“Sweet as” by Ray McVinnie.

Notes on the kumara or New Zealand sweet potato as a taonga or treasure.

Like many Aucklanders, the people of New Zealand’s largest city, I live on the slopes of one the region’s many extinct (we hope) volcanoes, known as “Maungawhau”. Anyone who walks over these grassy cones can tell you that European New Zealanders like myself were not the first people to live here. Today Maungawhau still shows clear signs of the terraced contours and ditches that made up the defences of a traditional Maori pa or hill fort, which the area’s first inhabitants either retired to in times of war or permanently inhabited. Also evident are numerous shallow pits of great significance because many were used to store kumara - sweet potato (*Ipomoea batatas*). This tuber was the Maoris’ most important food crop. Evidence of pre-European kumara gardening and storage is found over most of the North Island and the top half of the South Island of New Zealand. This paper will give a brief account of how the kumara came to be considered a taonga, or treasure, by both Maori and Pakeha (European) New Zealanders.

Several conflicting scientific theories attempt to explain how the kumara came from its home in South America to eastern then western Polynesia, but it was with the Maori that it later came south to New Zealand about 1000 years ago. Transporting this tropical plant by sea in open canoes and successfully cultivating it 1000 kilometres south of anywhere it had previously grown testify to the Maoris’ skills as cultivators. They brought other plants from their ancestral homeland of Hawaiiki, such as taro, gourd, paper mulberry tree, breadfruit, tropical cabbage tree and coconut. Most failed in New Zealand’s colder climate. Of those that survived, the kumara, taro and yam

were mostly restricted to the warmer North Island. In contrast to tropical Polynesia, agriculture was difficult even in subtropical regions. Kumara emerged as the pre-eminent food crop with the most southerly extent of cultivation. This was because it "… freely responded to care and attention in the most varied situations and yielded a large crop of an article at once palatable, wholesome, and nutritious. With the primitive Maori, in fact, the kumara stood in a class by itself, above and apart from everything else. As the mainstay of life it was regarded with the greatest respect and veneration. It was celebrated in song, and story, and proverb. Its cultivation and treatment called forth the utmost care and ingenuity, and were accompanied by the strictest and most elaborate religious observances".[1]

Early European accounts demonstrate admiration for Maori agriculture: "The whole *tout ensemble* was really admirable! The extreme regularity of their planting, the kumara "…. being generally set about two feet apart, in true quincunx [offset spacing] order, with no deviation from a straight line when viewed in any direction….; the total absence of weeds, the care in which all was kept".[2] The great skill of this stone-age people in modifying and developing their tropical horticultural practices ensured the kumara's success.

Earliest known pre-European kumara gardening sites date back to AD 1300. The two largest were in Marlborough at the top of the South Island and in Wairarapa at the bottom of the North Island, each 2000 hectares in area.[3] Evidence for pre-European horticulture consists of remains of specialised or unusual methods of cultivation. Many areas probably needed little modification, and have consequently disappeared.[4]

Maori compensated for profound changes in climate and soil quality, selecting kumara-growing sites in microclimates, often on north-facing coastal slopes.[5] Remains of stone structures are still visible - rows, alignments, mounds and heaps possibly used as windbreaks, retaining terraces and boundary markers, or merely to tidy away stones cleared from fields. There is also evidence of drainage ditches and channels. Excavation pits remain where gravel and sand were removed to alter the composition of garden soil. Some gardens show evidence of soils being improved by such additions.[6] Increasing gritty content was a method of producing free-draining soil that trapped and held the sun's heat, essential for frost-tender, heat-loving plants like the kumara. [7]

In tropical Polynesia kumara was grown as a perennial from cuttings; in colder New Zealand it was treated as annual with the planting of sprouted tubers.[8] Unique, effective methods for storing kumara food and seed over winter were also developed - semi-subterranean storage pits, still discernable on pa sites. Some pa undoubtedly existed to defend food stores, illustrating the value of kumara.[9]

Maori agriculture was also intriguing in ".. their national non-usage of all and every kind of manure; unless, indeed, their fresh annual layers of dry gravel… may be classed under this head. But their whole inner-man revolted at such a thing; and when the first missionaries first used such substances in their kitchen gardens it was brought against them as a charge of high opprobrium…. They also never watered their plants, not even in times of great drought, with their plantations close to a river, when doing so might have saved their crops".[10] The explanation for this may lie in the kumara

fields' ritual status while plants were growing, which meant they were 'tapu'. This word has strong connotations of sacredness. Only those ritually designated could enter fields, so manure by its very nature and water from elsewhere may have been regarded as defiling substances.

Kumara was significant both as a highly nutritious food and a spiritual and physical link to Hawaiiki.[11] Only on the east Polynesian island of Rapa Nui was its status as high as in New Zealand. Such esteem is evident in rituals associated with growing kumara and in the oral traditions describing canoe journeys back to Hawaiiki, undertaken specifically to bring the kumara to New Zealand.[12] Maori brought back many varieties differing in size, shape, colour and function, known for special qualities such as sweetness, flavour or yield.[13] In 1880 Colenso could list fourteen white-fleshed white-skinned varieties, three white-skinned reddish-fleshed varieties, seven red-skinned and fleshed varieties and eight dark purple-skinned and fleshed varieties, all of which came from the north of New Zealand. He lists another sixteen varieties from the eastern North Island and comments further " I do not consider the foregoing lists as being anything like exhaustive (indeed I have the names of a few others from the north which I purposely keep back); many of them I have both seen and eaten, 40 years ago and more."[14]

Several varieties were already known to be lost at the time.[15] Extinctions continued as Pakeha introduced the more tolerant potato. Eventually kumara cultivation was restricted to a few larger, sweeter varieties. One of the most popular was the "merikana" introduced by American whalers.[16] Today there are three varieties grown

commercially, “Owairaka Red”, cream-fleshed, purple-skinned and considered a traditional cultivar, the “Toka Toka Gold”, creamy-yellow-skinned and yellow-fleshed, and the “Beauregard”, orange-skinned and fleshed, introduced from the USA.[17] However, traditional white-skinned white-fleshed varieties were identified in Japan and brought back to New Zealand in 1988. They are still being researched to see how they survive transplanting, determine pest resistance and gauge reaction to climatic differences.

Kumara cultivation was an elaborate and necessarily highly cooperative undertaking. Choice of site for such an important crop was crucial, especially for smaller, weaker communities. With so much effort required, any incursion by hostile tribes could mean disaster for cultivators. Consequently, plantations were often scattered and located out of sight if difficult to defend.[18] Segregation of kumara plots was also a function of the rituals observed around its planting and harvesting.[19]

In October or early November the pipiwharauroa (shining cuckoo) returned from islands on the Pacific’s western edge. Its characteristic call –“koia koia”- translated as “dig, dig” or “dig away”, signalled ground preparation time for planting.[20] The stars also marked stages of kumara cultivation. In addition, a “mackerel sky” around October resembling a cultivated kumara field indicated that the gods were preparing a celestial kumara plot and humans should be doing the same on earth.[21] After burning vegetation to clear the land, roots were removed from the soil and the digging of drainage channels were dug

done where necessary. Conveniently this was also the time when the edible fern root was at its best.

" In those plantations all worked alike: the chief, the lady and the slave; and all while so engaged, were under a rigid law of minute ceremonial restrictions, or taboo, which were invariably observed….It was a pretty sight to see a chief and his followers at work in preparing the ground for the planting of the kumara. They worked together, naked, (save for a small mat or fragment of one about their loins), in a regular line or band, each armed with a long handled spade (koo) [ko], and like ourselves in performing spade labour, often enlivening their labour with a suitable chaunt or song, in the chorus of which they all joined in.".[22] The ko was an elaborately carved long wooden stick with a sharpened flattened end like a narrow spade, with a footrest lashed to it. Its end was sometimes carved in the shape of a head and decorated with feathers.[23] The idyllic description above tends to belie the seriousness of the process. Preparing the ground required the whole community, the ko-ing done by men with the women and children following to break up large lumps of earth with smaller wooden tools.

The tohunga or priestly adept attended all stages of cultivation to deliver prayers and chants necessary for a good crop. Digging occurred in choreographed lines and chants ceremonially invoked the gods to bless the labour.[24] Plantations could be hundreds or even thousands of hectares in area, so annually the total effort expended was clearly staggering, and the social cohesion needed for a successful harvest was reflected in the crop's health and abundance. A divided community lacked the resources needed

to achieve these ideals, no matter how favourable the conditions.[25] Customs varied from tribe to tribe, but from planting to storage kumara plantations themselves and those working on them were considered tapu (consecrated or sacred). Breaching tapu or even approaching plots too closely could easily invoke the death penalty. Even those admitted must take care, only entering from the north; any breaks in southerly, least favourable plantation boundaries could expose the crop to cold winds. People entering from east or west might cast shadows which could ruin the crop.[26] Such social controls protected this important crop from outsiders, ensuring it was raised according to strict methods crucial for its survival. Planting involved the chiefly or rangatira class of both sexes, but the presence of women in the kumara fields varied depending on local custom. There were often stone tutelary images present to which offerings were made.[27] Exhumed bones of ancestors and preserved heads of slain enemies were considered powerful talismans, often used at planting or when crops were not thriving.[28]

In pre-European times constant weeding and constructing fencing apart from wind-breaks were largely unnecessary, as many weeds and animal pests only arrived with Pakeha.[29] The most significant threat was the hotete, the 5cm long caterpillar of a large moth that could appear in great numbers and strip kumara plants of their leaves. These were picked off by hand. Colenso recorded an enterprising chief borrowing his turkeys to clear caterpillars from his plot. Whether or not turkeys breached tapu was an interesting theological point debated at the time.[30]

March or April was harvest time. Kumara were lifted for storage, requiring very close attention as dry storage at the right temperature avoided food and seed kumara rotting over winter. Storage solutions included roofed pits lined with crumbled dry wood and gravel, and carefully designed buildings above ground which were sometimes richly carved, stained red and decorated with iridescent paua (New Zealand abalone) shells.[31] Both structures were strictly tapu.

Kumara cultivation required effort by much of the community almost year-round, but the tuber was only available as food for part of the year. Growing the crop had social significance that certainly equalled and probably exceeded its value as an important food source. Supervision of the yearly round of cultivation by leaders strengthened their status within the tribe, and the reputations of individual chiefs and whole tribes were greatly enhanced by the ability to provide the prized kumara for hospitality, trade and ceremonial feasts. It was this aspect of the kumara that ensured continued cultivation of a temperamental plant in hostile conditions.[32]

The kumara's cultural significance is illustrated by its central place at great feasts, or hakari held at harvest and on *rites de passages* such as births, deaths, betrothals, marriages, the exhumation of bones or the building of a chief's meeting house. To qualify as a luxury item worthy of being used in these ceremonial food distributions or potlatches, this hard-earned commodity was amassed in huge quantities.[33]

The amount of food at these feasts was gargantuan, as Colenso remarks, “At a small feast (comparatively) of this kind, …..held at Waimate (Bay of Islands) in 1835, and given to the people of Hokianga, 2000 one bushel baskets of kumara were used; and at a similar feast given by the noted warrior Te Waharoa…. at Matamata, in 1837, to the people of Tauranga, the following inventory of the food was taken down by a credible eye-witness:- ‘Upwards of 20,000 dried eels, several tons of sea fish, principally young sharks….. a large quantity of hogs, 19 big calabashes of shark oil, 6 albatrosses and baskets of potatoes (sweet and common) without number”.[34] The food was displayed on giant cone-shaped, tiered, wooden structures called potehe which could be up to 30 metres high with a 10 metre circular base “….when filled, they present one solid mass of food; the whole is decorated with flags, and, when in an elevated situation, presents a very imposing appearance. The portion belonging to each tribe is particularly pointed out: and when the ceremony of presenting is over, the people carry away their portions….”.[35]

For Maori everything has a whakapapa, including the kumara. “When applied to humans, this word refers to genealogies or family trees, with the implications of shared genetic relationships and descent from a common ancestor among all persons named in that whakapapa. But when applied to non-human things (e.g. plants, animals, rocks and stars), it is clear that other factors such as habitat and morphology …. provide an important rationale for each grouping.”[36] The function of whakapapa and its accompanying allegorical narrative is concerned with advice about correct behaviour in dangerous or unpredictable situations, giving order to a complicated environment, assisting understanding of ethical questions and reinforcing the value of important cultural mores.[37] All Maori have a whakapapa, a thousand-year-old

genealogy to be recited tracing all pedigrees back to one of the renowned captains of the ancestral canoe fleet from Hawaiiki. These men were the descendents of humans engendered by the gods, themselves the children of the two creation story protagonists, Ranginui, the sky father, and Papatuanuku, the earth mother.[38] Though all whakapapa identify a common ancestor, human whakapapa are true genealogies because they concern one species with shared inherited genetic characteristics.[39] Another traditional Maori concept inextricably linked with whakapapa is "mauri", translatable as a life force or that which joins the physical and spiritual aspects of a person. It has been defined as the spiritual side of whakapapa.[40]

According to the kumara's whakapapa one of Ranginui and Papatuanuku's "god children" is Rongo, considered in all the tribal variations of the whakapapa as the god of peace and cultivated foods, including kumara. The children of Rongo and his wife Pani represent the different kumara varieties possessed by the Maoris. Related to Rongo are Whanui, (the star Vega, whose appearance also meant it was time to harvest kumara), several unrelated plants with similar vine-like foliage, the unwelcome kiore or native rat which ate the kumara, and the caterpillars which plagued the kumara plants. This "story" and the part played by each character in it is the whakapapa of the kumara. It is an allegorical body of knowledge containing every important aspect of kumara cultivation. Unlike a human whakapapa, this one contains information about insects, animals, celestial bodies, other plants and the earth itself.[41]

Clearly, human and non-human whakapapa are distinct entities, a vital consideration in debate about genetic modification of organisms. This particular way of ordering

the world, granting everything its own genealogy, an accompanying narrative and a life force connected with sacredness, authority and integrity, is inherent in Maori life and culture. Its legitimacy is beyond question.

Inevitably reconciling such a view of life with the strand of science that promotes the transferring of genes from one species to another through human intervention presents difficulties. Self-evidently, Maori would regard this as a transgression and a corruption of whakapapa.[42] In addition there are practical proprietorial questions raised by the intervention of modern scientific endeavour in such areas of cultural sensitivity. Like other taonga, kumara is guaranteed political protection by the Treaty of Waitangi, the founding agreement that established the relationship between Maori and the British Crown.[43] Awareness of traditional Maoris beliefs is increasing among Pakeha, and the political implications of genetic modification on taonga are of concern to all New Zealanders. Maori debate on genetic modification of organisms always occurs in the context of Maori traditional beliefs. Do such issues as the fact that the kumara's whakapapa includes different species mean it is acceptable to transfer genes between species, or does each genome possess a mauri that should not be tampered with?[44] Any resolution depends on understanding concepts such as whakapapa and an appreciation of Maori as "…..a people who walk backwards into the future, a reference to the importance placed on seeking guidance for future actions from the wisdom of the past deeds of ancestors and mythical heroes. ".[45]

Maori cooked food in hangi or earth ovens as they had no ceramic tradition. Some tribes living near thermal springs boiled or steamed food in flax baskets suspended

over or in hot pools. The hangi was made by heating stones to a very high temperature in a shallow trench with fire, raking out the fire, adding a little water to blow away the ashes, laying the food in flax baskets on top, covering it with fern fronds, flax mats and finally earth, and waiting for about an hour for the food to cook.[46] This method slow-cooked the kumara, causing it to sweeten due to the effect of heat on an enzyme that converts starch to maltose. Some moist varieties become so sweet they taste as though they have been dipped in syrup. The process of converting starch to maltose starts at 57°C and finishes at 75°C at which point the enzyme loses it effectiveness. Fast cooking at high temperatures will not achieve this effect.[47] According to the New Zealand Fresh Vegetable Industry website, kumara also gets sweeter the longer it is stored.

Maori had another highly prized form of kumara called kao kumara. Small varieties were chosen, washed, scraped with fern and dried in the sun for two or three days then put into a large hangi for 24 hours. They were removed, dried again and then stored in baskets in elevated storehouses or patakas. The kao kumara was dry and black with a very sweet aromatic flavour and was effectively preserved, lasting up to 2 years if kept dry. It was eaten crumbled and mixed with water and used as dry provisions on journeys. Kao was highly prized and large amounts, (in one account 30 or 40 basketfuls,) were prepared.[48]

With the arrival of Pakeha in the 19th century, Maori began to grow more easily raised crops like potatoes and maize. The reliance on kumara for food and as a ceremonial crop began to wane. By the time Pakeha arrived in large numbers most European

vegetables were already being grown. There are early accounts of Pakeha eating indigenous New Zealand food plants but these were regarded as curiosities and disregarded as more European foods were imported.[49] The exception was kumara, the only indigenous food adopted by pakeha and still eaten by this group today. The explanation, apart from kumara's appealing sweet taste, lies in contemporary European culture and social disparities. Kumara fitted well with the type of food the bulk of settlers, poor English agricultural labourers, aspired to eat. It was a food that would not have been out of place on the tables of the rich in Britain.

The first opportunity for the English labourer to try such food would have been the "harvest home", a tradition in rural England at which landowners provided a large dinner at the end of the harvest with plenty of meat, a food usually absent from most labourers' diets. Another opportunity would arise at weekly provincial markets where local farmers ate a "farmers ordinary" at the local inn consisting of "…a thick soup, a pie or savoury pudding, roast meat or poultry, and a sweet pie or pudding with cheese to follow. Unless they had a particularly generous employer, the labourers did not take part… But they were certainly well aware of what they were deprived of…".[50]

The 'farmer's ordinary' of England was almost faithfully transformed into the national meal of New Zealand from early settlement days until the 1970's - the roast dinner. It consisted of roasted meat, roasted root vegetables and tubers and a boiled green vegetable, flavoured only with salt and pepper and perhaps mint, followed by a pudding.

Another situation in which the less privileged became conscious of dietary differences was on the sailing ships bringing them New Zealand. While on board they would have seen what more prosperous cabin class passengers were served. With little to do but eat, meals served to cabin class emigrants were still rather plain but abundant. Accounts recall enormous meals served in contrast to the tightly regulated monotonous fare doled out to the labourers and their families in steerage.[51]

There are early accounts of missionary wives preparing crystalized kumara and kumara tart in New Zealand but these did not become part of the repertoire of the New Zealand domestic cook.[52] Slow roasted kumara, along with roasted pumpkin, parsnips, onions and potatoes all from the settlers own garden, and meat from his farm, meshed perfectly with the colonial settler's idea of good, if not luxurious food, and as an ideal has stayed there ever since. It remains an iconic meal with contemporary fast food outlets specialising in roast dinners that typically include kumara.[53]

I have never heard any New Zealander refer to kumara other than by its Maori name. This suggests that we regard it as integral to our culture. Our national cuisine is no longer represented by a static range of dishes recognisable as the standard fare of a culture 12,000 miles distant. Over the last 30 years New Zealand cuisine has been transformed from the abundant but plain fare of the British agricultural labourer relocated to a South Pacific farm, to a diet that reflects an ever-expanding choice of high quality foods. Most is produced locally, but often prepared with the broadest possible range of international culinary influences. If a national cuisine is defined as

an instantly recognisable set of dishes, then New Zealand's is still emerging. With so much recent change in our diet, kumara is a true and enduring product of the terroir. It can surely be classed as a national treasure, deserving something like the regard porcini in Italy or Puy lentils in France are accorded.

The recipe I have included below reflects these changes. It leans heavily on a food that thanks to the skills of its Maori guardians has survived the problems of geographical relocation and remains central to the diet and culture of New Zealanders. The New Zealand Fresh Vegetable Industry website notes that in 2006 New Zealand produced a remarkable 20,000 tons of kumara, marketed fresh and processed in myriad forms. Research into all aspects of commercial kumara production, processing and marketing continues.[54] Naturally kumara is always part of the New Zealand culinary repertoire for me as a chef helping to promote New Zealand foods abroad. It is also seen on smart restaurant menus throughout New Zealand. Despite a precarious beginning in New Zealand this vegetable has endured and continues to be treasured by generations of both Maori and Pakeha. It seems its future as a taonga or treasure is "sweet as", which in the local vernacular means it will be just fine!

Appendix

Slow Roasted Kumara Salad.

1.2 kg purple skinned kumara, well scrubbed

4 tablespoons extra virgin olive oil

200g rindless bacon, diced

50 mls cider vinegar

salt and freshly ground black pepper

3 spring onions, thinly sliced

1/2 cup roasted, unsalted peanuts

¼ cup coriander leaves

Preheat the oven to 200°C

Place the kumara into a large dry roasting dish.

Place in the oven and roast for 1 hour until the kumara is completely soft inside.

Remove kumara from the oven, slice each into quarters.

Place in a large salad bowl.

Heat the oil in a frying pan and fry the bacon until crisp.

Remove from the heat and add the vinegar. Scrape the pan with a wooden spoon and pour over the kumara.

Season the kumara and bacon with a little salt and plenty of pepper.

Sprinkle the spring onions, peanuts and coriander over the top and serve. Serves 4-6.

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