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I uta i tai — a preliminary account of *ra'ui* on Mangaia, Cook Islands

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Background

Mangaia is the most southerly of the Cook Islands with a land area of 52 square kilometres. It comprises the highly weathered remains of a volcanic cone that emerged from the Pacific some 20 million years ago and stands 15,600 feet (4,750 metres) above the ocean floor. In the late Pleistocene epoch, tectonic activity resulted in the elevation of the island and reef. Subsequent undercutting of the elevated reef by run off from the former volcanic core has helped create the current formation of the limestone *makatea* which surrounds the island, standing up to 200 feet (60 metres) above sea level.

As indicated in Figure 8, the island has a radial drainage system. From its central hill, Rangimoti'a, sediment is carried by rainwater down valley systems as far as the *makatea* wall, thus creating the current alluvial valleys and swamps.

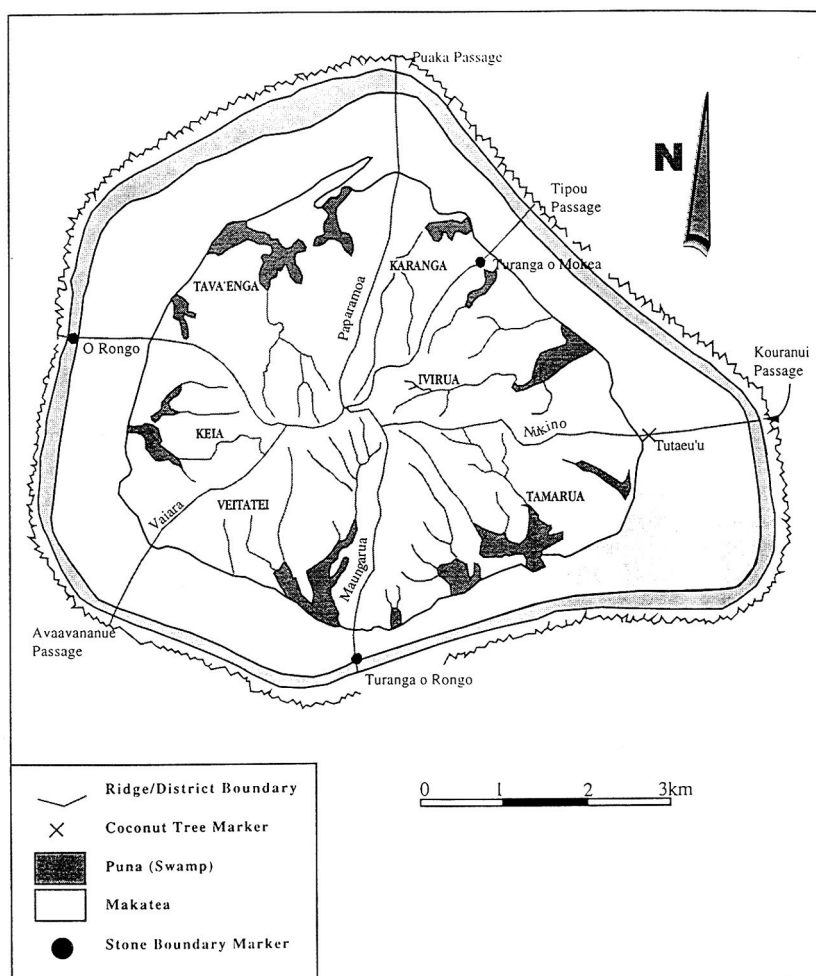


Figure 8: Mangaia Island, indicating *puna* divisions and taro swamps

Source: Rod Dixon

Kirch provides archaeological evidence that this erosion and deposition was accelerated by forest clearance and shifting cultivation of the inland hills somewhere between 1,000 and 500 years ago.¹

1 Kirch, P.V., 1997. 'Changing landscapes and sociopolitical evolution in Mangaia, Central Polynesia'. In P.V. Kirch & T.L. Hunt (eds), *Historical Ecology in the Pacific Islands*. New Haven: Yale University Press, p. 163.

Political and economic zones

Mangaiaans divide the island into radial territories, pie-shaped slices based around each of the six main river valleys and swamps. Each of the six districts is known as a *puna*.² Each *puna* has access to each of the major resource zones: the ocean (*moana*), the lagoon (*roroka*), the beach side (*pae tai*), the *makatea*, the irrigated valleys (*kainga*), and the mountain (*maunga*).

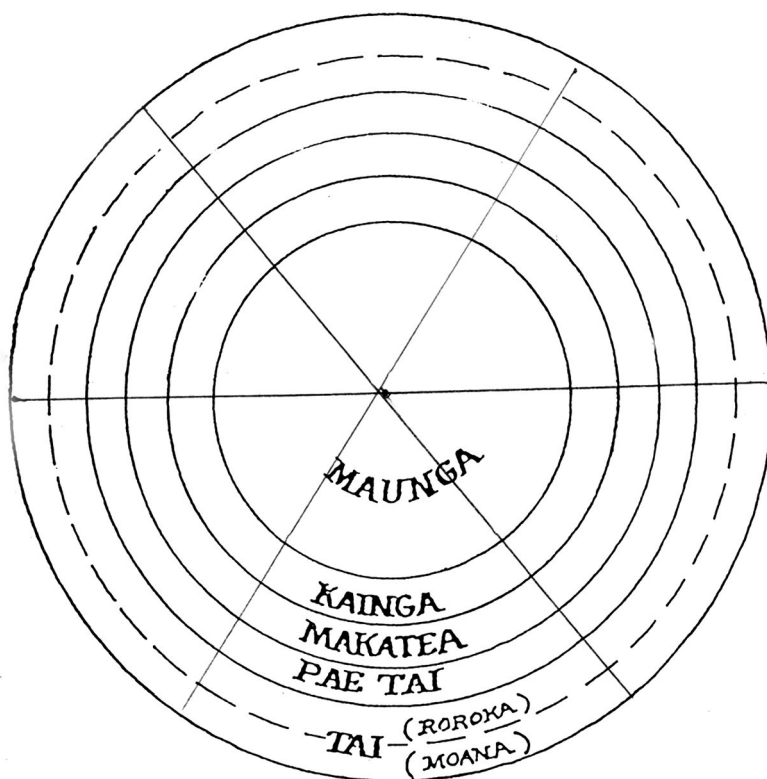


Figure 9: Mangaia as a series of concentric resource zones

Source: Mark, 1976

² Literally, a river valley but also a family, a lineage, a tribe.

The *puna* are further divided into *tapere* or subdistricts — six *tapere* per *puna*, except in the *puna* Tamarua where there are 10. As far as possible these *tapere* boundaries also incorporate access to each of the major resource zones.

Directions

Mary V. Mark, who did research on Mangaia in the early 1970s, tells us that:

From the *ngutu'are* [household] ... as the point of origin, one may go in any of four directions on Mangaia — *i tai*, *i uta*, *i runga*, or *i raro*. One goes from this point either *i tai* or *i uta* to pursue one or more of a variety of subsistence activities. It is to this point (... a particular household) that one returns with the fruits of his/her labours and where they are transformed, consumed or exchanged. Exchange occurs along the line of direction *runga/raro*.³

To travel *i tai/i uta* is to travel within the space or boundary of a *puna* (or *tapere*) — and across the concentrically organised resource zones that contribute to subsistence production.⁴

To travel *i raro/i runga*, a Mangaian moves out of the space of local reproduction and economic self-sufficiency, across the sociological boundaries of the *puna*, into inter-district (political and economic) relationships of alliance and exchange.

Subsistence production within the major subsistence zone (the pondfields)

Kirch outlines a number of different ways that water may be distributed to pondfields, as indicated in Figure 10.

3 Mark, M.V., 1976. 'The relationship between ecology and myth in Mangaia'. MA thesis. University of Otago, p. 47.

4 Mark, 1976, p. 46.

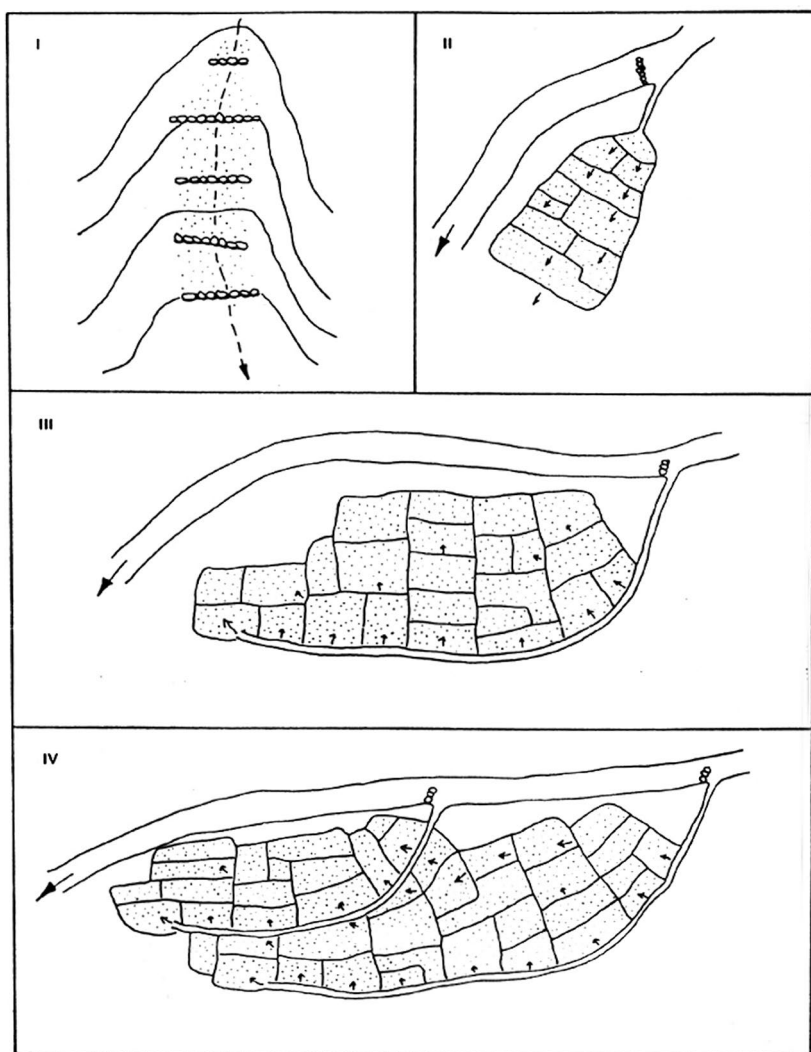


Figure 10: Types of pondfield organisation

Source: Kirch, 1977, p. 261

Type I systems of pondfield organisation consist of simple barrage terraces constructed across a narrow stream channel with no separate ditch. Type II systems comprise small groups of fields watered by a single ditch that feeds into the uppermost field. Water then flows from field to field through small gateways in the embankments. In Type III, the irrigation canal runs along the periphery of the field complex,

allowing greater control of water distribution and allocation. The most complex systems, Type IV, have two irrigation ditches, with the lower ditch acting as both a drainage and irrigation device.⁵

Kirch's Type I and Type II of pondfield organisation are found on Mangaia — predominantly Type II with remnants of Type I in the upper valleys.

The manner in which the water is managed in its flow from inland (*uta*) to sea (*tai*) and through the pondfields illustrates something of the social, moral, political and religious life of Mangaia today and in the past.

In a Type II system water is drawn from the main channel to the first pondfield and then flows to all other farmers in the system. This places a high reliance, initially, on the farmer in the first field and subsequently on each farmer down through the valley system. (Interestingly, a farmer is responsible for only three of the four banks (*pae*) of his or her pondfield. The fourth bank belongs to the farmer above him in the water race.)

In a Type IV system, on the other hand, water can be drawn directly from the sub-channels by many farmers, which results in decreased reliance on the farmers in the first field and to the left and right side.

Each system reflects or results in a different social relationship between farmers and differing moral values. Type II involves high levels of mutual reliance and reciprocity. Type IV requires a lesser degree of mutuality and reciprocity and potentially greater individualism.

A map of the Tamarua swamp in Mangaia (Figure 11) indicates how the water travels along the main stream channel from its collection point in the hills (top centre) to its exit point at the inner *makatea* face (lower right). As the water descends through the valley system, it is collected into small dams (*pi'a vai*) along the way. Each of these dams distributes the water to a specially constructed terrace level.

5 Kirch, P.V., 1977. 'Valley agricultural systems in prehistoric Hawai'i: an archaeological consideration', *Asian Perspectives* 20: 246–80.

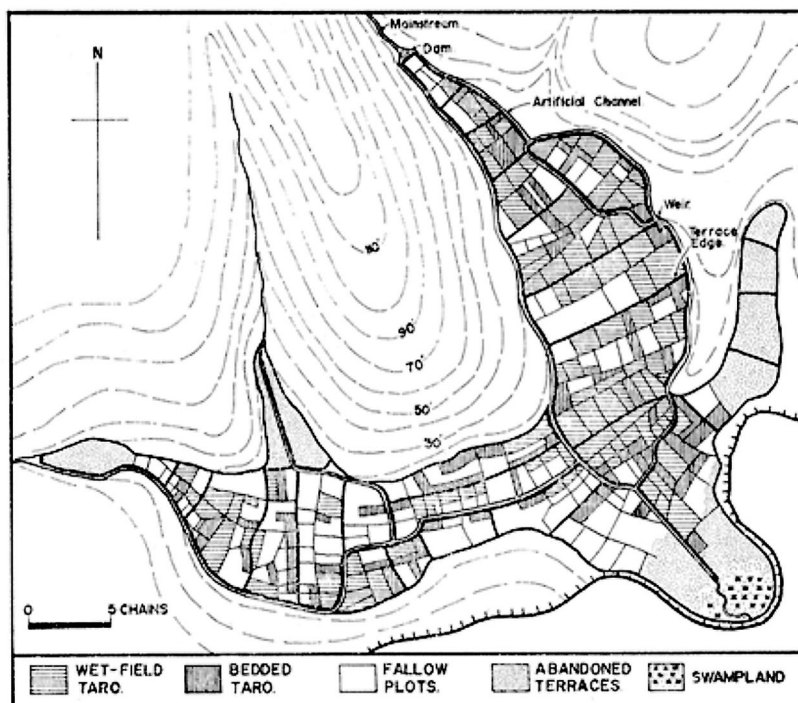


Figure 11: Water distribution through the Tamarua swamp

Source: Allen, 1972, p. 374

In the pre-Christian period, this system was overlaid by religious beliefs venerating water.

Figure 12 indicates the distribution of *marae* on the island. Historically, as the water descended from its origin in the *pito*⁶ or navel of Mangaia (Rangimoti'a) or from springs (*pupu*) lower down the valley, it was stewarded through the lower valley system by priests located at *marae* proximate to the water race. The streams (*puna vai*) in this conception

6 Marshall notes that 'Rangimoti'a is called *Te Pito o Mangaia*, "the navel of Mangaia"; Mangaia clearly relate this term for the navel to the fact that this flat-topped mountain is the source of all water on Mangaia, that taro depends upon water for growth, and that Mangaia in turn depend on taro for their basic subsistence. Hence Rangimoti'a today is the "source" of Mangaian life' (1965. 'Descent, relationship and territorial groups, social categories relevant to the Mangaian Kopu discussion'. Unpublished paper. DS Marshall Archive, University of the South Pacific, Cook Islands, p. 25). According to Buck, 'The term *pito* was applied to both the navel cord and the navel depression' (1934. *Mangaian Society*. Bulletin no. 122. Honolulu: Bernice P. Bishop Museum, pp. 85–86).

were the *kauvai toto*, ‘blood streams’ or arteries that brought life to the swamps, an umbilicus from the *pito o te enua* (navel of the island) — the umbilicus being conceived as the *ara i’o* or pathway of the life spirit, activating growth in the swamps and giving life to the people.

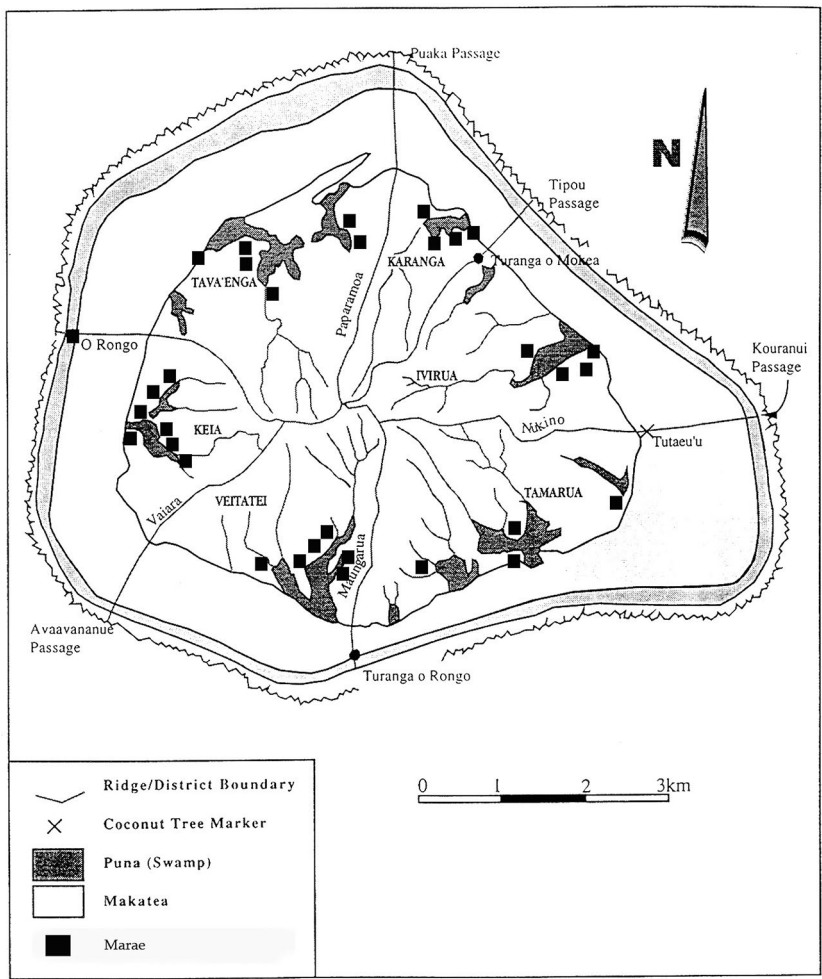
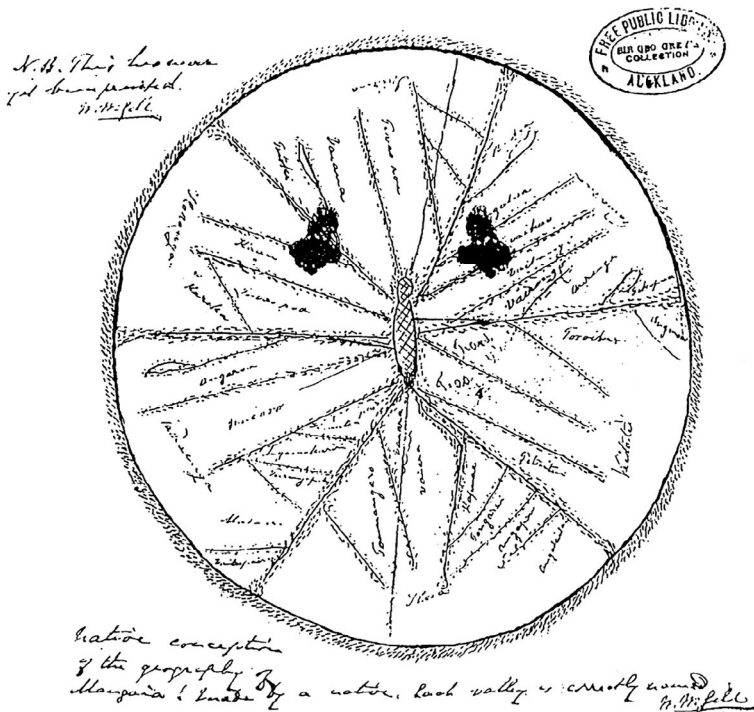


Figure 12: Map of Mangaia, indicating distribution of *marae*

Source: After Buck, 1934, Figure 1, and Bellwood, 1978, Figure 69



The Type II system, when applied to the Mangaian environment (which is subject to periodic drought), places an additional responsibility on the farmer at the head of the system and nearest the main water channel — that is the farmer in the pondfield known as the *matavai* (literally the ‘eye’ or source of the water).

Because the farmers at the front of the water (the *vai i mua*) are ensured year-round supplies of water, even during periods of severe low rainfall, the responsibility of the farmer in the *matavai* is to feed the rest of the farmers in times of drought. The *matavai* is allocated to a senior member of the family — the *rangatira* or sub-chief.

This hierarchy in the allocation of water from the first-born *kavana* (district chief) or *rangatira* (sub-chief) to their kinsmen and women — and the recognition of their reliance on him or her — is acknowledged every January in the annual ceremony known as the *takurua mata’iti*.⁷

At the *takurua mata’iti*, people bring food to their chief and the chief returns it to them (‘the *kavana* feeding the people for the next year’)⁸ in a symbolic display of mutuality and reciprocity.

A well-regarded district chief ensures that all the people of his *puna* have watered pondfields that are able to produce a good crop of taro wherever they are located in the valley system, from *vai i mua* (‘front water’) to the *vai i miri* (‘back waters’) to the very end of the water run. This requires that the *kavana* and *rangatira* mobilise the *puna* as *tao’nga ‘anga’anga*, or ‘work supervisors’, managing the water run, clearing the waterways and stream exits through the *makatea* and ensuring that the water catchment in the hills remains covered in vegetation and free from burning.

The ability to participate equally in the annual feast and put on a display of food at the *takurua mata’iti* and other feasts is evidence of *puna* prosperity and a public demonstration of the leadership and resource management skills of the *kavana* and *rangatira*.

7 The corollary on Rarotonga (though not on Mangaia) is that the entrance of water from a *matavai* may be blocked by the *rangatira* or *mataiapo* if this mutual reliance is not recognised by the annual presentation of a pig (see Buck, Field Notes, Rarotonga MS Staff Collection, Box 3.03, Volume 1, Peter Buck Staff Archives, Bernice P. Bishop Museum: 55).

8 Marshall, 1958, DSM Archives, Box 7.3, Field notes of Third Expedition 1957/58: 641.



Figure 14: Mataora Harry *kavana* officiating at the *puna* Kei'a *takurua mata'iti*, January 2008

Source: Taoi Noorora

***Ra'ui* and resource management on Mangaia**

The widespread distribution of irrigation waters requires close management of the valley's resources, particularly land and waters in the irrigated terraces situated in the middle and lower valleys.

The middle and lower valley terrace systems are part of a larger ecological complex comprising:

- the *maunga* or central plateau — the water catchment;
- the *rautuanu'e* or inland hills — another vital area of water collection;
- the upper valleys with their *apua* (hollows) containing ancient taro reserves;⁹

9 Allen, B.J., 1971. 'Shorter communication; wet-field taro terraces on Mangaia, Cook Islands'. *Journal of the Polynesian Society* 80: 372.

- the middle and lower valley terraces with dams and *kauvai* and terraced pondfields; and
- the outflows beneath the *makatea*, which require regular maintenance to avoid valley flooding.

Damage to any one part of this complex is likely to place corresponding pressure on other parts. Accordingly, Mangaian observe a whole-of-island approach to resource management that is organised and executed at the valley level by the political head of each valley unit, the *kavana*, together with his *rangatira*.

Resource conservation on Mangaia is directed to ensuring the following outcomes, within each of the six valley systems.

(a) The unimpeded movement of water (*vai ta'e*) to pondfields across the terrace and from terrace level to terrace level

Permanent circulation is necessary to prevent water from stagnating (*vai taeta*) or warming, which provides favourable conditions for the growth of fungi and weeds (*nganga'ere*). Reduced water flow can generate corm rot (*pe*) with the infection flowing from one pondfield to others watered by its outflow. Permanent circulation also ensures reduced evaporation loss and thus water conservation.

Weeding (*vaere nganga'ere*) is critical to the circulation of water and tuber growth. As Allen notes, 'weed growth is rapid and stultifies the growth of the tuber, spoiling quality and taste'.¹⁰

Pondfields that are not weeded not only restrict the circulation of waters through the system, but also release weed seeds (*ua nganga'ere*) into fields that are fed by their outflow. In this case, a *rangatira* may take action to reallocate unweeded taro plots to another planter to protect the pondfields downstream.

In ensuring the permanent circulation of water to his *taro*, every Mangaian planter is reliant on all those ahead of him in the water race and, ultimately, on the holder of the *matavai*, the *puna vai* and

10 Allen, B.J., 1969. 'The development of commercial agriculture on Mangaia; social and economic change in a Polynesian community'. MA thesis. Massey University, p. 70.

the *pi'a vai*; i.e. the *rangatira*. Holders of the *taro* are consequently encouraged to take good care of their plots through attention to the bunds (*pae*) or risk losing them:

Tiakina a'ora te raupoto i te rauroa

I te 'apiki i te amenge

I te 'aanga taro a Tu-tavake

Look after — or lose — the short *pae*, the long *pae*

The bends, the corners

In the terrace swamps of Tu-tavake.¹¹

In former times, the routine responsibilities of water flows and conservation were delegated by the chiefs to a *tao'nga ra'ui/tiaki ra'ui* (conservation guard) who 'looked after the *matavai* and the proper distribution of water'.¹² In particular, they ensured that conflict did not develop within their tribe or between tribal allies over matters such as the improper or careless diversion of water away from others for their own benefit.

(b) The conservation of water resources

The Mangaian irrigation system is predominantly fed by stream waters flowing from the rain catchment of the inland hills. Mangaia has a pronounced wet season (November to April) that accounts for around two-thirds of the mean annual rainfall of 1,967 millimetres. In the dry season the stream flow reduces, with some streams drying out or falling to a level that is too low to feed the irrigation systems, resulting in crop failure.¹³ March and April are the favoured months for planting when the *i'i* (chestnut) is ripening. Critical months of water shortage for *taro vai* (wet swamp) cultivation are July to October, and in particular September, October and often November. During this season the *taro pa'i* (dry-land taro), with its reduced water requirement, has a better chance of survival.

11 Buck notes that 'Certain terraces in the *makatea* of Tava'enga are referred to as Tutavake's terraced taro patches' (Buck, Bishop Museum, MS Staff Collection, Box 4).

12 Buck, Bishop Museum MS Staff Collection, Box 4.15.

13 Facon, T., 1990. 'Irrigation and drainage development, Mangaia, Cook Islands'. Draft technical report. FAO Project TCP/CKI/8852. Rome: FAO, p. 5.

The capacity to increase water storage in the upper reaches of the water race is limited. An FAO project to facilitate water conservation found that ‘the narrow shape of the valleys combined with their steep slopes prevent creating meaningful storage capacities economically ... Water storage to satisfy irrigation requirements, and even more so, to control flooding, is not practical’.¹⁴ Since storage capacity is limited, conservation of the catchment and proper maintenance of the hydrological system of the pondfields is critical.

Traditional conservation measures that have been adopted to ensure that the rain catchments retain water for gradual release include a ban on land use in the *rautuanu’e* (fernlands), bans against burning the fernlands and, in former times, conservation of the *maunga* (the main watershed) as a *tapu*, or sacred, place. A *ra’ui vai* was also imposed on at least one of the springs in each valley system for domestic consumption during periods of drought.

(c) The prevention of flooding

A general *tapu* on agriculture and land clearing on the inland hills was historically important in preventing soil erosion (*one oro* — ‘slipping soil’ — and *nga’oro* — ‘land slides’).¹⁵ Erosion contributes to the silting of stream beds, stream flooding and the blocking of drainage outlets.

In addition, irrigation channels must be kept clear of debris to ensure that stream waters are not blocked in periods of heavy rain. Stream flooding not only damages the terrace systems and crops but also draws the debris of the swamps into the subterranean *makatea* drainage outflows.

As Facon notes:

A severe problem affecting the swamps of Mangaia is the flooding of the lower reaches of the swamps after a heavy rain. The plots may be drowned during several days under a depth of several feet of water, causing the crops to rot. As the risk of crop failure due to flooding is

¹⁴ Facon, 1990, p. 5.

¹⁵ This prohibition was ignored, in the name of agricultural modernisation, during the late colonial period when the inland hills became a locus of pineapple planting with serious soil erosion resulting (Sims, D., 1981. ‘Erosion on Rarotonga, Mangaia and Atiu with recommendations and proposals’. Draft technical report. Rome: FAO).

very high, the lowest parts of the swamps have been abandoned for cultivation; as they are not weeded any more, the evacuation of flood water is slowed down, increasing the problem.¹⁶

The back-up of waters at the *makatea* outlets contributes to the existence of the permanent waters of Lake Tiriara and to swamp areas (*taro o'onu* — 'deep taro' — and *vai ngaere* — 'deep water swamps') that are unsuited to planting. These occur when silt-bearing waters from the irrigation terraces are trapped against the base of the *makatea*. Unless accumulations of silt are cleared through the *makatea* outlets, the *vai ngaere* increases in size, removing lower valley pondfields from production.

(d) Soil conservation

Resource conservation practices are also directed at maintaining ground cover to prevent soil erosion on the central hills. As well as bans on burning of the inland hills, planters are encouraged to plant sugar cane, bananas and coconut on *pae* and stream banks (*pae kauvai*) to hold soil and prevent its deposition into streams and channels. A general *ra'ui* is imposed on the tethering and feeding of animals (especially pigs) in the lower valleys and adjacent hillsides. Coconuts husked to feed pigs contribute to the flood debris blocking drainage outflows, while pigs (tethered or wandering) loosen the soil in rutting for food, contributing to soil erosion and siltation during heavy rains.

(e) Conservation of food reserves

Reserves of local *mamio* are grown untended under the shade of trees in small hollows (*apua*) in the upper reaches of the inland hills. These are watered by the first waters of the hillside catchments using a simple Type I irrigation system. These upland taro provide new taro shoots (*miko*) in the event that supplies in the middle and lower valleys are destroyed by flood, drought or disease. These reserves have been historically protected by a *ra'ui* and a general *tapu* on the inland hills. *Ra'ui* are also placed on the lagoons (usually for six months) and inland lakes to protect freshwater fish stocks, and on coconut and other food crops.

16 Facon, 1990, p. 11.

The valley irrigation systems require ongoing management involving the protection of the fernlands in the catchment areas (to prevent siltation of the streams, consequent freshet flooding and the deposition of silt and flood debris into drainage outflows), the clearance of irrigation channels, bund maintenance and weeding within the terraces themselves, and specific measures within and below the terraces directed at maintaining clear drainage outflows through the *makatea* and the protection of food reserves. The instigation and coordination of these activities is the responsibility of the valley's *kavana* and *rangatira* — supported by those appointed as *tiaki ra'ui*.

Buck notes that 'in ancient times' *ra'ui* was the responsibility of the 'Ruler of Food' (*ariki i te tapora kai*).¹⁷ Subsequently:

each district has acted independently. The district distributor of food is one of the sub-district chiefs who has been agreed upon by the district and sub-district chiefs ... [this person] is termed the *rauauika*. It is the duty of the *rauauika* to inspect the cultivations within the district and take note of all vegetable food supplies. He also inspects the lagoon within the district boundaries to note whether the catches of fish are getting smaller. Should he think it necessary, he calls the district chief and sub-district chiefs (*'ui rangatira*) together in council. The matter is discussed and if a closed season is decided upon, the *ra'ui* is promulgated through the district, each *kairanga nuku* [*rangatira*] taking the word to his own sub-district. The news spread from mouth to mouth and the closed season commences on the date given out. The closed season affects the land food supplies (*'enua*) or the sea (*tai*); the two forms of closure are termed *ra'ui 'enua* and *ra'ui tai* respectively.

17 Buck, 1934, p. 141. According to Buck, taro, breadfruit, coconuts and bananas were the main land crops subjected to *ra'ui* and the *ra'ui* was 'promulgated by two special criers' each distinguished by 'a plaited coconut leaf suspended over the back and a leaflet tied to each arm. The coconut leaf so worn was termed a *tara ra'ui* (notice of a closed season)' (1934, pp. 141–42). The seaside *ra'ui* (*ra'ui tai*) was promulgated not just by word of mouth but by the striking of long poles set up on the beach or near fishing holes with the plaited coconut suspended from them. 'Men were [appointed] as rangers (*tiaki*) to make frequent patrols along the water front ... Good rangers could tell from the appearance of the pools whether or not fish had been removed' (Buck, 1934, p. 142).

On Mangaia today, decisions on the management and conservation of valley resources continue to be made on a district by district basis, with each valley district meeting to discuss the *ra'ui* and other resource management issues a few days after the annual *takurua mata'iti* ceremony.

The *takurua mata'iti* occurs on a Saturday, the day before the end of the old Church year (Prayer Week — '*epetoma pure*'). On the following Monday¹⁸ the *uipa'anga mata'iti* (annual meeting), also referred to as the *uipa'anga ra'ui*, is held. In some districts this is also the occasion of the meeting of the *pūkuru* (hereditary leaders of a subdivision).¹⁹

At the *uipa'anga mata'iti*, the *kavana* and *rangatira* consult with their districts on the planting for the following year; including additional plantings to meet the requirements of feasts or visiting groups; the literal 'earmarking' of pigs for next year's *takurua mata'iti* and any intervening district feasts; the repair of *pi'a vai* and other infrastructure. The people of the district are encouraged to look after their livestock and plantings and make provision for their families and guests. Subsequently, at different times of the year, members of *tapere* work together under the direction of the *rangatira* to meet the goals set for the *tapere* at the *takurua mata'iti*.

18 'The Puna meeting on Monday is for the *kavana* and *rangatira* to put the *ra'ui* on coconuts ... and to tell the people to plant, clean up their plantations, not to tie horses on the taro borders, to tether pigs and goats, — to give them the law' (Marshall, 1958, DSM Archives, Box 7.3, Field notes of Third Expedition 1957/58: 640).

19 Marshall (1953, DSM Archives, Box 7.1, Field notes of First Expedition 1951–53: 233) notes: 'Below these [the *rangatira*] are *Pūkuru* (10 of these in Pu'ati's own *tapere*). At the end of the year *Ui Rangatira* send to *Pūkuru* to collect money from all the people living in the district. (Office is handed down in families, but if die out *Ariki* appoints successor). Money is used either for church or to pay men and women who are chosen on the first of each year to look after plantations during the coming year — catching wandering livestock — *Tiaki Ra'ui*.'



Figure 15: *Uipa'anga ra'ui*, Veitатеi district, *Ma'arona kavana*, setting out workplans for the coming year, 1954.

Source: D S Marshall Archives, University of the South Pacific, Cook Islands

At the *uipa'anga ra'ui*, harvesting, which is the second component of the agricultural year, is discussed to ensure the best use of resources for the benefit of families and the *puna* as a whole. This includes discussion of when the *ra'ui* will be, how long it will last, to what resources it will be applied, and its geographic boundaries. The *tiaki ra'ui* for the coming year are elected by nomination. The collected *ra'ui* fines for the year are brought to the *uipa'anga ra'ui*. Until recently, money collected from these fines was distributed among all the *tiaki ra'ui* and all those who came to the *uipa'anga ra'ui*, including the women who prepared the food and the children. In some districts the money collected from the *pūkuru* is used to pay the *tiaki ra'ui*.



Figure 16: The *kavana* Ma'arona with his *rauauika* (district distributor of food) at the division of food, *takurua mata'iti*, *puna Veitatei*, 1954. Foods distributed include pig, taro and *roiroi* or taro pudding.

Source: D S Marshall Archives, University of the South Pacific, Cook Islands

The role of the *pūkuru* of each *tapere* is to collect donations, or *'atinga*, from people on behalf of the *rangatira* of the *tapere* in which they are planting — the amount being 'up to you'. ('Giving money to the *rangatira* shows that you are still working under him.') A portion of the money collected by the *pūkuru* is used to pay for Church expenses and, in some cases, to supplement annual payments to the *tiaiki ra'ui*. Some of the money collected from fines against infringements of the *ra'ui* is deposited in a bank account in the name of the *aronga mana*, or leaders of the *puna*, to pay general community expenses.

Everyone is seen to benefit equally from the *ra'ui* and all are compensated for infringements of it. Only the *'orometua* (pastor) is exempt from the *ra'ui* according to the old belief: '*O tai kikau e topa na atua*' ('Only one coconut leaf will drop — that for the god').²⁰

This distribution of fines at the *uipa'anga ra'ui* reflects the distribution of food at the *takurua mata'iti*, which in turn reflects the distribution of waters through the valley systems. Common to all is a basic ethic of equality, mutuality and reciprocity in the use of resources, as a means of ensuring peace and prosperity.

History of the *ra'ui* — initial suggestions

In an earlier period of Mangaian history, the irrigation system was differently organised and the current terraces result from agricultural intensification that occurred around 500 or 600 years ago.²¹ The Type I irrigation system found in the *apua* of the upper valleys are possible remnants of this earlier period of Mangaian history (the 'Ngariki period').

The 'Ngariki period'

The 'Ngariki period' was a period of political and religious rule by a divine chief descended from the Mangaian founding ancestor, Rangi. In this period, the landscape of Mangaia was 'divinely' organised (predominantly on the vertical plane *uta/tai* — mountain to sea). The two divinely descended chiefs of Mangaia were *ariki pa uta* and *ariki pa tai* (guarding the flow of water from its origin inland to its exit at the shore — notably at Vairorongo — the bathing place of the *ariki pa tai* opposite the O Rongo *marae* at Tava'enga). Succession to land and titles was usually from the first-born son to the first-born son in a line of succession descending from Rangi.

20 Atingakau Tangatakino, 1992. Personal communication with the author. A coconut leaf tied to a tree is the symbol of the *ra'ui*. See also the chant '*E ra'ui tapu*' in Buck (1934, p. 142). Marshall records, 'there is not supposed to be a *ra'ui* in the village as it is "Te Oire No Te Evangeria" [The Village of God], and thus not within the domain of the chiefs' (DSM Archives, Box 7.3; Field notes of Third Expedition, 1957/58; 687).

21 Kirch, P.V., 1994. *The Wet and the Dry: Irrigation and Agricultural Intensification in Polynesia*. University of Chicago Press, p. 283.

In this 'divine' landscape, the hill (Rangimoti'a) was a 'heavenly mountain'. The sacred waters emanating from it were stewarded by the senior male descendants of the Ngariki in a vertical (*uta/tai*) descent from the mountain, paralleling the flow of the life force (*i'o*) from the sanctified core or *pito*: i.e. from founding gods to their descendants, the senior patriline of the Ngariki. From the sacred *puna vai* stream waters flowed into the *matavai* — the pondfields of the *mata mua* (the first-born) — thence down the patriline. At each stage in the water's descent, *marae* were erected.

Gill suggests that for the ancients:

As an individual consists of two parts, viz. body and spirit, so the island has a sort of essence, or *spirit*, the secret name of which is Akatautika, i.e., The-well-poised, only used by the priests and kings of ancient days. When in after times the earthly form, or *body*, of Auau [Mangaia] was dragged up to the light, there remained behind in the obscurity of nether-world the ethereal form, or *spirit*, of [Akatautika] The-well-poised.²²

A Mangaian gathering taro or catching fish in the upperworld routinely allocated a share to the gods in the underworld. Buck describes this as an act of propitiation to ensure continuing plenty.²³ Gill notes the phrase '*E mou Avaiki tena*' (that harvest for Avaiki), denoting luxuriant plant growth. In this context, *ra'ui* as an act of abstention in the upperworld could be seen as the allocation of forgone resources to the gods in the underworld. 'The gods', Buck notes of ritual offerings generally, 'were supposed to eat the shadow (*ata*) of the food'²⁴ leaving its substance.

In the Ngariki period, the *ra'ui* was presided over by the inherited priestly position of *Te ariki i te ua i te tapora kai* (translated by Buck as 'Ruler of Food'), a title which ran in the third, or junior, division of the Ngariki (the Vaeruarangi).²⁵

22 Gill, 1876, p. 11.

23 Buck, 1934, p. 178.

24 Buck, 1934, p. 179.

25 'In olden times, the Ruler of Food had some influence as to the imposing of closed seasons (*ra'ui*) over districts and fishing grounds in order to let depleted food supplies recover. In time of peace, he exercised a ceremonial control over the distribution of food at public feasts' (Buck, 1934, p. 118).

The 'Tongaiti period'

The Ngariki organisation was abandoned for a variety of reasons, largely attributed by Kirch to environmental changes, particularly destruction of the original forest cover resulting in infertile fernlands of limited use to agriculture.²⁶ As a consequence, competition for the taro lands became intense, intertribal warfare resulted, with leadership passing from the hereditary *ariki* to a military dictator. In this period, Buck tells us a chief took control of the land in the name of his battle scars or wounds rather than through descent from the founding ancestor.²⁷ During this 'Tongaiti' period, which lasted for several centuries up to the period of first European contact, the *ariki* retained the spiritual link to the founding ancestor as 'High Priest' but the new head of government (*te ua mangaia*) came from the ranks of the leading warriors of the tribe(s) best able to assert and maintain dominance over the major resource of the island, the valley pondfields. The 'divine right' of the Ngariki to the land and waters, as Rangi's sacred descendants, was broken, although Ngariki chiefs (as *ariki pa tai* and *ariki pa uta*) continued to officiate at rituals accompanying the division of lands and waters following warfare.

In this new Tongaiti period, terraces and hydrological systems were constructed to intensify agricultural production and keep pace with the food requirements of a growing population. The need to maintain military strength meant political alliances across boundaries (*i raro/i runga*). This political reality was reflected in the newly intensified pondfield systems, with water running from kinsman to kinsman and political allies across the newly constructed terrace levels, following a horizontal *raro/runga* rather than the earlier *uta/tai* flow. Waters once allocated 'vertically', according to seniority of descent in the patriline, were now distributed 'laterally' to the *arutoa*,²⁸ the band or sodality of warriors who had achieved temporal power in battle, as a 'reward for service'.²⁹

26 See Kirch, 1997.

27 Buck, 1934, p. 125.

28 The *arutoa* comprised the supporters or *toko* of the warrior who assumed, through victory in warfare, the position of Temporal Lord or *ua mangaia*.

29 Goldman, I., 1970. *Ancient Polynesian Society*. University of Chicago Press, p. 557.

The 'divine' hierarchical, *uta/tai* organisation of Ngariki society and landscape was overlaid by the more intensely political *raro/runga* organisation of Tongaiti society and landscape. In this period, Buck notes, there was a gradual reduction in the role of the Ruler of Food in the organisation of the *ra'ui*,³⁰ and the localisation of his position among the successful *arutoa*, with both the *arutoa* and the Ruler of Food utilising *ra'ui* as a means of protecting food supplies for the future provisioning of their troops.³¹ The position of *kairanga nuku tei a ia te rauaika* ('the subdistrict chief who has the banana leaf') — *rauaika* for short — with his role in declaring district *ra'ui*, and announcing the allotment of food at feasts, retains overtones of this district provisioning.

The 'mission period'

The arrival of Christian missionaries in 1823 meant an end to war and the introduction of the 'rule' or 'peace' of the Gospel (*te au o te evangeria*) and thus an end to the Tongaiti mechanism of land and water allocation via warfare. Existing resource allocations were frozen from the time the missionaries established ideological dominance. The *kavana* of today are the descendants of the warriors (*pava*) who fought at Araeva (c. 1821), where they succeeded in winning control of the pondfields. The *ariki* of today claims descent in a line of *ariki* stretching back to the founding ancestor Rangi. But, as a consequence of Tongaiti political organisation, the *ariki* has no privileged say in the allocation of land or water, and these decisions rest largely with the descendants of the last warriors (the *pava* or *kavana*/Aronga Mana of Mangaia).

With succession no longer decided by warfare, the old Ngariki principle of descent and succession through the patriline returned.³² Looking into the pondfield system today, we can see evidence

30 Particularly in circumstances where the *ariki i te tapora kai* had become involved in politics and a combatant in war.

31 Buck, 1934, pp. 118–19.

32 Modified by the principle of the *pa metua* (agnatic seniority), a possible remnant of the warrior period. As Gill notes: 'The order of descent in regal (*ariki*) families was usually from father to son; but with great land or warrior chiefs it was different; the brothers of the deceased taking precedence over his sons, for the excellent reason that it was their strong arms that won or preserved the tribal lands' (Gill, W.W., 1979. *Cook Islands Custom*. Suva: Institute of Pacific Studies, University of the South Pacific, p. 10).

of patrilineal succession in the *uta/tai* allocation of waters — from the *kavana* to the *rangatira* down the water race, except that the *rangatira* today are descendants of warriors rather than direct descendants of the *ariki*. The *raro/runga* flow of waters across the valley terraces continues to reinforce family solidarity, and the values of mutuality and reciprocity, although no longer in the name of military strength.

In the mission period, as trade and commerce increased *ra'ui* provided a means by which chiefs, as 'single sellers', could maximise prices received from traders by interdicting the harvest and sale of crops below a set price. Colonial authorities, having initially recognised the rights of chiefs to impose the *ra'ui*,³³ acted in 1908 to limit its use, other than by the colonial island councils.³⁴ The island councils were charged by the colonial authority to 'use ... their power of *tapu* (or *ra'ui*) over crops to regulate the standard of produce for sale and to secure uniform prices from the traders'.³⁵ Needless to say, the ruling chiefs of Mangaia steadfastly ignored this attempt to strip their traditional powers.³⁶ Later, as the prosperity of the island came to rely on the mass export of oranges and pineapples, the *ra'ui* was used to schedule the harvesting of crops to coincide with the arrival of shipping.³⁷ In recent years, the practice of *ra'ui* has been subsumed under contemporary conservation and postcolonial paradigms, to reassert the legitimacy of traditional leaders as environmental managers (as suggested above and discussed elsewhere in this collection).

33 Laws of Mangaia, Law No. 2 1891 — Section 7 provides for *ra'ui*.

34 *Te Mana Ra'ui* (The power of *ra'ui*) — Public Statement by Resident Commissioner, 1908: 'Asserted that the ancient right of *ra'ui* no longer existed in respect of any land which has been investigated by the Native Land Court. (Note: later Resident Commissioners varied in their practice in relation to *ra'ui*, some sanctioning them in relation to lands investigated by the Court and others not allowing them ...)' (Crocombe, R.G., 1964. *Land Tenure in the Cook Islands*, Oxford University Press, p. 325).

35 Gilson, R.P., 1952. 'Introduction to the administration of the Cook Islands (Rarotonga)'. MSc, University of London, p. 16.

36 For example, the resident agent's annual report for Mangaia, dated 1908, notes that the spokesman for the Mangaian *Aronga Mana* (chiefs), Miringatangi, denounced the new regulations governing *ra'ui*, just as the *Aronga Mana* had consistently rejected New Zealand colonial administration, saying that 'all he recognized was the [British] Protectorate flag'. He was summonsed by the resident agent for contempt and refused to appear (Box 19/1 Box 1 Cook Islands Administration, Resident Commissioner's Office, Correspondence with Resident Agents in the Outer Islands).

37 D.S. Marshall (1952) noted: 'The *Aronga Mana* [chiefs] has declared a *ra'ui* (economic *tapu*) on oranges in an attempt to bring up the size of the shipments'; that is, to accumulate sufficient tonnage to justify a ship calling at the island (DSM Archives, Box 7.4, Field Notes of Second Expedition 1954/55; 175).

Conclusion

In Mangaia, *ra'ui* as a short- or long-term limitation on resource zones or resource use, has been critical to maintaining the hydrological systems of the lower valley pondfields as well as the conservation of resources against overuse or stressful environmental events. The social organisation of *ra'ui* on Mangaia reflects the high level of mutuality and reciprocity inherent in the organisation of irrigation water flows. While contexts and practices of *ra'ui* have changed over time, common to all has been the deployment of divine and/or political power to the guarantee of plenty.

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