land reverts to them; should she be without, the
husband takes the land until the eldest child is able to walk.
10 Does it ever descend in the female line? Yes; as in
No. 9.
11 Do they ever sell or exchange land? Land is sold and
not exchanged.
12 Do they lend or lease land? They do lease land for
planting only; payment received by a portion of the crop.
13 Are all fruit and sago trees private property or com-
mon property? Mangoes near the village. Sago and co-
ocanuts are private property.
14 Do soil and the trees on it always belong to the same
owner? Cocoanut trees and sago trees may be owned by
one man, and the land they are growing on to another
person.
15 Is there private property in water, or in fishing or
hunting rights? Animals or fish inhabiting the land or water
surrounded by the land of any man are looked upon as his
private property.
16 Is land ever paid as compensation to an aggrieved
person? No instance has occurred in this tribe.
17 How is land given to native strangers settling in the
tribe? A friend lends him sufficient land for his support.
18 When a woman owning land marries a man of
another tribe, does her husband become owner of the land?
If so, does he live in her tribe or in his own? She lives in his
tribe.
19 How is such land inherited? Do the children belong
to the woman's tribe or to the man's tribe? The children
belong to the man's tribe.
20 How are the boundaries between tribes altered and
settled? No instance of alteration of boundaries has oc-
curred in the tribe.
21 Does the tribe give its name to the land or vice versa?
The tribe gives the name to the land.
22 Is planting communal or individual? A man's friends
and relations may, at his invitation, till and plant on his
land.
23 If communal, how is the produce divided? The pro-
duce is the property of the planter.
24 Are pigs, fowls and dogs individual or communal
property? Individual property.
25 Are house sites the private property of individuals,
and if so, has this property any specific name? House sites
are private property, and in some instances it has a specified
name.
26 Is land taken away in war? Land is not taken by
conquest ...
28 Can a person bequeath his land to one not a blood
relation, or not a member of his own tribe? No.
29 Can an owner divide his land equally among his
children, or give it all to one? He can divide it among his
children or give it to one as he thinks fit.
30 If the parent does not divide it how do the children
share it? It becomes the property of the eldest son and he
apportions certain parts to his younger brothers.
31 Remarks: The above information was received by
me from the chief Koapena and two old men of the village
of Moupo, and there are no different customs in any of the
villages east of Moupo as far as Buletupu.

Source A. C. English, 'Land: Tenure of the Tribe of
Moupo or Keakaro, District of Galena', British New
Guinea Annual Report, 1892-3, p. 75

A6   An Old Woman of Tabar Grieves for the Loss of her
Kinsmen's Gardens, 1933

When W. C. Groves attended the village moot or
ngi-oukait-kokok at which the garden dispute reported
in this extract was heard and resolved, Tabar Island
people were suffering the psychological and social ill-
effects of intensive contact with Europeans. The
major influence since sustained contact had begun
early this century had come from recruiters who had
drawn heavily upon both male and female members
of the community. This had led to depopulation
which was a matter of concern to the administration
of the Mandated Territory at the time of Groves' visit
there between June and December 1933. There
were several European plantations and trade stores in the Tabar group as well as Methodist and Catholic mission stations. Men and youths from the area had been forced into the German road building programme in eastern New Ireland directed by the notorious Boluminski. Many had perished in this venture. Groves employed a young man, Salin, as his interpreter while he worked at Tatau village on Tabar. Salin had been a teacher in Rabaul and had lived for two years in Australia with Groves. His English was thus fluent. The extract gives an acute sense of the old woman’s grief at having lost all the members of her ti-i-ti (or matrilineal lineage) in the social upheaval current in Tabar. More importantly it underlines her deep attachment to the lineage garden land. Other studies have pointed to an equally intense attachment in other areas less disturbed by contact. See for instance, H. I. Hogbin, ‘Tillage and Collection in Wogo’, H. I. Hogbin and P. Lawrence, Studies in New Guinea Land Tenure, pp. 72-6; K. E. Read, ‘Land in the Central Highlands’, South Pacific, 1952, Vol. 6, pp. 444-8; and D. L. Oliver, ‘Land Tenure in Northeast Siuai, Southern Bougainville, Solomon Islands’, Papers of the Peabody Museum, 1949, Vol. 29 (4), pp. 78-81.

A second case was that in which an old Keis woman, whose ti-i-ti had almost disappeared, had given permission to a man, Guru, to use for gardening purposes a patch of ground belonging to members of her ti-i-ti. The area was a long distance from the hamlet, and the old woman was too feeble to make further use of it herself. So Guru, having secured her permission through his own wife, fenced and cleared the patch, and his womenfolk planted it with taro.

It would appear that title to land goes with the use, unless definite arrangements for ‘loan’ are made. In this case, however, no such arrangements were made, it being assumed that Guru would provide the woman with food from the crops grown on the patch. As they flourished it became customary for passers-by to refer to Guru’s garden.

One day the old woman wandered from the village and visited the place. She saw Guru’s womenfolk working inside, and her thoughts turned to the days of her youth when her ti-i-ti, now all dead, worked together just as the young women were now doing. This upset her, and in a moment of renewed pride, she tied some nor nor reeds round the trunks of the trees that marked the boundary. This had the effect of putting a taboo upon the patch and meant that Guru would have to abandon the garden.

Personal appeals having failed to move the old woman, Guru brought the matter to the notice of Lowan, one of the Tatau lulusais. This man called a ‘court’, and introduced the case by stating the known facts. Guru stood up and said that he did not for a moment dispute the old woman’s title to the land and her right to exclude him from it, notwithstanding the arrangement which she had made. But what about his sweat, his hunger? Had the old woman the means of compensating him for those? If so, he would be ready to accept a satisfactory offer. ‘The land belongs to her people, certainly, but the garden belongs to me. And her action has taken the use of the land from me—and with it, my crops.’

Speakers pointed out she was an old woman, that in her declining years she experienced periods of great sorrow at the passing away of her kinsfolk. ‘And who of us is not proud of his ti-i-ti and would not be sad to see it disappear?’ With all of this Guru agreed. He knew the old woman’s sorrow was understandable and natural. But that fact would not provide his people with food while they made another garden.

No one appeared ready to offer him compensation on the old woman’s behalf, and finally Lowan went across to where the old woman sat and spoke quietly with her. She commenced to cry. ‘Oh, I am only a foolish old woman,’ she said. ‘It was a wrong thing that I did. But I was upset when I thought of all the big men and women of my ti-i-ti who had worked in that patch in the past, and I was sad to think that soon no one of my ti-i-ti would be left. I will remove the taboo and accept food from Guru’s women.’ So Guru continued to use the patch.

The obvious point brought out by this case was the strength of the woman’s sentimental attachment to her group and the things associated with it. This applies to land, burial places, carved malagan patterns, and even to old houses. There were two cases in Tatau of old men, whose group had almost disappeared, spending much of their time squatting beside the crumbling remains of houses formerly occupied by their kin. Another fact brought out was the inalienable right of any surviving member of a ti-i-ti to land recognized as its traditional property.

In this connection I asked what would happen about the land when the ti-i-ti to which it belonged had completely disappeared. ‘Why, it would simply lie idle,’ was the reply. But such a case would be rare, for usually the last remaining individual of the group concerned would offer the use of the land to the members of a related ti-i-ti, i.e. one within the same moiety. Continued use of the land by that group would establish a claim to ownership.


A7 Ties Binding the People of Tanga to their Soil, 1934

This extract from the work of the anthropologist F. L. S. Bell on the culture of Tanga, is one of the earliest and fullest published descriptions of the complex patterns of relationship between people and land in traditional New Guinea. It is based on fieldwork done by the author, under a grant from the Australian
National Research Council, from April 1933 to February 1934. That there was a lapse of nearly twenty years between fieldwork and publication and that the description was written as part of a discussion about 'primitive economics' would need to be taken into account in assessing the historical validity of the extract. Bell chose Boieng Island in the Tanga group as his headquarters. He found Pidgin English a most unsatisfactory and at times an impossible medium for communicating with the people and was able after about three months to use the local language. A few of his older informants spoke English. He considered that traditional life had undergone minimal disruptive influence from European contact when he arrived in 1933. Labour recruiters had drawn on the manpower resources at irregular intervals for the previous fifty years. The area had been nominally under the control of the German Imperial authorities from 1899, but it was not till 1913 that Captain Komini visited Boieng on behalf of the Administration and enforced peace between warring clans. A few years previous to 1933 some Catholic native catechists were placed on the island. Only intermittent contacts with alien influences occurred until Bell and a Chinese planter settled there early in 1933. It would seem profitable therefore to employ his account as a basis for understanding some key aspects of traditional land tenure. Bell's work can be compared with other studies from his and an earlier generation, particularly Malinowski's study of Mailu (B. Malinowski, 'The Natives of Mailu', pp. 592-8) and the Trobriand Islands (Coral Gardens and Their Magic, Vol. 1, pp. 341 ff.) and Hogbin's studies of Woge Island land and horticulture (H. I. Hogbin, 'Native Land Tenure in New Guinea', Oceania, 1939, Vol. 10, pp. 113-65 and 'Tillage and Collection: A New Guinea Economy', Oceania, 1938-9, Vol. 9, pp. 127-51, 286-325). More recently interest has grown in land studies. This is marked by the republication of Hogbin's Woge studies and one by Lawrence on Garia land (H. I. Hogbin and P. Lawrence, Studies in New Guinea Land Tenure), and by the intensive scientific description and analysis of Chimbu land by Brookfield and Brown. (P. Brown and H. C. Brookfield, 'Chimbu Land and Society', Oceania, 1959, Vol. 30, pp. 1-75 and H. C. Brookfield and P. Brown, Struggle for Land, Melbourne, 1963.)

THE LAND AND THE PEOPLE

The inhabitants have no name for their island group as such. The word 'Tanga' is not part of the native vocabulary and is alleged to be a Lihir term applied to the islands by the natives of that group. Apart, however, from this lack of a composite term, every island, cliff, cave, beach, in fact every natural feature of the landscape and every acre of land hunted over, occupied or tilled is identified by name. The three volcanic islands of Lif, Tefa and Bidi are sparsely populated and of minor importance compared with the coral islands of Boieng which carries a fairly dense population of approximately 125 to the square mile. It is clear that Boieng is the 'home' island. It is the focus of the ritual life and the traditional headquarters of the totemic clans. Other places are named in relation to it, e.g. the high volcanic island to the south, which bears the erroneous title 'Malendok' on all known charts of the group, is simply called 'island' or 'Bidi', and the names given to the local divisions of Bidi, i.e. Minma:li and 'Tekenna:li, mean respectively 'the neighbouring place' and 'the more distant place', both of which terms have meaning only from the point of view of an inhabitant of Boieng. Although Boieng itself is an island and smaller than Bidi, yet no native of the former place thinks of it as such. To him it is the mainland.

... There is ample evidence to show that the native has a real appreciation of the particular virtues of his own land. I spoke to many men who had worked on the mainland of New Ireland and in other parts of New Guinea, and they were unanimous in their praise of their own gardening lands. Of course, there was more to it than recognition of the physical excellence of the soil. They love their native island because it is the home of their living kin and the abode of the ancestral ghosts. One expatriate who had lived in Samoa for almost twenty years told me that he was now happy and contented because he could talk of 'things of the past' with his own kinsfolk in their own family settlement. Again, men who had never left the island and know nothing of the world beyond are equally enthusiastic about the natural features of their island environment. On my frequent journeys through the bush I never ceased to wonder at the detailed knowledge of the plant, animal and insect life displayed by those who accompanied me. I gathered over one hundred and fifty botanical specimens without any attempt to make even a representative collection of the plant life, and I was literally swamped with information about the life history of each plant and its particular role in the material culture and medico-magical practices. As I walked through the bush, there was always keen competition among my informants to point out particular features of the landscape which figured in their legends and myths. Arguments would frequently arise among themselves as to the details of some point of local history; all of which convinced me beyond doubt that here was a people who were bound to their land by a deep and consuming interest in everything that grew or lived upon it.

The island is divided into nine districts; or perhaps it would be more accurate to say that the inhabitants have defined and given separate names to nine different parts of the island... The boundaries as between one local division and another are defined by reference to natural features of the landscape such as caves, large trees, cliffs, outcrops of rocks, etc... and there is no confusion among the natives as to their exact location and extent. The names given some of these districts show that these people, in giving a locality a name, apply much the same principles as we do ourselves in naming local areas. For example, Nisinma:li means 'the teeth of the place' and refers to the steep serrated cliffs which form its northern seaward boundary; Ulilinna:li means 'the side of the place', which accurately describes its position in relation to the island as a whole; Lufunafat means 'a bed of many stones' and so truly describes its position on the extreme eastern end of the island.
Occupying these nine districts and cutting across their boundaries are the representatives of ten of the thirteen matrilineal totemic clans known to exist in the Group...

... In theory ... members of the same clan occupy a common strip of territory by virtue of their descent from a common ancestress, who originally settled on and occupied the territory either by peaceful penetration or by conquest. A more accurate statement of the position is that, scattered here and there throughout each area of clan land, there are a number of small settlements, occupied by members of neighbouring friendly clans. The incursion of such ‘foreign’ elements into the territory of a particular clan is a late development, dating from the establishment of Government control and the cessation of hostilities as between clan and clan. With the passage of time, this tendency to settle on land belonging by tradition to another clan will spread and so further complicate the land ownership situation. It is as well to state that the existence within the clan lands of these ‘foreign’ settlements does not mean that such settlers will eventually enter into permanent ownership of the land. Clan lands cannot be transferred, sold or alienated in any way...

**FORMS OF LAND**

Although every inhabitant of the island speaks of himself as a *sigin Boieng* to or ‘true child of Boieng’ and thus identifies himself with the whole of the land comprising the island, yet no one regards himself as having common territorial rights to the island as a whole ... Kinship affiliations and the rule of residence, as well as conferring certain rights to certain tracts of land, impose certain restrictions upon their use. It is only by a close examination of these rights and restrictions that we can arrive at a true understanding of the nature of land ownership.

The relationship existing between a native and his land is not a simple property relationship. It varies in accordance with his age, sex, marital status, social status and the use to which the land is put. For example, ownership of garden land is something quite different to ownership of off-shore fishing rights or ownership of burial ground. In each such case, the native owner is in no doubt whatever as to his ownership rights, complicated and inexplicable as they may appear to a foreign observer ignorant of his culture and accustomed to comparatively simple forms of land ownership.

Let us now examine the various forms of land in which natives have an interest, taking as our first example the all-important food producing garden land. This type of land is of universal significance since everyone, at some stage of his life, owns a garden. It is that form of land to which he becomes more intimately attached than any other because it is the main source of his food supply. Yet it is not so much the soil or actual plot of ground upon which the garden is made which is of value as it is the soil plus the crops which have been induced, by natural and supernatural means, to grow therein. Indeed, apart from the fact that a certain amount of care is taken to select a suitable plot of ground within the confines of the territory of one’s own *matambia* the actual piece of ground selected for gardening purposes has no particular value per se. This is amply demonstrated by the native attitude towards a garden from which all crops have been harvested. Once a garden has been formally abandoned (*tutilu*), it becomes the common property of members of the sub-section of the clan who live in that particular district. Any passing kinsman is at liberty to gather any edible fruit or vegetable remaining in a *tutilu*, that is, providing that roving bands of youths or wild pigs have left anything worth eating. However, from the very moment a man begins to clear a block of land until he harvests his last basket of yams and stacks it carefully away in the adjoining storehouse, he is in a particularly close relationship with his garden land. What was formerly just a piece of bush land now becomes transmuted into a vehicle of magic. It becomes the subject of a ritual procedure of exceeding importance and the owner never leaves it, lest some careless kinsman should trespass upon its semi-sacred soil. If ever a native desires privacy, and there are few such opportunities during the normal routine of native life, he can always be sure of being left undisturbed in a growing garden. Yet such a garden is in no sense of the term ‘private property’. It is not property, according to our interpretation of the word, at all. It is not a negotiable asset subject to exchange or purchase. The crops which come from it, however, are in the nature of transferable goods, have a market value, and are sold and exchanged. It is therefore a misuse of the term ‘ownership’ to apply it to the relationship between a native and his garden land. Whilst he is cultivating a particular plot of land, he is regarded by the community as having exclusive tenure of the land. However, since he rarely, if ever, cultivates the same plot of land more than once during his life, the period of exclusive tenure is necessarily short and therefore no man can ever claim any kind of permanent tenure of garden land.

The one condition essential to acquiring the right of tenure to garden land is membership of the *matambia* occupying the district in which the garden land is situated. The case of Funmatbau of Lufunkomo is a good illustration of the working of this principle. By some mischance this man had been appointed kukera of a sub-district owned and occupied by members of the Fasambo clan. He belonged to the Tuniman clan and had no right whatever to remain in the sub-district in which he was living when the Government official appointed him. It is true that he was a man of forceful character and the son of a very powerful Fasambo chief. However, these facts, which were not concealed by my informants, did not give him any right to settle permanently in the district where he had been brought up. He should have gone over to Minna:li where the bulk of the Tuniman people lived and where he had inalienable rights to land through his mother’s brother. For a number of years he did not attempt to make a garden for himself but depended upon gardens selected and worked by his two wives, both Fasambo women. He assisted them in making these gardens but had no ownership rights in the crops which they produced. A few months before I arrived, he had decided to break with tradition by selecting a piece of land for himself as a site for a garden. He felt that being a minor government official, being the son of a once influential Fasambo leader, being married to two Fasambo women who had influential relatives, and being the father of a Fasambo boy, no violent objection would be taken to his making a garden for himself on Fasambo land. He was mistaken. As soon as he began to cut and erect the central line of marking stakes he was approached by Pongmauf, the head of the Fasambo *matambia* within whose lands lay the garden site which he had selected. He was told that the *matambia* objected to his presence in their territory and that he should return forever to his coastal village of Lufunkomo. Funmatbau did as he was told and silently acknowledged the futility of his attempt to break the law. When a Government patrol officer visited Tanga shortly afterwards,
Funmathau had many stories of alleged injustices to retail but the refusal of his Fasambo relatives to permit him to take up gardening land was not among them.

Beyond the confines of the bamboo stockade surrounding the garden and the family settlement, there lies the mok or bush lands, which although of minor importance compared with the palang or garden lands, have a distinct value as a source of supply of wild fruits and vegetables and wild birds and animals. Tenure of such lands, or rather the right to traverse them and to hunt and collect the wild animals and fruits which live and grow in the mok, is, in theory, not restricted, with respect to any particular section, to members of the matambia occupying that section but is the inalienable and common right of all members of the clan of which the matambia is a part. In practice, of course, members of a matambia do most of their hunting and collecting in the bush lands which surround and separate their own household family settlements. However, they often join their neighbouring fellow clansmen in large pig trapping expeditions which range over the whole of the territory of the clan. The point is that the bush lands of a clan are regarded as common land over which any member of the clan may roam and hunt without let or hindrance. The very fact that he generally refrains from hunting and collecting in bush lands beyond the boundaries of his own matambia lands, unless especially invited to do so by his neighbouring clansfolk, may be put down to good manners rather than any fear of being regarded as a trespasser.

Somewhat akin to the uncultivated jungle lands belonging to a clan are their fishing grounds. In general practice, all members of a clan have, by tradition, unrestricted access to that section of the coast which adjoins their clan district. However, it quite often happens that a particular chieftain belonging to a particular matambia proclaims a certain area of beach land and its adjoining waters a fa'm. In other words, he prohibits the use of the area as a common clan fishing ground. The prohibition is always temporary and is imposed, in most cases, in the general interest of all members of the clan. However, it is rather interesting to observe that a particular individual has the authority to interfere with community ownership rights in this way. Indeed, this power to impose conditions upon the common use of beach lands by members of the clan occupying such lands is paralleled by a similar right to impose a taboo upon a particular area of bush land belonging to a clan. In order to preserve the fruit of a particularly fine grove of Canarium almond trees for a special ritual occasion, a chieftain can declare the grove out of bounds to all members of the clan until such time as the crop is ready for harvesting by members of his own matambia. Therefore, in defining ownership rights in respect of bush lands and fishing grounds belonging to a particular clan as common to all members of the clan, we must add the proviso that such rights are liable to partial restriction when public interest requires it.

Apart from his interest in bush lands as a secondary source of food supply, a native is bound to his clan lands by legendary and mythological associations taking the form of such natural features as large limestone caves, peculiar rock formations, a fallen meteorite or a huge misshapen tree of a particular species. These characteristics of his clan lands give him a title to those lands which cannot be shared with any non-member of his clan. The ties which bind him are not as strong as those deep spiritual ties which bind the Trobriander or the Australian Aboriginal to his clan lands but they are present and have real significance in assessing the nature of the Tangan's attitude towards the land and must be taken into account in any attempt to understand the native concept of land ownership.

Hardly less significant than these mythological and legendary associations with particular kinds of land are the ritual associations which give value to certain tracts of land. By 'ritual associations' is meant any links of a ritual character connecting a certain group with a certain area of land. For example, land used as clan burial land, land set aside as a meeting place for members of the secret society, land upon which special clan funeral houses are built or compounds connected with certain transitional rites are all forms of land which derive their special value from their ritual associations...

A final example of a form of land, the value of which is determined by its ritual associations, is the special compound luk in which the young son or daughter of a chieftain is confined while passing through the ceremony known as dafal. This land generally adjoins or forms part of the settlement belonging to the initiate's household family group. It is a rectangular plot surrounded by a border of flowering shrubs and occupied by a special dafal house in which the initiate is caged for a period of twelve months. Not only the luk itself but all land in the immediate vicinity is forbidden territory to everyone but the parents of the initiate and the old woman assigned to feed and wash him or her. The rite of dafal is firmly entrenched in the present-day culture of these people, and there is a great deal of mythological evidence in favour of its antiquity. In several myths emphasis is placed on the special character of the compound within which dafal is confined and the dire results of trespass upon it. It is an elaborate and expensive rite, of somewhat rare occurrence, which provides excellent evidence of the way in which land, normally available to members of a matambia, suddenly becomes the exclusive property of one man—the initiate's father. In the sense that he is the sole person with the acknowledged right of entry into the compound, it would not perhaps be too far from the truth to describe his ownership of the compound as private ownership, except that, upon his son or daughter emerging from the ful'na dafal, the land and the house revert to common use. After all, the dominant factor in the ownership situation with respect to such land is the rite performed. With the suspension of the special ritual conditions surrounding the use of the land goes the special nature of the relationship between the land and the person or persons celebrating the rites.

Our brief review of the various forms of land laws recognized by the Tanga indicates the complexity of the problem of codifying their land laws and at the same time emphasizes the necessity of a deep and wide knowledge of their social, religious and economic life before the first steps towards solving the problem can be taken. No adequate account of the system of land tenure of any native community can be given without first carrying out a detailed anthropological analysis of its culture.

INHERITANCE

All forms of land in Tanga are defined by physical boundaries. The most important: form of landed property is garden land and closely allied to this is the actual 'village' land on which a man and his brothers and their wives and children erect their homes and build their dancing square. The one is always attached to the other and both forms of land are bounded by a tall bamboo stockade. There can be no question as to the exact limits of such landed property.

With regard to the land of a matambia or clan sub-section, the visible boundaries are not as evident as those of the
family settlement but they exist and are known to all. For the most part they consist of well-defined jungle pathways, sharp coral ridges, large trees or certain distinct natural features. Whilst collecting data for a sociological map of the island, I tramped along many miles of such boundaries and my informants never varied in their description of particular boundary marks.

Perhaps the most interesting of all boundary marks are those which mark off the various territories occupied by the clans. These are man-made walls, constructed of coral slabs near the coast and of large dead tree trunks inland. They are known as am bing and stretch for miles across the island. The jungle has engulfed most of them, but those that remain are tangible evidence of a previous age when it was necessary to erect such boundaries in order to defend and define one's rights to live in peace on one's ancestral lands.

Another significant feature of land settlement is the practice of giving a name to each hamlet or family settlement. This name continues to be attached to the place even when it is abandoned. Any map of the island which has been carefully prepared normally contains more names of hamlets which are no longer occupied than names of existing family settlements. This habit of naming one's home site or, in other words, of giving it linguistic identity, is proof of an attachment to a particular area by a particular section of the clan for reasons over and above those of interest in its usufruct. I found evidence of a sincere pride in locality. My servant, Bidlik, was not only proud of coming from the eastern end of the island; he was also proud of belonging to the Korof clan which occupies a large part of the eastern end. However, he was most proud of belonging to the Korofs of Kulau, a small hamlet which housed no more than a dozen people. The name Kulau as with any other of the hundred or so hamlet names became identified with a particular group of people. In ordinary conversation it was used as a synonym for the group. This practice then, of identifying a particular area with a particular group by attaching to the area a particular name is a significant aspect of the system of land tenure.

The normal rule of inheritance of property rights in land is from mother's brother to sister's son. There are apparent exceptions to this rule, but there can be no doubt that there is only one recognized form of inheritance and that is through the mother. There is actually no need to document the law relating to the matrilineal inheritance of land. The evidence is complete and unequivocal. I shall give details of a typical case of this form of inheritance and leave it at that. Kalololmat, a member of the Filamat clan whose territory lies in the western end of the island, was born at Waranmailli, a hamlet in the eastern end of the island. His father was a member of the Task clan. When Kalololmat married, he selected as a wife the daughter of his father's sister who, of course, was a member of fun Task. Upon the death of his father, he left Waranmailli and settled down at Lufunkomo in the western end of the island, where his mother's brother, Kinehrlam, owned several gardens. The latter gave him a partially cleared plot of ground and helped him build a house for his wife and his mother. When Kinehrlam died, Kalololmat fell heir to his pigs and his gardens. The sister of Kalololmat's father had a son and this man is now living on the very land at Waranmailli which Kalololmat left to come to Lufunkomo.

When a young man leaves home to join the matambia of his maternal uncle, he receives a new name and is formally recognized as an adult member of the clan. He is either provided with a portion of his uncle's garden or given the right to make a garden for himself within the boundaries of the land occupied by his uncle's matambia. Upon the death of his mother's brother his need for garden land increases in proportion to the increase in his ritual obligations, which generally means that he takes over responsibility for tending the land of his deceased uncle. An elder brother generally acts as the executor of the estate of a deceased younger brother, and if there are no actual sister's sons old enough to assist him to tend the garden lands of his deceased brother, he holds them in trust until the boys grow up. I have no record of a case of a classificatory nephew ever succeeding to the lands of a deceased person. I do have evidence of cultivated land passing to a man's sister's daughter's son because his own sister's son had predeceased him. The point is that these property rights in land pass always to actual matrilineal relatives.


A8 Some Evidence for the Antiquity of Horticulture near Mount Hagen, c. 350 B.C.

This brief report of an archaeological excavation conducted on the Manton tea estate site near Mount Hagen by a team from the Australian National University gives some indication of time depth to considerations about the beginnings of horticulture in this area of the Western Highlands. Since there was evidence of a complex of ancient gridiron type ditching associated with the agricultural implements found at this site, the hypothesis recently put forward by J. B. Watson suggesting a link between this type of cultivation and the introduction of the sweet potato into the Highlands during the last 300 years has been challenged by archaeologists. (See J. B. Watson, 'From Hunting to Horticulture in the New Guinea Highlands', Ethnology, 1965, Vol. 4, pp. 293-309 and H. C. Brookfield and J. P. White, 'Revolution or Evolution in the Prehistory of the New Guinea Highlands: A Seminar Report', Ethnology, 1968, Vol. 7, pp. 43-52.) As yet no fragments have been located by which the date for the introduction of the sweet potato or any other crop can be determined. For a more recent comment on this excavation see R. J. Lampert, 'Horticulture in the New Guinea Highlands—C 14 Dating', Antiquity, 1967, Vol. 41, pp. 307-9.
In March, 1966, stone and wooden artefacts, including part of a stone mortar, were found in peat on the property of Mr I. V. Manton, near Mt Hagen, during drainage preparatory to tea plantation. They were reported to J. Golson, and as a result excavations were undertaken in June-July, 1966.

The Manton property, of 838 acres, lies six miles east of Mt Hagen township, at ca. 5,200 feet above sea level. Bounded by the Wahgi River to the north, it extends two miles southwards to within a mile or so of the foothills of the Kupor Range. The area is a pitpit (Phragmites karka (Retz.) Stend.) swamp, with occasional low, dry ridges of gravel. In 1933, these ridges were outposts of local settlement, but were unpopular as habitation sites because of malaria. Cooking stones were found on the disturbed surface of the ridge lying immediately adjacent to the excavation site.

An area of 300 square yards was excavated to reveal the following stratigraphy, described from top to bottom:
1. A continuous cover of undisturbed light yellow-brown, felted and unhumified peat, 8-12 ins thick.
2. A zone of black, structureless, well-humified peat, 11-35 ins thick.
3. An intermittent zone of dark brown, woody peat, 8-28 ins thick.

Prehistoric ditches dug from zone 2 had cut into zones 3 and 4. At one point three superimposed systems of ditches were observed, and at another point two. A similar sequence of peats and ditches can be seen in the exposures of some 70 miles of modern drainage trenches present on the Manton property, and also in exposures in other parts of the north Wahgi valley that were visited in search of comparable evidence.

The artefacts recovered from the excavation all lay below zone 1. They include wooden objects such as fence posts, pointed digging sticks and a long paddle-shaped spade, and also ground stone axe-adze blades and grinding stones. Portions of gourd (Lagenaria siceraria (Molina) Standley) exocarp were also found. The excavated evidence can be closely compared to the implements and practices of traditional dry land sweet potato cultivation in the area. Thus the paddle-shaped spade is similar to recent specimens recorded by Vicedom and Tischner for the Hagen region, and by Nilles for the Bismarck Mountains. The stone axe-adzes are of the planilateral (flat-sided) type dominant in the Western Highlands in recent times. The drainage channels closely parallel the grid-iron system of field drains that is so remarkable a feature of local horticulture of the present time.

The site could be reasonably interpreted then as a stratified series of old agricultural systems that had at some stage been abandoned and reverted to swamp. The field evidence of a number of sites suggested that this had not been a strictly local phenomenon. The situation at the point of European contact as described by Brookfield, was that 'the Wahgi valley swamps, which are similar to the (extensively cultivated) Bariem valley floor in its natural state, lie uncultivated'.

Two carbon dates relating to an early part of the stratigraphy are now available. Further samples relating to the abandonment of cultivation have been submitted for dating. The dates are:

ANU-43 2300 ± 120 years before 1950 350 B.C.
ANU-44 4600 ± 140 years before 1950 2650 B.C.

ANU-43 gives a date for horticulture well before the period at which the sweet potato is assumed, on present evidence, to have arrived in New Guinea. It is generally argued that this event is to be connected with the arrival of the Portuguese in the eastern Indonesian islands and cannot therefore be earlier than the 16th or early 17th century. Whatever the crops grown at the Manton site 2000 years before, the very fact of their cultivation must have implications for recent theories of the evolution of Highlands agricultural systems, particularly Watson's hypothesis of an Ipomoea Revolution, which argues that before the arrival of the sweet potato Highlands populations must have been much smaller and less settled than subsequently and dependent as much on foraging as on horticulture.

The limited investigations here described, which involved excavations of only 300 square yards and restricted local reconnaissance, cannot themselves provide the data for a full assessment of the Watson hypothesis. Although there is evidence for extensive and continuing use of the Mt Hagen swamps the extent of any one individual system is unknown. Low-level aerial photography may aid in delineating areas of interconnected drainage. Further radiocarbon dates should indicate the duration of the cultivation period. Also requiring investigation are the reasons for the abandonment of cultivation of the peats, and for the formation of the peats themselves. Characterisation of the underlying clays and of the peats, together with macrofossil and pollen analysis of collected samples, may solve these problems.


**A9 Patterns of Stone Age Gardening in the Bariem Valley, 1938**

On the morning of 23 June 1938 members of the joint American-Netherlands Expedition to New Guinea flew into the Bariem Valley aboard the flying boat *Guba*. Later in the same year they made a closer survey on foot of the gardens which had caught their eye during their flight. L. J. Brass was the official botanist

**THE VALLEY OF THE STONE WALLS**

The first view of the Baliem Valley, named Groote Vallei, or Grand Valley, by the Netherlanders who took part in the flight, was in thickening weather that prevented any chance of course or altitude for an examination of this important discovery. On later reconnaissance flights the Guba flew low over the valley — low enough to send objects recognizable as pigs scattering for cover with their owners, and for ground details to be made out . .

The people were living in compact, very orderly and clean, fenced, walled or stockaded villages of about three or four to about fifty houses. Dwellings were of two types, built with double walls of upright split timbers, grass-thatched, and without floors. The men’s houses were round, 10 to 15 feet in diameter, with dome-shaped roof; the women’s houses long, narrow and rectangular. The everyday dress of the men consisted of a penis gourd, and perhaps a hair net of looped string. The women affected either short skirts of pendant strings, worn below the buttocks, or an arrangement of cords around the thighs, and always one or more capacious carrying nets hung over the back from the forehead. As arms and implements they had bows, arrows of several kinds, spears, stone adzes, and stone axes. For ditching and for the initial digging of ground for cultivation, which were exclusively men’s tasks, the men used heavy, two-handed sticks 60 to 70 inches long and ¾ to 4 inches thick, trimmed to a chisel edge at one end and pointed at the other. For tilling the soil and digging the crop, the women used smaller sticks, held in one hand. The few steel axheads seen, not more than five or six in all, had perhaps been acquired, directly or indirectly, from the Kremer expedition, which passed to the west in 1922, discovered a numerous population in the Swart Valley, and came in contact with other natives on the highlands near Mt Wilhelmina.

Possibly, too, these articles had trickled in through the native trade channels by which shells were obtained from the coast.

Although alike in appearance and dress and speaking apparently the same language, some inhabitants of the Baliem Valley and its branches called themselves Morip and others referred to themselves as Pesigam. Scattered Morip communities lived in peace among the numerically superior Pesigam. In parts of the valley burnt villages were seen and the people of the Baliem Camp area were engaged in desultory warfare with neighbors down the river. They were, however, essentially a settled agricultural folk, closely tied to the soil, and, like most New Guinea peoples, keen traders and indifferent hunters. Small white cowrie shells were valued above all else in trade with the expedition. About 25 pounds of sweet potatoes could be had for a shell of average quality. Six to ten shells would purchase a pig. Steel axes and knives attracted little interest.

As in all the higher valleys of New Guinea, agriculture was based on the sweet potato (*tiabe*). Subsidiary crops were bananas (*iisi, duk*), sugar cane (*el*), taro (*kuwam*), cucumbers, gourds (*gibi*, grown for penis coverings and as a food crop), spinach (*gibi*, *gibi*), and apparently of recent introduction and not much grown—three kinds of beans. Tobacco (*kanom*) was planted in the villages and smoked in the form of cigarettes wrapped in the leaves of various other plants.

**PANDANUS CULTURE**

The agriculture of the Baliem people represents one of the highest developments attained in New Guinea. But, by entering the valley from the outskirts, as was done by the expedition, methods from the most primitive to the most advanced could be seen in operation.

The natives were first encountered as travelers and hunters at Lake Habbema, high above the crop zone, where the severity of climate is such that forest growths begin to give place to alpine grasses. With a few sweet potatoes for food and hoods of pandanus leaves to protect them from the rain, mixed parties of men, women, and children were following well beaten paths over these bleak highlands to cross the range by a pass at 12,500 feet. At night — for the range could not be crossed in a day — the travelers slept in crude shelters of bark, boughs, fern fronds, and grass or took cover under rocks. Waterfowl were hunted on the lake and deadfall traps made to catch small mammals; but it seems probable that the real purpose of the journeys was to attend dances or engage in trade with some friendly population on the southern slope.

At 9900 feet on the descent from Lake Habbema pandanus trees appeared in the tall beech forests. The undergrowth had been cleared away from the stilt-rooted stems of some, which bore native property marks. Soon afterwards little clearings were encountered, where, in surroundings of brush and fern, grew planted groves of these striking trees. Advantages had been taken of natural openings, made by the fall of forest giants through ‘dry rot’, which were enlarged and maintained by cutting down or ring-barking smaller trees. The oily seeds of the pandanus (*arame*), about equal to a small almond in bulk, were eaten fresh from the tree or put through a smoke-curing process and stored in the villages.

In the pandanus we have an example of the selection for cultivation of a useful plant of the forest. From tending the tree in the wild the natives advance to planting it in natural clearings, kept open with stone tools but not tilled. Large-seeded species are cultivated widely at altitudes above about 5000 feet in the New Guinea mountains, where they fill a position in the domestic economy of the people comparable with that of the coconut palm on the coast.
LAND-CLEARING METHODS

Although on the periphery of the valley, forest was still being felled and new land brought under cultivation, in many parts such operations had already extended to levels at which, owing to the prevalence of mists, the soil had become too peaty for the growth of the staple crop. The highest sweet-potato garden encountered was at an altitude of 8150 feet.

The heavy work of clearing new land begins with breaking off the undergrowth and small sapling trees. The next step in wrecking, rather than clearing, the forest is to apply fire to the base of the larger trees, of which the magnificent beech forests of the upper cultivation zone contain many as much as 120-130 feet high and 4-6 feet through at ground level. In their fall these upright or break off the tops of smaller trees. Surviving trees not more than about 18 inches in diameter are then frilled round with adzes or cut into on the uphill side until they fall. If, by working at a comfortable height above the ground, a tree can be attacked where it presents a reduced circumference to the adz, the cutting is done from a stage. The method known as 'driving', by which a number of partly cut trees may be driven to the ground by the fall of heavy 'key' trees, seemed not to be employed.

When dry enough to carry a good fire, the wreckage is burned. Movable logs left by the fire are rolled or dragged to the edges; others are split into stakes and rails for fencing the clearing. When dug and put under the first crop, the blackened ground is still littered with the trunks of the larger trees. The, the stumps, and numbers of standing trees killed by fire or by ring-barking are left to rot or at convenient times are disposed of by burning.

The method varies somewhat according to local conditions and individual preference. Peaty soil at the upper limits of cultivation seems to be left to dry out and season for some years before being planted. Care is taken to preserve any pandanus trees that grow in the forest, and also tree ferns, the young fronds of which are gathered for food. All tree felling is done with adzes, of which every man and boy possesses one or more. The sole use of the ax, a comparatively rare tool, seemed to be for splitting timber.

CULTIVATION METHODS

In their use of the land the natives of the Baliem practise a method called 'bush fallowing'. A certain degree of soil fertility is maintained by alternating periods of cropping with periods during which the land is allowed to grow up to a natural covering of vegetation. The number of crops grown between fallowings doubtless varies with the productivity of the land, but on all but the most impoverished soil it is certainly more than one. An abandoned garden on new land soon springs up to a soil-enriching stand of second-growth trees, which in course of time is cut down and burnt and the area again put under crop. Forest regeneration, particularly in the oak-Castanopsis and beech zones, is, however, somewhat tardy at these altitudes. After each clearing, woody growths have more difficulty in establishing themselves in competition with aggressive, wind-dispersed grasses such as lalang (Imperata cylindrica), until finally, as a result of repeated disturbance, conditions so favour the grasses that, long before the time required for the establishment of forest successional communities, pressure of population compels the return of the land to cultivation. It is only a matter of time before decreasing fertility and fewer and smaller crops between lengthening periods of fallowing call for steps to ameliorate the condition. More forest is felled, or improved methods are applied to old lands capable of further development. Thus in the valleys of the Baliem and its branches population has become concentrated in two zones, a band of pioneer communities distributed along the upper slopes and localized dense masses of people practising very intensive cultivation on the river flats. In between is a zone of long-deforested grass slopes, relatively thinly inhabited, and open to the sweep of fires, but always—for this is a forest climate—tending to revert slowly to forest.

The staple sweet potato is propagated by planting cuttings of the vines 15 or 18 inches apart in cross rows on long, carefully prepared beds that run in the direction of the slope. The beds are dug to a depth of fully a foot and are separated by paths, about two feet wide, from which six inches or so of soil is removed and thrown on top of the beds. So far as practicable, soil-covering vegetation is turned under. With meticulous care, the beds are weeded clean, and the surface soil is kept loose, until the growing vines cover the ground.

The cultivation of bananas, the most important subsidiary crop, is restricted to the village enclosures, where they receive some protection from wind and the household fires probably have some modifying effect on night temperatures. Sugar cane is seldom seen in open gardens. Taro, cucumbers, and the other crops are planted in odd corners and about the garden borders.

EROSION CONTROL

The Baliem native exhibits a sound understanding of the problems of slope cultivation and the principles of soil conservation through erosion control. His system of rotation, under which only a small percentage of the slope land is under cultivation at any one time, is in itself a powerful factor in maintaining fertility by vegetative control of water and soil. The absorption capacity of cultivated soil is increased by deep tillage; and turned-under vegetation, besides having value as green manure, provides a binding material in the garden beds. In the sweet potato, on which his agriculture is based, he has a most efficient erosion-resistant crop, which forms a close ground cover within a few weeks after planting.

Runoff from the hollows between the up-and-down-slope beds in which, however steep the land, the crop is planted is handled in various ways. In the first place, danger of water cutting is reduced by removal of the topsoil and by the terracing or stone wall. The majority carry and so formed into pathways. On gentle slopes, runoff may be stopped completely by means of cross beds, which act as dams. On moderate slopes, diversion trenches may be used, or the beds may be so arranged that the hollows of one series meet the ridges of the next series. In general practice, however, the length of vulnerable surface is broken, and eroded materials are held up, by contour terraces. These are built of whatever material is most readily available. On newly cleared land they are made of logs laid singly or piled one above another and held in position by tree stumps or stakes driven into the ground. Later devices include long lines of stake or stake-and-rail fences or stone walls running parallel across the slopes.

By a combination of mechanical and vegetative methods of control, remarkable success has been achieved in soil conservation, even on excessively steep, long slopes, in a climate characterized by rains of considerable intensity. No serious case of soil loss by erosion was noted on cultivated land, but as spectacular in their way as the patterns of stone walls that stand as monuments to the efforts of former cultivators are some of the effects of gully erosion on old, abandoned grass slopes.
SOIL DRAINAGE

Although the dense river populations still carry on some cultivation on adjacent slopes, they center their activities on the rich soils of the alluvial plains. Natural drainage is improved by partitioning the land into small sections by networks of ditches connected with the rivers and creeks. Clean-cut, generally six feet or more deep and four to six feet wide, the ditches are dug with slightly sloping sides, and the sides are plastered with mud to prevent caving. The ditches sometimes serve as sunken roads. Mud walls largely replace wooden fences when obstructions other than the ditches are necessary to exclude pigs from the crops. Diversion channels carry the waters of intermittent streams past the gardens; and barriers of timber and mud are erected in these and other ditches to prevent backflow to the drained lands when the rivers come down in flood. Swampy areas are drained by well planned, complicated systems of larger ditches, sometimes wide enough to be called canals. It was the broad, water-filled ditches of these reclamation works that attracted particular attention, and speculation as to their function, during the reconnaissance flights over the valley.

USE OF FERTILIZERS

The use of green manures has been mentioned. Resources in animal fertilizers are also exploited to some extent. In general pig-keeping practice, the animals are allowed to roam at large during the day and pick up what food they can find in abandoned gardens and in the grass and brush on fallow fields. In densely populated areas, where there is little unused land close to the villages, the pigs are sometimes kept in paddocks supplied with water and shelter sheds and are fed by hand. For safety at night they are herded into pens within the villages. In due course the enriched soil of the pig paddocks is returned to cultivation and the village night pens are planted with sugar cane, sweet potatoes, and especially, bananas.

Perhaps the most extraordinary feature of this highly developed agriculture is the method by which continuity of yield is obtained on the valley bottom lands. That drainage is not the prime purpose of many of the ditches, cut at immense cost of labour, is apparent from their close spacing and their situation in many places where waterlogging of the crop-root zone could not occur, except occasionally from rain. They are made, instead, to get at the rich black swamp deposits and virgin alluvial materials of subsurface levels, which, when spread over the impoverished topsoil, bring a new lease of life to the land. In some cases, perhaps, the materials thus mined are dug into the ground. But the procedure, as observed, is first to cover the ground with a mattress of cut grass, then to heap the excavated materials on this in a bed 12 to 15 inches thick...


NETWORKS OF EXCHANGE AND TRADE: DOCUMENTS A10 to A15

As our knowledge of extensive and complex exchange networks like the hiri of the Motu people, the kula centred on the Trobriand Islands and the moka or te cycle of the Western Highlands has unfolded, a new sense of the drama, adventure and spectacle associated with this important aspect of the peoples' lives has emerged. Each of these networks extends over lengthy land or sea routes. Together they influence the production and the movement of pots and sago, necklaces and armlets, pigs and pearlshell through complex and ancient trade links. People speaking different languages and having different histories are bound together by the partnership and relationships developed, and each system has its own mythology, history and ritual of great antiquity and artistry. But the hiri (A 10), the kula (A 11), and the moka (A 12) are the most publicized and well-documented of these exchange activities. Woven into other regions which together cover the whole length and breadth of mainland New Guinea and the surrounding island clusters, are myriad trading networks which mirror in themselves some of the spectacle and drama of these great cycles. Such activities have given the lie to what was a quite commonly held view that the lives of stone age people lacked any dynamism or colour. This view based on inadequate evidence and fostered by unimaginative and prejudiced people is now perhaps dead. A glaring instance of this was the judgment passed by the Lutheran missionary, Rev. Georg Bamler. Though he was an ethnographic observer, an accomplished linguist and one of the pioneer missionaries in the Siassi region of New Guinea, in 1928 he misread the significance of the dances associated with Siassi economics and ritual life:

'Natives who waste their time, their property and their food in unrestrained dancing will not be able to do enough work even to find tax money for the Government; and while they remain slaves to wild unrestrained dancing it will be impossible to elevate them in morals, economic conditions, or culture to a higher level.'