

TRANSACTIONS
OF THE
NEW ZEALAND INSTITUTE,
1880.

I.—MISCELLANEOUS.

ART. I.—*On the Vegetable Food of the Ancient New Zealanders
before Cook's Visit.*

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Two gross errors have largely and repeatedly been industriously published concerning the ancient Maoris, and these, too, from our first knowledge of them:—(1) their utter ignorance of almost every art pertaining to society; and (2) their great want of food. Hence, it has been also said, almost as a necessary deduction therefrom, that the poor creatures were necessarily in a savage and starving state; from which their subsequent intercourse with Europeans had gradually served to raise them. For my own part, I more than doubt all this elevated assertion of their civilized Northern visitors; indeed, I am quite prepared wholly to deny it, as far as relates to the Maoris of the North Island. In some of my former papers concerning the Maoris, read before you, I have endeavoured to show, plainly and truly, a little of what they really were as to very many of the useful and the ornamental arts which once flourished among them (and more I yet hope to bring forward as bearing on this head); this serves to meet the first-mentioned of those two errors: while, to-night, I purpose in part taking up the second, and, in doing so, shall confine myself to a consideration of their vegetable food in the olden time (a subject but very imperfectly known); and also show that they, the natives of this North Island, had attained to a very high system of agriculture, which was purely national and loved, and passionately, judiciously, and universally followed everywhere among them.

To me—after so long a residence as mine, of nearly half a century—the origin of this belief of their having been greatly in want of food is clear and

plain. 1. Cook first visited them at the very period of their planting season; or, rather, when he anchored in Tolaga Bay, it was just over, as he himself states; so that of their cultivated vegetable roots they could not possibly spare any—that particular time being with them always one of scarcity of crop-vegetable food, from the fact of their one principal cultivated root (the produce of seed from the previous autumnal season) not keeping sound beyond the regular period of setting it in the earth. Moreover, two things must here be steadily borne in mind:—(1) their cultivations were always strictly tabooed, and therefore could not be intruded on; and (2) every chief had several plantations, and always far apart from each other, for prudent political reasons. Notwithstanding this, Cook says that he saw; at Tolaga Bay alone, “from 150 to 200 acres under crop,” and that, too, in a place with a small population; for, he adds, “we never saw there 100 people.”* 2. At all of Cook’s visits (with the one exception of his touching, on his first voyage, at Tolaga Bay, and his subsequent call in at the Bay of Islands) he anchored and staid in places where the Maoris did not have any cultivations; indeed, it is doubtful whether the Maoris of the Southern Island ever had any. Hence, when they visited his ships in their canoes, and often from a distance, they had little or nothing in the shape of vegetable food with them save fern-root, and were therefore supposed to be in great need of victuals, and not unfrequently experienced the generosity of their visitors, which (as we ourselves have subsequently too often found) encouraged them to adopt and persist in a habit of systematic begging. 3. And this, too, has been often the case with them in their subsequent intercourse with shipping and with visitors, and also in the early years of the Colony,—the Maoris in visiting or coming among the Whites have been without food, just because they were away from their homes and cultivations; much, indeed, as it is with ourselves in travelling, etc., in a new or unsettled country. 4. There still, however, remains the fact that modern writers on the Maoris (as Manning and Taylor †) who have resided a long time in New Zealand, state the same; all I can say is, that they are altogether wrong in their conclusions; they, not having witnessed it themselves in the past, suppose

* Cook’s Voyages, 1st Voyage, Vol. II., p. 313.

† Here is a specimen:—“Formerly they were much pinched for food in winter; that period went by the name of the *grumbling months*, they had no other name for them, being a blank in their calendar, as they could do nothing but sit in their smoky huts with eyes always filled with tears.” [What horrid stuff!] Again:—“In times of scarcity, the only food they had to depend upon was fern-root and shell-fish. The traveller is often surprised, as he journeys along the coast, by the large heaps of shells which he sees on almost every mound he passes; these are records of by-gone scarcity, &c.”—*Taylor’s New Zealand*, 2nd Ed., p. 341

it to have been so, from what little they have seen around them during the modern transition period of the Maoris, and from their own English ideas. The old, intelligent, thoughtful, industrious Maoris of the North Island have always denied it. What they said, was (1) they had not such good natural gifts—fruits, roots, vegetables, cereals, etc.—as the Europeans; and (2) they had vastly more labour in obtaining and preparing for food what they really had around them, particularly in the matter of vegetables.

The ancient New Zealander had great plenty of good and wholesome food, both animal and vegetable, but all such with them was only to be obtained by *labour*, in one shape or the other, almost unremitting. To them Nature has not been over-indulgent as she had been to their relatives in the more Eastern and tropical Isles of the South Pacific—where the bread-fruit and the banana, the cocoanut and the plantain grew spontaneously, and yielded, without toil, their delightful fruits to man! But all such constant labour and industry was doubtless in their favour, helping to “the survival of the fittest,” and causing the development of a finer race, both physically and intellectually. The old Maoris were great fishers and fowlers—and hunters too, in their diligent snaring of their prized, fat, frugivorous forest rat; but, for the present, I shall omit all reference to their animal food, confining myself to their being industrious and successful agriculturalists and cultivators of the soil.

And this one chief and noble industry duly considered shows how far, how very far, they were in advance of the mere hunter, or fisher; the true savage man of both ancient and modern times,—whether we look for him (his remains) in Europe, among pre-historic cave relics of days long gone by, or among the modern inhabitants of Patagonia and Magellan Straits, or those nearer neighbours of South Australia and Tasmania.

Indeed, their being great cultivators, and that from very ancient times, places them high in the true scale of civilization and real advance. Far even beyond that state to which our own forefathers the Britons, and also the Germans, had advanced when Cæsar first led his victorious Roman legions among them.* I know of no ancient people who, without the knowledge or use of metals, had advanced so far in this direction. In this respect they serve to remind me of the Peruvians under their Incas, though

To this I reply:—1. They were *not* pinched for food in winter. 2. The winter months were *not* so named. 3. Their “*only* food in times of scarcity” was *not* merely fern-root and shell-fish. 4. Those mounds are *not* “records of by-gone scarcity”—rather of plenty! The shell-fish were collected in bushels, or cart-loads, in the summer, in their proper season, and cooked, and the flesh *dried* and often strung on long threads of New Zealand flax, and carried off in baskets to their homes for stores.

* Tacitus, *Germania*, c. 26; and Cæsar, *Bell. Gall.*, VI. 21, etc.

that people possessed both metals and beasts of burden. All Eastern nations, from their earliest annals, were ever famed for their attachment to the cultivation of the soil. The Egyptians and the Phœnicians, the little nation of the Jews, the Persians,* and the Chinese,—and afterwards (and from them) the Greeks and the Romans, not only supported and patronized it, and wrote books in praise of it,† but actually followed it themselves, each noble labouring on his respective farm, much as the Maori chiefs themselves did.

And this national custom long-continued (as I have already mentioned) was, in my opinion, the reason why the New Zealander also excelled in so many of the arts practised by him—agriculture being, in its primitive and rudest form, the first step in civilization; and this industry once practised and liked is sure to improve, and to lead on gradually to its own rich development. Xenophon has truly remarked that “Agriculture is the nursing-mother of the Arts; for where Agriculture succeeds prosperously there the Arts thrive; but where the earth necessarily lies uncultivated, there the other Arts are destroyed.” (*Œconomics*.) And a learned modern writer (Dr. Kalisch) has judiciously observed, in remarking on the early agriculture of the world,—“It is a deep trait in the Biblical account to ascribe the origin of cities to none but the agriculturist. Unlike the *nomad*, who changes his temporary tents whenever the state of the pasture requires it, the husbandman is bound to the glebe which he cultivates; the soil to which he devotes his strength and his anxieties becomes dear to him; and that part of the earth to which he owes his sustenance assumes a character of holiness in his eyes,‡—he fixes there his permanent abode, and considers its loss a curse of God. Thus the agriculturist was compelled to build houses and to form a town. Many inventions of mechanical skill are inseparable from the building of towns; ingenuity was aroused and exercised; and whilst engaged in satisfying the moral desire of sociability, man

* It is related of the ancient Persians, “that their kings laid aside their grandeur once a month to eat with husbandmen;” this is a striking instance of the high estimation in which they held agriculture; for at that time the fine arts were practised among that people to great perfection. The precepts of the religion taught by their ancient magi, or priests, included the practice of agriculture. The *saint* among them was obliged to work out his salvation by pursuing all the labours of agriculture; and it was a maxim of the Zendavesta,—that “he who cultivates the ground with care and diligence, acquires a greater degree of religious merit than he could have gained by the repetition of 10,000 prayers.” I would that such a doctrine were believed in now-a-days!

† Among the Greeks, Hesiod in “Works and Days,” and Xenophon in “Œconomics,” and among the Romans, Cato, and Varro, and Virgil in his “Georgics.”

‡ See the Maori proverb, No. 22, p. 118, “Trans. N.Z. Inst.,” Vol. XII.

brought many of his intellectual powers into efficient operation." (*Com. on Gen., IV.*) No doubt such, or similar, was the case here in New Zealand of old—in ages long past! Hence, too, arose their towns possessing really good houses, strong and well fortified places of strength, etc.,—such as their neighbours the Australians and Tasmanians never knew! such as this generation of Maoris has scarcely ever seen or dreamt of! Hence, too, the very strong attachment shown by not a few of the older Maoris in our days, to the homes and to the cultivations of their forefathers; a fine and estimable feeling, which, in not a few instances, has been rudely mocked and opposed!

In a former paper on the ancient Maoris,* I brought before you several of their fit and pertinent proverbs relating to Industry and to Agriculture (which I merely refer to here in passing); and to the same subjects, in addition thereto, some of their traditional incidents, historical and legendary, in their oldest legends undoubtedly belong;—*e.g.*, that of their favourite and beneficent hero Maui catching and binding the sun, to prevent his travelling so fast, "so that man might have longer day-light to work in;" and that of another hero named Tamatea, who "first set fire to and burnt up the rank vegetation of tangled weeds and jungle, that man might have a clear space of ground wherein to grow food;" two beautiful and worthy ideas, which could only have proceeded from an agricultural and working race. Hence, too, very possibly, under similar ideas and feelings, may we look for the peculiar derivation of their verb and noun for laziness, and to be lazy,—especially with respect to active work, viz., *mangere* (*ma* and *ngere*),—*ma*, the active preposition "for," and *ngere*, their name for any hideous or disagreeable cancer or corroding ulcer,—*i.e.*, the lazy fellow is food for the *ngere*! A term ever greatly disliked among them.

I.—OF PLANTS FORMERLY CULTIVATED FOR FOOD.

1. *Of their Plantations.*

Before however I speak of the plants themselves, their plantations should be considered. These, as it has already been observed, were, for wise political reasons, scattered, and often some were situated in half-concealed out-of-the-way places; this was done on account of the danger the Maoris were continually exposed to, namely the sudden visit of a *taua*—war party (often from their own friends and relatives), to demand satisfaction for some offence,—generally an insult, or a breach of *tapu* = *taboo* restrictions; at which times the crops, being almost the only available personal property, were sure to suffer, often being wantonly rooted up,

* Contributions towards a better knowledge of the Maori Race, "Trans. N.Z. Inst.," Vol. XII., p. 115, etc.

etc.* Notwithstanding, they had large plantations also, which might be called tribal, or communal; and sometimes these were a few acres in extent.

For the *kumara*—*Ipomœa chrysorrhiza*—a dry and light sandy, or rather gravelly soil, was selected; and if it were not so naturally, it would be sure to become such, as every year they laboriously carried on to it many a weary back-load of fine gravel, obtained from pits or river beds in the neighbourhood, and borne away in large and peculiarly close-woven baskets specially prepared for that purpose only. This labour, however, was the principal heavy one attending their cultivations; as, before they knew the Europeans and for some time after, they never strongly fenced their plantations, not having any need to do so; the highly laborious and additional work of making wooden fences around their cultivations in after years arose from the introduction of the pig. They did, however, put up fences and screens of reeds, etc.; this was done to break the force of the winds which blow strongly in the early summer, the young *kumara* plant being tender, and the *taro* possessing large semi-pendulous leaves. Cook also noticed this; he says, "Each district" (*qu.* plantation, or division of a plantation) "was fenced in, generally with reeds, which were placed so close together that there was scarcely room for a mouse to creep between." (*loc. cit.*)

For the *taro*—*Colocasia antiquorum*, or *Caladium esculenta*—a very different soil and damp situation was required; light and deep yet loamy, or alluvial, often on the banks of streams or lagoons, and sometimes at the foot of high cliffs near the sea.

For their valuable gourd the *hue*—*Cucurbita* sp.—a damp rich soil, with warmth to bring it to perfection, was required; this was often sown in, and

* The last two occasions (known to me) of this being done, may be briefly noticed in a note—seeing that well-known Maori chiefs of Hawke's Bay were concerned. (1.) Te Hapuku, in 1847, rooted up and destroyed the young growing crop of *kumara* belonging to Takamoana, (afterwards baptized and named Karaitiana—Christian, and, in years long after, one of the Maori Members in the House of Representatives), owing to a severe quarrel between them, or rather between Te Hapuku and Takamoana's tribe; to show his pre-eminent right to the land where they grew, not far from their respective *pas* on the east bank of the river Ngaruroro. (2.) Te Hapuku again, in 1850, tore up and destroyed the *kumara* crop, and killed the tame pigs, of the venerable old Melchizedeck Te Motu, at Te Haukee (near Te Aute), where the old man then lived almost alone. The offence in this case was, that Te Motu was Te Hapuku's old family and tribal priest, (and there was now not another left!) and he had dared to become a Christian and to be baptized, and subsequently refused to perform some of his old ceremonies when required to do so by Te Hapuku, saying, that "all such now were of no use whatever!" "I would not have done so," said Te Hapuku to me, afterwards, when expostulating with him, "had he but listened to me for a short time longer, and performed the ceremony of *horohoro* over my children before that he left me; now there is no one left to do it!"

near to their *taro* plantations, and sometimes on the outsides of woods and thickets.

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. Fortunately for them, the modern unnecessary and expensive indulgence, or evil, of tobacco was wholly unknown! And there was nothing of a similar time-consuming nature known to them to have taken its place. 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 a small mat or fragment of one about their loins), in a regular line or band, each armed with a long-handled narrow wooden spade (*hoo*), and like ourselves in performing spade labour, worked backwards, keeping rank and time in all their movements, often enlivening their labour with a suitable chaunt or song, in the chorus of which all joined.

If it were a pleasing sight to notice the regularity of their working, it was a still more charming one to inspect their plantations of growing crops: 1. The *kumara* plants, springing each separately from its own little hemispherical hillock—just the size and shape of a small neat mole-hill. 2. The *taro* plants (each one beautiful in itself) rising from the plain carefully levelled surface, which was sometimes even strewed with white sand brought from a distance, and patted smooth with their hand; * and 3. the *hue*, in its convex bowl-shaped pits, or “dishes,” as Cook calls them. The whole *tout ensemble* was really admirable! The extreme regularity of their planting, the *kumara* and the *taro* being generally set about two feet apart, in true quincunx order, with no deviation from a straight line when viewed in any direction, (to effect this they carefully use a line or cord for every row of *kumara* in making up the little hillocks into which the seed-tuber was afterwards warily set with its sprouting end towards the north); the total absence of weeds, the care in which all was kept—even to the sticking into the ground, when required, leafy and yielding branches of *manuka*—*Leptospermum scoparium*, (owing to the high westerly winds, or to the situation being rather exposed), and last, though in their eyes by no means the least,

* “Leaving Te Kawakawa and travelling south by the seaside, I passed by several of the *taro* plantations of those natives. These plantations were large, in nice condition, and looked very neat, the plants being planted in true quincunx order, and the ground strewed with fine white sand, with which the large pendulous and dark-green shield-shaped leaves of the plants beautifully contrasted; some of the leaves measuring more than two feet in length—the blade only. Small screens formed of the young branches of *Leptospermum scoparium*, to shelter the young plants from the violence of the winds, intersected the grounds in every direction.”—*Excursion in N.Z., in 1841*:—“*Tasmanian Journal of Science*,” Vol. II., p. 217.

were spells, and charms, and invocations, recited by their priests—*tohungas*—to ensure a good crop ; for this purpose alone a priest of renown was often fetched from a distance and at a high price. Instances, too, are known, in their ancient history, of some of such *tohungas* having been killed by the chiefs, through some alleged, or real, oversight or fault, or omission, in the performance of their ceremonial taboo. All, however, clearly showed much forethought, and that no amount of pains, both natural and supernatural, had been spared, and that their agricultural work was truly with them a labour of love !

Nor did their labour end here : there was still the *kumara* barn, or stove, to be built, and this was almost universally the well made, handsome house of the village ; the one sure to catch the eye of the European visitor, from its size, shape, neatness, and profusion of ornamental carved works inlaid with pearl shell (*Haliotis*) and stained red. Its walls were made of yellow reeds of the *Arundo*, placed neatly together, with a squared plinth of the dark stems of the fern tree set at the base to keep out the rats and wet, while its roof was well secured with loosely twisted ropes, composed of the airy, elastic, climbing stems of the durable *mangemange* fern (*Lygodium articulatum*), and a drain cut round it, to throw off the rain and other waters. Sometimes these stores were also elevated on squared and dubbed and ornamented posts ; and sometimes even built up in the forks of the main branches of a dead tree. All those storehouses were rigidly tabooed, as were also those few persons who were allowed to visit them for any purpose ; all visits being formal and necessary. The labour bestowed in those early times, before the use of iron, was immense, and they were mostly renewed as to the reed work every year.

I have already alluded to the large amount of extra heavy labour imposed upon the Maori cultivators of the soil through the introduction of the pig ; much also arose from the coming among them of the unwelcome European rat ! their own little indigenous animal not doing them any harm. I remember when at the Rotorua Lakes, nearly forty-five years' ago, visiting a very large *kumara* plantation (that neighbourhood being a principal and noted one of all New Zealand for its fine and prolific *kumara* crops, said to be owing to the extra warmth of its heated volcanic soil). In the midst of the cultivation was a little hut (reminding one forcibly of "a lodge in a garden of cucumbers"), and this by night was inhabited by two old men, watchers, who had a great number of flax lines extending all over the plantation in all directions, to which lines shells of the fresh-water mussel (*Unio* (?) *menziesii*) were thickly strung in bunches ; these lines were all tied firmly together into one handle of knotted rope, which those two old men had to pull vigorously, every few minutes throughout the night, to cause a jingling noise,

and so frighten and scare away the thievish rats from gnawing and injuring the growing kumara roots.

One striking peculiarity, however, should not be omitted—in which, too, I think, they differed from all agricultural races—their national non-usage of all and every kind of manure ; unless, indeed, their fresh annual layers of dry gravel in their kumara plantations may be classed under this head. But their whole inner-man revolted at such a thing ; and when the early missionaries first used such substances in their kitchen-gardens it was brought against them as a charge of high opprobrium.* And even in their own potato planting in after years they would not use anything of the kind, although they saw in the gardens of the missionaries the beneficial effects arising from the use of manure ; and, as the potato loves a virgin, or a strongly manured, soil, the Maoris chose rather to prepare fresh ground every year, generally by felling and burning on the outskirts of forests, with all the extra labour of fencing against the pigs, rather than to use the abominated manure. They also never watered their plants, not even in times of great drought, with their plantations close to a river, when by doing so they might have saved their crops.

2. *Of their Cultivated Food Plants.*

1. The first in every respect and degree was the *kumara*. This plant is an annual of tender growth, and was one of their vegetable main-stays. Their use of this plant, as I take it, is from pre-historical times ; as their many legends about it evidently show, which I purpose hereafter to lay before you in a future paper. In suitable seasons and soils its yield was very plentiful. It had, however, one potent enemy of the insect tribe, in the form of a large larva of one of our largest moths.† This larva was named *anuhe*, *awhato*, *hawato*, and *hotete*, and as it rapidly devoured the leaves of the young kumara, it was quite abhorred by the Maoris, who

* A striking incident illustrating the above, which once happened to me, may not be out of place here. I was travelling, as usual, in the interior, where I had often been before, and having brought up at a small village for the night, in the morning early I went and gathered some remarkably fine succulent tops of the wild *Brassica* ("Maori cabbage" of the settlers) which was running up to flower, for my breakfast ; a thing I almost daily or oftener did ; these I brought to my tent, and gave to my Maori cook, who had travelled with me many years. At breakfast, however, I missed them, having, instead, only some very inferior leaves. On my enquiring after my fine vegetables, I was told that my gathering them had been seen by some of the people of the village, who ran and told him of it, and that he had therefore thrown them away, for they had grown on the river's bank not far from the village privy. I should also add that the young man himself was above all such notions, having often worked in my garden at home, and there used manure.

† See Trans. N. Z. Inst., Vol. XI., p. 303, and Vol. XII., p. 121.

always believed that they were rained down upon their plants. Sometimes their numbers were almost incredible, as some of us have also seen in the abundance of the more common caterpillar pests in certain seasons. I myself have often marvelled at them in their number, and where they could possibly have come from; baskets full being carefully gathered from the plants, and carried off and burnt. This job of gathering them, though necessary, was always greatly disliked.* Long before the roots, or tubes, of the kumara were of full size, they were regularly laid under contribution; each plant was visited by old women, with their little sharp-pointed spades or dibbles, who were quite up to their work, and a few of the largest young tubers selected and taken away, and the earth around the plant loosened, when it was again "hilled" up;—an operation not unlike that of our potato hoeing, only much more carefully performed, as at the same time they took away every withered leaf and upper outlying rootlet, and weak sprout. Those young tubers were carefully scraped, and half-dried on clean mattings in the sun—being turned every day and carefully covered from the dew, and when dry either eaten or put away in baskets as a kind of sweetish confection or preserved tuber,† greatly esteemed by them, either raw, or soaked and mashed up with a little warm water, and called *kao*.

At the general digging of the crop in the late autumn (called by the Maoris the *hauhakenga*), but always before the first frost, great care was taken in the taking up of the roots, when they were carefully sorted according to size and variety (if of two or more varieties in the one plantation), all bruised, broken, or slightly injured ones being put on one side for early use; then they were gathered up into large flax baskets, always newly made, and in due time stowed away in the proper store; taking great care of doing so only on a perfectly dry sun-shiny day, as they had to guard against mouldiness of every kind, which was destructive and dreaded.

It is impossible to estimate, even approximately, the immense quantity of this root which was annually raised by the old Maoris; especially before

* A few years after I came to Hawke's Bay to reside—I think in 1846—the tribe of the late chief Karaitiana, who lived near me, had their large kumara plantation regularly set upon by those immense larvæ. The chiefs borrowed all my turkeys, which were put into their kumara plantation, and in a short time they cleared the whole ground of those destructive creatures.

† In an old work on *Gardening and Botany* I find the following:—"The sweet potato" (*Batatas edulis*), Sir Joseph Banks observes, "was used in England as a delicacy long before the introduction of our potatoes; it was imported in considerable quantities from Spain and the Canaries, and was supposed to possess the power of restoring decayed vigour. The kissing comfits of Falstaff, and other confections of similar imaginary qualities with which our ancestors were duped, were principally made of these and *Eryngo* roots,"—*Dow's General System*, Vol. IV., p. 401.

they took to the cultivation of the introduced potato. At their large and noted tribal feasts,* (*hakari*, at the north, *kaihawkai*, at the south,) enormous quantities were used, as well as at their commoner feasts held on account of births, betrothals, marriages, deaths, etc.; on such great occasions the quantity was often increased through profuse ostentation, for which, while the chief and the tribe gained a great name, they all (especially the women and children) subsequently suffered severely.

But, in my opinion, one of the most remarkable things pertaining to this useful root, or tuber, has yet to be noticed; namely, its many marked varieties, which were also old and permanent. I have, I think, known more than thirty varieties; and I have lists from the north and the south of several others; and have also heard of others, possibly ten more; while some old sorts were known to have been lost.† In this respect the tubers differed just as potatoes do with us. Some were red-skinned, some purple, and others white; some were rough-skinned, and others smooth; some had red flesh, or were pink, or dark purple throughout, others were white; some were even and cylindrical, others were deeply grooved or regularly channelled; some were short and thick with obtuse ends, others were long and tapering with pointed ends; and I never once noticed that there was any mixture (as it were) of the several varieties; all came true to sorts planted, as in the potato with us; their only sign of degeneration through soil or drought was in the size. Now all those several varieties were of old,

* That some correct idea may be formed of the large amount of cultivated vegetable food consumed at those great tribal feasts (*hakari*)—seeing all such has long gone into disuse, I may state that the food was generally piled up in the form of a pyramid, from 80 to 90 feet high, and 20 to 30 feet square at the base, gradually rising to its apex. To build up this, the straight trunk of a large tree was first obtained from the forest, and dragged out with no small difficulty to the spot fixed on for the feast, there it was dis-barked or dubbed down and set up, other strong poles were then set up around it, a series of horizontal stages were then made all round the scaffolding at from 7 to 9 feet apart, and the whole was filled in and built up with food packed into baskets; presenting, when finished, one solid mass of food! The getting-up of one of those feasts always took a long time, often more than a year, though many willing hands were employed, and the labour expended was prodigious! At a small feast (comparatively) of this kind, and almost the last in those parts, held at the Waimate (Bay of Islands) in 1835, and given to the people of Hokianga, 2,000 one-bushel baskets of kumara were used; and at a similar feast given by the noted warrior chief Te Waharoa (father of the equally notable Wiremu Tamihana Tarapipipi), at Matamata, in 1837, to the people of Tauranga, the following inventory of the food was taken down at the time by a credible eye-witness:—"Upwards of 20,000 dried eels, several tons of sea-fish, principally young sharks (a great Maori delicacy), a large quantity of hogs, 19 big calabashes of shark oil, 6 albatrosses, and baskets of potatoes (sweet and common) *without number*."

† See Appendix A.

and only handed down by the strict preserving of the seed (or tuber); and the question with me has ever been, How were they first derived? From the Maoris themselves I never could learn anything satisfactory respecting them,—save that they had had them of old from their forefathers. (Of course, for the time, I set aside their legends concerning them).

I have carefully enquired if the old Maoris had ever known the kumara to flower, but they all said, “No; never heard of such a thing.” And they never harvested their crop until after the withering of the leaves of the plant. I have also frequently enquired if any sort or variety had ever been newly raised by them, or their immediate fathers; to this they also replied, “No.”

Is it not possible that in ancient times this plant did flower here, and that the old cultivators, either by design or accident, obtained their sorts by sowing its seed?* The northern tribes, especially the Ngapuhi, had, more than forty years ago, obtained several new varieties of potato by sowing its seed; to which, however, they were first led by accident, having noticed some young plants which had sprung from self-sown seeds of the ripe potato berries, and from them they had obtained several good and prized sorts.

Is it also not possible that this plant (kumara), through constant, assiduous, early, artificial cultivation, extending throughout centuries, has permanently changed in this respect of non-flowering, as it is known the early varieties of potato have done in England through repeated cultivation? There the earliest varieties do not produce flowers or seed. There is an excellent paper by Mr. T. A. Knight in the Philosophical Transactions for 1806 (London), bearing on this subject†, in which Mr. Knight shows, from experiments made by him, that the same fluid or sap gives existence alike to the tuber, the blossoms, and the seed, and that whenever a plant of the potato affords either seeds or blossoms, a diminution of the crop of tubers, or an increased expenditure of the riches of the soil, must necessarily take place. Following this out he succeeded in producing varieties of sufficiently luxuriant growth and large produce which never produced blossoms. I have already shown that the Maoris used no manure, and planted the kumara in poor gravelly soils devoid of all richness.

2. The second plant generally cultivated by them was the *taro*. This

* Here may also be noticed that a striking peculiarity obtains among the Maoris generally with respect to the name given to the tubers of this plant when used for planting—*purapura*, which is the proper Maori name for all real *small* seeds, as of cabbage, etc. It seems strange, seeing they revel in such a multiplicity of names for every variety of natural objects, and for the several parts of any one thing. *Purapura* is also the name given to potatoes when used for planting.

† See Appendix B.

also was propagated by planting its roots or tubers, or, more properly speaking, its small offset shoots, which were carefully pinched off for that purpose; but, being a perennial, and always "in season," its tubers were not taken up and stowed away for future use, but were generally dug up when wanted for cooking, etc. Hence it was doubly useful to them, in some respects more so than the *kumara*. It was also very prolific, increasing its set tubers rapidly, both in size and in the offshoots, in a suitable soil, so that a clump of *taro* tubers passed into a proverb,* to show the number and resources of a strong tribe. Of this plant there are also more than twenty varieties or species,† which, like the *kumara*, differed greatly in size, in quality, and in the colour of its flesh; besides one which is known to have been introduced since the time of Cook's visit. This newer one is called *taro hoia*; it is a much larger root (tuber) and plant, and it is also coarser in its flesh, and is not so generally liked. Both the tubers and the thick succulent stems (petioles) of the large leaves of the plants were eaten, but only after being thoroughly cooked; a severe burning of the lips, mouth, and throat, attended by constriction, followed the imprudent eating of it when not fully dressed.

This esculent tuber was made to play an important part in many of their higher ceremonial observances—as, at the naming of a newly-born chief's child—at the death of a chief—at the exhumation, which in due time always followed—and also at the visits of welcome strangers. For each observance, or feast, the ancient Maoris used their particular varieties or sorts; a similar usage was also practised on such occasions with their varieties of animal food. This custom they could not so well have carried out with their *kumara*, as there were seasons when it was not to be had at all.

3. The third food plant cultivated by them was a fine one of the gourd family, called by them the *hue*. This noble and highly useful plant was annually raised from seed, and was their only one so propagated; and, curiously enough, of this plant, though yielding seed in great plenty, there was only one species and no varieties. Its seeds, before sowing, were wrapped up in a few dry fern fronds, (*Pteris esculenta*), and steeped in running water for a few days. It was to them of great service, furnishing not only a prized and wholesome vegetable food (or rather fruit) during the whole of the hot summer days while it lasted, and before their *kumara* were ripe for use, but was also of great use in many other ways. It was always a pleasing sight to see it growing in a suitable soil, as it grew fast and

* See "Trans. N.Z. Inst.," Vol. XII., p. 140.

† See Appendix C.

looked so remarkably healthy with its numerous leaves, large white flowers and fruit, the latter often of all sizes, from that of a cricket ball up to that of a globular, pear-shaped, or spheroidal figure, capable of holding several gallons. As an article of food it was only used when young, and always cooked—baked like the *kumara* and *taro*, in their common earth-oven—and eaten, like them, both hot and cold. Prodigious numbers of them were formerly daily consumed in the summer season. It was from this plant that the Maoris obtained all their useful vessels, for holding water, oils, cooked animal food, etc. This was done by carefully drying and hardening the fully matured fruits with the heat of the sun and fire, and just as carefully scooping out all their contents, through a small hole made near the stalk end. In the very small calabashes so made, they kept their perfumed oils, and rouge, for anointing; of the medium sized and large ones they made useful dishes, and all their common water calabashes, while the few very largest were neatly manufactured into pots for holding preserved and potted birds. For this purpose the stalk end was cut off, and it was ingeniously fitted with a hollow cylindrical neck of carved hard wood, cut out of one piece, and always made large enough to admit a man's hand through it; this was firmly fixed on above, while below, the rotund vase was also fitted with three (or four) legs to stand on, and to keep it from off the ground. These big vessels were always prized and taken great care of, sometimes they were named, and some lasted a whole generation or longer, and were handed down as heirlooms.

4. Another plant which was also cultivated by the old Maoris as an article of food, was the *tiipara*, a species of *Cordyline*; this was propagated by its side-shoots and suckers. Its thick succulent stem, as big as, or bigger than, that of a very large cabbage or brocoli, was cooked and eaten. In these parts, however (Hawke's Bay), it has become very rare; indeed, I only know of the plants now growing in my own garden; which I raised from a single plant I found in an old Maori cultivation belonging to the father of the present aged chief Tareha, in 1845. I have had some dozen of plants from it, and although they were very healthy and grew well, not one of them ever flowered! in this respect resembling both the *kumara* and *taro*. It grows to 4–5 feet in height, never quite erect; and then it sends out suckers from below ground and from its stem, and dies. Thirty years ago, whenever some of the oldest chiefs here should happen to see this plant growing in my garden, they would invariably longingly beg for its stems to cook for a meal, saying how much they liked it. Its leaf is shorter and broader and of a finer texture than that of *C. australis*, with slightly recurved edges, and its bark is also much thinner, and smooth, not rugged. I sent specimens of it (leaves only) to Dr. Sir J. D. Hooker,

in 1850-2, and then hoped I should see both flowers and fruit! I provisionally named it *C. edulis*. It was formerly cultivated extensively, both at Waikato and Upper Whanganui, also here in Hawke's Bay, and in other places; and, from what I have heard from the Maoris, there also it did not produce flowers.

Is this another curious instance of a plant losing its powers of producing blossoms, etc., through long and continuous cultivation from its suckers?—a kind of vegetable breeding in-and-in.

I have also good reasons for believing there was yet another and a much smaller species of *Cordyline* formerly cultivated for the sake of its root. (It was in 1838-9, at Waikato.) Young seedlings were carefully selected and planted out, and in the following year the root was fit for use. The plant was then dug up, stacked in small piles, and dried in the sun; while drying the fibrous roots were burned off; and when sufficiently dry the roots were scraped and baked slowly, requiring 12-18 hours to cook them. These were chewed, or pounded and washed and squeezed, and used merely to extract the saccharine matter, which was eaten with their fern-root to give it a relish. I have never seen the plant itself, only its dried roots. It may be the same as *Cordyline pumilio*, but this I doubt.† By the Maoris of Waikato it was called *mauku*.

5. Two other food-yielding plants were, I believe, also cultivated by the ancient Maoris, viz., the *karaka* (*Corynocarpus laevigata*) and the *kohoho** (*Solanum aviculare*). Occasionally, at least, they planted them both in their plantations, and also in their towns (*pas*). And this will account for the *karaka* being often found isolated, or in small clumps of old trees, in many spots inland, away from its own natural habitat near the sea. I am the more inclined to believe that they did so, from the fact of my having been informed many years ago by an old priest (*tohunga*), of the secret tabooed way to make a young *karaka* tree, on its being so transplanted, become fruitful. Nevertheless they always preferred the fruit of the wild or naturally growing ones; so, under that head, I shall mention its serviceable fruits and its uses. And just so of the *kohoho*, which may still be found of a large size in old *pas* and plantations. A cultivated *kohoho*, in ancient days, belonging to the Chief Uenuku, is made to play an important part in one of their legends.†

As I have prominently brought the old Maoris before you in this paper, as great cultivators of the soil, I will also briefly mention two other plants (not being food-producing plants) which they also cultivated for textile uses; seeing they were but of two kinds,—including the several varieties of one of them.

* This is its name at the north, but *poporo* and *poroporo* at the south.

† See Grey's Mythology, p. 124.

‡ See Part III. of this paper.

II.—OF PLANTS FORMERLY CULTIVATED FOR THEIR TEXTILE USES.

1. I will first mention the *Aute* = Paper-mulberry (*Broussonetia papyrifera*), although, as far as I know, not a single vestige of this plant is now left in New Zealand! its name remains, and that is all. Few Maoris now living have ever seen it; and yet, in ancient days, it was commonly and largely cultivated throughout the country.* At the time of Cook's visit it was very common, and seen by those early voyagers everywhere, both growing in their plantations and worn in fillets by the chiefs in their hair; the thin white bleached paper-like bark contrasting excellently well with their ebon locks! Very many of the heads of Maoris, in the plates in both Cook's Voyages and Parkinson's Journal, are drawn thus ornamented with the *aute*. Yet though commonly cultivated, it was of small size, and never was used by the Maoris for clothing purposes, as it was by many other of the Polynesians. The chiefs also made ornamental paper-kites of it, which was one of their great diversions in times of peace, especially among the older men.†

2. The New Zealand Flax Plants (*Phormium tenax*, and *P. colensoi*) in some of their many prized varieties, were also largely cultivated by the ancient Maori. First—they always had planted near to, if not adjoining, their food cultivations and their towns and villages, the commoner sorts of this useful plant, which was constantly used by them in its green state for the daily making into baskets and dishes for cooked food (all such woven dishes not being used a second time), and, also, for common and hasty tying purposes; but those common kinds (which grew spontaneously almost everywhere, except in the deep forests,) they did not make use of for making thread, cord, fishing-lines, nets, and garment-weaving purposes; these superior kinds were cultivated. Second—of the varieties of New Zealand flax known (even now) to the Maoris, there are more than 50.‡ I have seen old plantations of this plant (or, rather,

* Parkinson, in his "Journal," has more particularly noticed this plant; he says (speaking of the Bay of Islands), "Saw many plantations of *kumara*, also plantations of *aute*, or cloth trees." I once saw this plant growing, in an old plantation at the head of the Kawakawa river in the Bay of Islands,—that was in 1835. There was however but one small tree left, which was about 6 feet high, with few branches and not many leaves on them, it appeared both aged and unhealthy, and it soon after died. On my finally leaving the Bay of Islands in 1844, to reside at Hawke's Bay, I heard of some *aute* trees still living at Hokianga. I wrote to a chief of my acquaintance there (E. M. Patuone), who kindly sent me several good cuttings; saying (in a letter) that the plant there was nearly totally destroyed by the cattle of the Europeans. Unfortunately, my removing was so greatly hindered, in not meeting readily with a vessel, and the summer also advancing, that I lost them all.

† For proverbs concerning it see "Trans. N.Z. Inst.," Vol. XII., p. 145.

‡ See the work on *Phormium tenax*, by Dr. Hector.

the remains of them) more than forty years ago in travelling.* The variety which was suited (in its prepared fibre) for making into fishing-lines, would not serve for making nets (which were made of unscraped flax); and what was required for the woof of their superior woven flax garments, would not serve for the warp of the same,—while another kind again was used for their dyed borders; they also used a different variety for the girdles of their chiefs; another variety for the hard, almost closely woven, sack-cloth-like lining of their prized dog-skin and kiwi-feather garments; another kind was used for the inner garment (or small apron) of the young girls of rank; another sort for the common shaggy rain-protecting shoulder mats; and yet another sort for making the all but impenetrable hard shield, or arm-buckler, used to receive and ward-off spear thrusts, in their assaulting of forts. The dressed fibre of some kinds was soft, of others glossy and silky, while of other kinds it was harsher and stronger, more linen-thread like; and the colours and lengths of their staple also greatly differed.

A similar question here arises in the mind, as has already been brought to our notice in considering both the *kumara* and the *taro* plants, namely—the old Maoris having many distinct and well-known varieties of their flax, how did they get them? And while this question is more easily and naturally answered, owing to the *Phormium* plants abundantly seeding, still, there is another (or more than one) remaining to be met:—Did the old Maoris, the ancient cultivators of the flax plant, did they accidentally discover all, or any, of those several sorts naturally produced? Or did they, in their cultivating of the plant, and so bringing together the finer and choicer specimens—did they, in their so doing, cause, or help to raise the new varieties?

This question, however, cannot readily be answered; although, duly considered, (especially in connection with what has preceded about those other cultivated plants), it will, I think, be found to have a good deal to do with that very important question which has yet to be solved—the *great antiquity of the Maori race*. Of which more anon.

III.—OF THE WILD OR UNCULTIVATED FOOD-PRODUCING PLANTS OF THE ANCIENT NEW-ZEALANDER.

THESE were many in kind, some strange and peculiar, yet mostly all common.

* In travelling through the dense forests of the interior, on two occasions, I came suddenly upon a small cleared area of an acre in extent, which had been regularly planted with a fine variety named *oue*. At that time, and for many years, no one lived within miles of it, and my Maori companions gazed with wonder, some taking a leaf with them to show when they got home. So here, in Hawke's Bay, in 1845, there were the remains of old plantations of several varieties. In the spot where the township of Havelock now stands was a fine old plantation, and from it I obtained specimens of a prized sort, named *tapoto*, for Sir W. J. Hooker, which I thought to be a new species.

They were obtained from nearly all the great natural vegetable families,—trees, shrubs and herbs, ferns, algæ, and fungi. In fruits, leaves, and roots.

Strange to say, the trees and plants generally of this large and densely forested country,—blessed, too, with an excellent temperate and moist climate,—scarcely bore a single fruit worthy of being eaten by a European ! Still, it was wrong to write—“In New Zealand there are no fruits or vegetables of indigenous and spontaneous growth ; all they have must be cultivated and tended constantly.”*

Nature was indeed niggard to the Maori people, as to fine fruits and edible vegetables, yet they made the best of it, and commonly used advantageously what she had provided for them. Certainly the preparation of several before that they were fit for eating was highly curious.

In remarking on their various kinds of vegetable food of spontaneous growth, I think the better way will be to take them as they valued them and used them ; so setting aside both their natural and botanical sequence.

1. The first, then, is the world-renowned fern-root=*aruhe*, *roi*, or *marohi*, †=*Pteris esculenta*,—rightly so named by its first botanical discoverer, Forster ; and though very well known by its common name to Europeans and to settlers (with whom, also, the plant itself is familiar), yet the edible fern-root is far from being rightly understood ; I shall, therefore, have to offer a few remarks concerning it.

(1.) As to its proper localities :—

Good edible fern-root,—that which produced a large amount of *fecula*, was not to be found everywhere. In some districts, particularly at the north, it was comparatively scarce, and had to be dug and brought many a weary mile on the backs of the people to their homes, especially to their sea-side or fishing villages. ‡ Here, however, in Hawke’s Bay (south side), in many patches of the low-lying rich alluvial grounds, on the banks of the rivers, it was more readily obtained. The best roots were produced in loose rich soil, where the plant had been undisturbed for years. I remember, many years

* Tate’s “Account of N.Z.,” p. 106. Tate had also resided in New Zealand 7 years !

† It had also several other names, some of which were mythological, and some allegorical.

‡ As corroborating this, I may here mention that at the reading of this paper I exhibited some superior fern-root (though not of the best quality) which I had recently obtained from Pakowhai from the late chief Karaitiana’s tribe. They had had three baskets of it sent to them as a present, some six months ago, from a place about 20 miles inland from Te Wairoa (Hawke’s Bay) ; it had grown in volcanic soil, the roots being much pitted, and still having many bits of pumice adhering to them. They contained a very large amount of *fecula*, and commonly measured 12-15 inches in length, and 3 inches in circumference,

ago, travelling over an isolated hill of loose rich earth in the interior, which had been long famed for its fine fern-root; and for the occupancy and use of that hill for digging the root, several battles had been fought. The fern-root obtained from hard ground, was, at the north, collectively called *paetu*; while that got from soft, loose, red soils was called *koauau*. All fern-root diggings and places of good fern-root, were rigidly preserved; no trespassing was ever allowed.

(2.) As to the proper time of digging, and manner of drying it, etc.—

The old Maoris had their set fixed times of digging the root, in the spring and early summer months; they knew well when the roots were abounding in nutriment, and would no more have dug them up in the wrong season than we should our potatoes. They were also careful not to burn off the fern plants from their digging grounds, save at the proper time of the year, as such careless burning injured the roots; but burning off the fern in the proper season, in August, improved them. In doing so they were ceremonially careful (at the north) to use the wood of two plants for firing the fern,—the *kareao* (*Rhipogonum scandens*), and the *mahoe* (*Melicytus ramiflorus*). In digging it, which was always done with their long wooden sharp spade (*koo*), they took care not to bruise or break it into pieces; at the same time they examined it by breaking, etc.,—if it were dry internally, then it was good, and they went on with their digging; if wet, inferior. They carefully put it up in loose stage-like piles, on wood, to dry in the wind, shading it from the sun. And when it was quite dry, at the end of a fortnight, they went over it, selecting and separating it into several kinds or qualities, of which they had many (just as with us, the various kinds of wheat, potatoes, etc.); some being for the chiefs, some for warriors, some for visitors, some for common daily use, and some for the slaves.* Each quality was put up separately, and carefully stored away in large quantities from both sun and rain for future use,—properly harvested, dried, and stored, it would keep good for years.

(3.) In preparing the fern-root for daily food, it was never used green. The dried root was slightly soaked in water, roasted a little on the embers, and beaten soft with a stone pestle, or short hard-wood club, or one made from the bone of a whale (each properly made for the purpose), on another large smooth waterworn stone; this beating of the root was constant and hard work. In the roasting and beating the black outer bark, or skin, peeled off. The better quality root so prepared was as soft as a bit of tough dough; it soon, however, became stiff and hard, when it snapped like glass or good biscuit. When it was prepared in large quantities, for taking with them to sea in their coasting voyages, and also for going to fight, then

* See Appendix D.

it was made up into a kind of pounded mass. In the spring of the year the succulent young shoots (*monehu*), which rose out of the ground like asparagus, were also eaten fresh; they were very mucilaginous.

No doubt the fern-root was very nutritious; the old Maoris thought highly of it, and always liked it, even preferring it in the summer with fresh fish, of which, in that season, they always had abundance. They also used it in the summer season soaked, after pounding, in the sweet luscious juice of the berry-like petals of the *tutu* (*Coriaria ruscifolia*). Pigs fed on it, in their wild state, always yielded the finest and most delicious pork; as we well knew and experienced before that we had either beef or mutton in the country.

Both by way of illustration and of proof, of how the fern-root was formerly prized, I here bring forward the following:—

(1.) It is stated of the New Zealand chief Kiinui—who had been basely kidnapped and carried violently away from his native home (Doubtless Bay) by M. de Surville, commander of the French ship *Saint Jean Baptiste*, in December, 1769, and who died of a broken heart at sea, on the 24th March, 1770, off the Isle of Juan Fernandez, on their passage to France—that “while he ate heartily of all the ship’s provisions, he pined after the fern-root, and always regretted the want of his primitive food.”—(*Rochon’s Voyages aux Indes Orientales*, Tom. III., p. 389.) Curiously enough Captain Cook, on his *first* voyage, had only just left that bay on his voyage north, when De Surville entered it! They did not, however, see each other’s ships.

(2.) The Fable of the Fern-root and the *Kumara*.—The fern-root and the *kumara* were one day bantering each other; at last the *kumara* rudely said to the fern-root, “Thou art an unsightly thing! containing but small sustenance from long eating.” Then the fern-root answered his antagonist triumphantly (for it has passed into a proverb with us), “Although I am but an unsightly thing to look at (as thou sayest), carry me to the water and soak and prepare me properly, and when the sea-breezes are blowing, then it will be nothing else but the joyful cry of ‘prepare! prepare!’ ”*

Meaning, that in the summer season, when the sea-breezes blow daily, and the choicest fish in large shoals approach the coast and are caught, and

* I find that Taylor has given this fable, in incorrect Maori and worse translation (!) as usual; not apprehending the real gem of the excellent retort, through which it had passed into a proverb. To which, and worse still, he has added this remark,—“Formerly fern-root was nearly the sole food of the Natives during the *winter* months. It was beaten indoors, on account of the constant rain, and their houses being always filled with smoke, the eyes were as constantly suffused with tears.” (*Loc. cit.*, p. 302.) I copy this remark as being quite in keeping with the erroneous ones copied at pp. 4–5, footnote.

the cockles and other prized bivalves are in their season, (and when, too, there are no *kumara* to be had), then the cry continually will be—"Prepare the nice root as a delightful adjunct with our fresh fish."

(3.) Among the many diversions of the young folks in the olden time, were those of witty and laughable questions and answers, of course taught them by their seniors. Here is one, showing how greatly they prized the fern-root—it is the diversion of a party of young girls—it is called, "What is thy husband to be?" And it runs thus:—

Question: What is thy husband to be?

Answer: A man who well knows how to cultivate *kumaras*.

Rejoinder: Then thou must seek such, away, in a fine sheltered soil, and under a powerful chief to protect.

Again the question is put:

Q. What is thy husband to be?

A. A man who is a good and lucky fisher.

Rej. Ah! yes, at times, now and then, when the sea is smooth.

Again the question is put:

Q. What is thy husband to be?

A. A man who is good at digging fern-root.

Rej. That is the choice one: always a pile of your own, stacked in store, ready at hand for the wife to pull from.

Much of the beauty and wit of this little piece is lost in a translation; in the original it is exceedingly terse, full of meaning, and semi-poetical.

(4.) In a very old and quaint semi-genealogical song, the heavenly origin, or birth, of the fern-root is thus given (omitting the introduction):

—This tradition (is) not from me,—
 From ancient times (was) this tradition;
 Mine (is) merely an announcing,
 A proclaiming to the habitable world.
 Thus I speak forth, that thou mayest hear;
 Nevertheless, (it) has been repeatedly heard.
 * * * From Rarotimu was born
 The closely-woven-mat¹ of the sky
 Which verily formed² the Fern-root;
 There, upon the great broad back of the sky,
 It was clinging closely.
 But when Taane³ uplifted his father on high,
 (Separating him for ever from his wife, the earth),
 Then the Fern-roots fell off rattling down below
 To the earth beneath⁴ who received them,

¹ Or, Vegetable carpet.

² Or bore; or caused to grow.

³ One of the sons of the Sky (father) and Earth (mother.)

⁴ *Lit.* the Kicked below: *i. e.* Mother Earth.

Henceforth to stand in her fertile vales and sides.
 In the times of deception⁵ they were first thoughtlessly (collected),
 But thoughtful-ability first selected them properly,
 And planted them fittingly out into little holes
 Sticking them in securely—
 So as to become firmly-fixed roots of the Fern.⁶
 At last, the succulent crosier-like shoots
 Appeared, uprising among the habitations of men ;
 And (they were) named
 (The) Young-lady-who-showed-how-to-dig-up-her-lord.⁷

A piece very difficult of translation, owing to its containing such a large amount of compressed allegory, referring to their ancient mythology and cosmogony. It is almost unique (as far as I know), and therefore I have given a free literal translation of it, with a few notes.

To the foregoing Maori testimony I would just add a few brief extracts from the writings of their first European visitors respecting the fern-root.

Captain Cook says : “Instead of bread they eat the root of a kind of fern. Of these roots, after roasting and beating, a soft substance remains, somewhat clammy and sweet, not unpleasing to the taste.”—(*First Voyage*, Vol. II., p. 312.)

Mr. Parkinson (Sir Joseph Banks' draughtsman) says : “They have a kind of fern, the roots of which roasted make a good substitute for bread, especially when their *kumara* is young and unfit for use.”—(*Journal*, p. 99.)

Dr. Anderson, who was Captain Cook's surgeon on his third voyage, says : “They use a fern root, which seems to be their substitute for bread, as it is dried and carried about with them in great quantities when they remove their families, or go far from home. This they beat with a stick till it becomes pretty soft, when they chew it, the edible part having a sweet mealy taste, not at all disagreeable.”—(*Cook's Voyages, Third Voyage*, Vol. I., p. 158.)

Rutherford also, who had to subsist in part on it, *a-la-Maori*, during his long residence among them, speaks approvingly of it ; and a Hindoo, whom Marsden and Nicholas found dwelling among the Maoris, and who refused to leave them, preferred the fern-root to rice.

Twenty-five years ago experiments were made at home in England on the root of the common fern of that country—the brake, or bracken (*Pteris*

⁵ Or Deceit ; or Imposition ; or Carelessness.

⁶ *Lit.* Haumia ; one of the sons of Sky and Earth ; who, at the great separation, remained with his mother, and is called the Father, Former, or Precursor, of all vegetable food spontaneously growing—particularly of the common Fern.

⁷ Or, Superior, Master, or Forerunner. *Lit.* The name is, Miss- (or, Daughter-Lady) dig-up-ty-lord ; *meaning*, that the young shoots of fern showed annually where the best (thickest, strongest) roots, which produced them, were to be found ; and, also, in their being used as food by man, they enable him to persevere in digging them up.

aquilina), partly under the belief (which still obtains with some folks) that that common British species is identical with this of New Zealand; or, at all events, that both plants were but varieties of one species, which I, however, do not believe, for they differ in several important particulars, particularly in the root itself. The experiments signally failed, very likely owing to the roots having been dug up and used *fresh*, and that perhaps at the wrong season of the year; besides, they did not go about its preparation and cooking in the right way. This is what the celebrated cryptogamist, the Rev. Mr. Berkeley, says about it: "The long creeping rhizoma of a variety of *Pteris aquilina* was formerly much used in New Zealand for food; but, if the New Zealand variety is not more palatable than our own, it is a very undesirable food*. The rhizoma of our own form of *Pteris aquilina* when roasted has just the slimy consistence, taste, and odour of ill-ripened brinjals" [*Solanum melongena*.—W.C.] "when cooked, than which nothing can be a worse compliment. The great objection, however, to this as an article of food is the nauseous mucilage. If the rhizoma, after being washed and peeled, is scraped, so as to avoid including the hard-walled tissue, and then mixed with a sufficient quantity of water, the mucilage will be dissolved, and after a few hours may be decanted," etc.—(*Introduction to Cryptogamic Botany*, p. 519.)

2. The second is the succulent fruit of the *karaka* tree (*Corynocarpus lavigata*), a genus confined to New Zealand, of which, also, only this one species is known. This fruit, or, rather, in common language, its nut or seed, was of inestimable value to the Maori as a common and useful article of vegetable food, second only in place to their prized *kumara* tuber; and I should have placed it before the fern-root, only it is not so common, being confined to the vicinity of the sea. In its *raw* state, however, it is a deadly poison; a small quantity sufficing to throw into convulsions and great and permanent distortions of the limbs, and to kill; but prepared and cooked, it is perfectly innocent and wholesome. The Maoris ate both the flesh (*sarcocarp*) of the fruit (*a drupe*) when fresh and ripe; and its kernel (*embryo*) or large seeds; it was this latter only that was poisonous in its raw state.

Every autumn the Maoris removed in large numbers,—men, women, and children,—to the *karaka* woods and thickets on the sea-coast, to gather

* This statement has never failed to remind me of what the Maoris said and did when they first saw our mission wheat growing at the Bay of Islands, a vegetable production too, which they had long wished for, through having so often tasted bread, biscuit, and flour, of all which they were passionately fond. "What!" said they on seeing it in leaf, "Grass, it is only grass;" and then a little later, when early in ear, they hastily and eagerly tried some of its green half-filled grains, and spat them out with disgust and reproof to us.

up and prepare the *karaka* kernels for keeping ; properly prepared and kept dry these would keep two or three years, or more. The fruits were collected in baskets full,—placed by bushels in very large heated ovens, generally made in the sea-beach above high-water-mark, and there baked and steamed a considerable time, then taken out, put into loosely-woven baskets and laid in running-water, and shaken and knocked about a little, to detach and to carry off all of their outer skin and pulp, leaving the large seed intact, within its own cartilaginous shell of fibrous network (*endocarp*). The baking and steeping completely removed all their poisonous qualities. Afterwards, they were spread out on mats and stages in the sun to dry, and when perfectly dried, stored away in baskets for future use. When used, the kernels, still in their thin yet tough inner skin or husk, were steamed in an earth oven, which softened them for eating. As an article of vegetable food they were greatly and universally esteemed by the Maoris ; and were very wholesome.

3. The third was the fruit of the *hinau* tree (*Elaeocarpus dentatus*) ; a tree generally common throughout the islands, in the forests in the interior, but not near the sea. Of this genus there are two, probably three, species in New Zealand. The fruit, which grows plentifully in small loose bunches (*racemes*), is a small drupe about the size of a large sloe, having a tolerably large and peculiarly shaped furrowed nut within ; its skin is hardish, dry, brittle, and shining, and of a dull ash or grey olive colour, and its flesh (if such it may be termed) is also dryish, small in quantity, austere, and altogether uneatable in its fresh and raw state, reminding me of the taste of the acorn. Here, too, the ingenuity and patience of the Maoris were particularly displayed. These fruits were collected in large quantities when ripe from the ground under the *hinau* trees, and placed in water in the hull of a canoe, or some similar large wooden trough ; there, after steeping, they were well rubbed in the hands, the nuts, stalks, and bits of broken skin strained out, the water carefully drained off, and the grey coarse meal left as a residuum made into a kind of huge cake, cooked and eaten. By some tribes, however, the fruits were not steeped in water at all, but merely gathered up and pounded in a rude wooden mortar with a pestle-like club, and the whole sifted through a cunningly-devised though coarse sieve, made of the long, straight mid-ribs obtained from the linear leaves of the tii-tree (*Cordyline australis*). To bake a big cake (20–30lbs) of it thoroughly, took two days. In colour the cake was a blackish-grey, darker than barley or rye bread ; the rough unpalatable taste of the fruit in its raw state being wholly lost in the cooking. Although a troublesome and lengthy preparation, especially when the very small amount of floury meal obtained from each drupe is considered, this food was greatly esteemed, and

always made a first-rate dish, when in season, for visitors. The Maoris had even an old proverb as to its superior excellence—showing that it was well worth being roused up out of one's sound sleep to eat it freshly cooked—which, I suspect, arose in a great measure from its large, solid, heavy pudding-like mass—a kind of “cut-and-come-again” dish! of which they had not another such among all their vegetable messes. The rats, in the woods, were very fond of its seed or kernel. Often have I, in travelling through the forests, picked up the nuts, and have been astonished at the patient gnawing of the rats, always made at one end, to extract the kernel, which they also invariably did through a very small hole! the shell of the nut being excessively hard, and the kernel itself very small. I scarcely ever found a sound nut on the ground, all had been gnawed.

4. The next is the *puwaha*, or common sow-thistle (*Sonchus oleraceus*, var., or two varieties, exclusive of the later introduced British one). This was only used fresh as a vegetable, and gathered daily, or twice a day, as required, and steamed with their other food in the earth-ovens. Only the tender young leaves and unexpanded flowering tops of the plant were used; and the succulent stems of these were sometimes roughly bruised and washed in running water to get rid of the bitter milky juice before cooking. This plant was largely eaten, especially with fresh fish in the spring and summer, and it was greatly liked. It is a very good and wholesome vegetable; often have I gathered it for my morning or evening meal. Though everywhere common, yet in some places, as in the woods and on the dry open plains in the interior, both myself and travelling party have not unfrequently, when hungry, sought for it in vain!

5. The roots of the *pohue*, the common convolvulus or bindweed (*Convolvulus sepium*), were also carefully dug up and cooked for food. These, however, were not greatly esteemed; partly, I am inclined to believe, from the trouble of digging their long thong-like roots, and the small quantity obtained for the amount of labour expended.

A great peculiarity here to be noticed, is, that the roots of this plant, said to be identically the same species as the British one, are here in New Zealand edible and wholesome; while in England and elsewhere they are highly purgative (a few grains being sufficient), and were formerly there used medicinally. [I early pointed this out to the late Sir W. Hooker.]

6. The fine frond-stems (*stipes*) and trunk of the *korau* or *mamaku*, the black tree-fern (*Cyathea medullaris*), were also baked and eaten, and were greatly liked. This excellent boiled sago-like substance was certainly one of their very best wild vegetable productions, so easily, too, obtained; but it could only be used occasionally from its comparative rarity, as the plant being slow of growth required several years to bring it to any size, and when

once cut died. The first European who discovered and named it, Dr. Forster, spoke very highly of it.

7. The blanched heart-shoot (*korito*) and bases of the youngest leaves of the *tii*, or *kouka*, or *whanake*, the cabbage-tree of the settlers (*Cordyline australis*), were also commonly eaten both raw and roasted in the embers or hot ashes; but more as a makeshift in travelling or fishing (eels), etc., than as a regular village article of food. Being common, and almost everywhere at hand, it was very useful at such times of hunger,—as I, myself, have proved; its taste is slightly bitter, but not unpalatable.

The large tap-root of this plant was also dug up and split and cooked for food; it was very fibrous, yet contained a large amount of both saccharine and farinaceous substance. It took very long in cooking, and was chiefly resorted to in times of great scarcity of vegetable food. Upwards of 30 years ago, at a time of severe want of vegetable food here in Hawke's Bay, through long drought and failure of their crops, the roots of this tree were extensively used in every village,—the modern Maoris being greatly benefited through having iron pots in which to boil them. Another species of this genus, *tii-koraha* (*Cordyline pumilio*), a very much smaller plant of low growth with narrow grass-like leaves, had much more fleshy and saccharine roots; these were sought and dug up, hung in the wind and dried in small bunches, and eaten sometimes in their raw state. This plant was more commonly found at the north, growing in the open fern lands.

8. A very capital article of food was the blanched heart (*korito*) of the southern palm-tree, *nikau* (*Areca sapida*); but as a fine tree only afforded a single dish, and the obtaining of it always killed the plant, it was not very commonly used. It, however, is excellent eating, even in a raw state, juicy, succulent, and nutty, with an agreeable taste, and is very wholesome. It proved of very great service to me once when I had both lost my way and my companions too, in travelling in a new country, and was starving.

9. Another highly curious article of vegetable food was the *pungapunga*, the yellow pollen of the *raupo* flowers—the common bulrush, or cat's-reed mace (*Typha angustifolia*). This was collected in the summer season, when the plant is in full flower, in the wet swamps and sides of lagoons, streams, and lakes. I have been astonished at the large quantities of pollen then obtained. On one occasion, more than thirty years ago, I had several buckets full brought me by the present chief, Tareha, in his canoe, some of which I sent both raw and cooked to the Kew Museum. In appearance in its raw state it exactly resembles the ground yellow mustard of commerce, and when put up into bottles would be mistaken for it. It is obtained by gently beating it out of the dense flowering spikes. To use it as food it is mixed up with water into cakes and baked. It is sweetish and light, and

reminds one strongly of London gingerbread. Dr. Sir. J. D. Hooker informed me that when he was in India he found the natives of Scinde making a precisely similar use of it.

10. The large, hard, stony seeds of the plum-like drupe of the *tawa* tree (*Nesodaphne tawa*) were also used as food by the natives of the interior. This tree grows tall and large, and is very common throughout New Zealand in the low-lying forests. The fruit is something like a common English dark-coloured plum, and the flesh or pulp, though eatable in its raw state, is scarcely palatable, and not relished. The seed or kernel is peculiar, resembling that of the date of the shops, and equally hard. Long steaming them, however, in their Maori earth-ovens does wonders, and makes them to become serviceable to man. For this purpose they were formerly collected in quantities.

11. Another magnificent fern (*Marattia salicina*), *para* of the Maoris, was also an article of food, the large, scaly, bract-like pieces of its big tuberous root were used for this purpose. It inhabited damp, shady forests, and was very scarce. I never found it but once, in forests at the head of the Waikare River, Bay of Islands, when I took off my hat to it! Of those plants I sent specimens to my good friend, the botanist, Allan Cunningham; also to Sir W. Hooker, at Kew,* I believe that it only inhabited the northern parts of this North Island, and formerly was much more plentiful there (from Maori report). No doubt its being so eagerly sought for food caused it to become scarce, just as with the black tree-fern (*Cyathea medullaris*). Its large arching fronds were ten to thirteen feet in length.

12. Another peculiar plant was the *karengo* (*Laminaria* sp.), a sea-weed, found growing in abundance on the flat clayey tidal rocks of the East Coast, and particularly about the East Cape;—a plant not readily forgotten by the traveller that way, should he have incautiously trodden on it when wet, from its extreme slipperiness, and flat prostrate paper-like form of growth. This plant was collected and dried in the sun, and closely packed away in baskets for use. I have known baskets of it dried, to be taken inland to Taupo and elsewhere, on the Maoris' backs, as a suitable present, in exchange for the delicacies of the interior forests, like the *karaku* kernels (*ante*). Sometimes in the summer season it was steamed in the earth-oven, and together with two other species of sea-algæ, *rehia* and *rimurapa* (*Gigartina* and *Gracilaria* sp.), was mixed with the sweet juice of the *tutu*, as an excellent kind of blancmange-like summer food, eaten cold, and devoured with avidity.

* See *London Journal of Botany*, 1842, Vol. I., p. 303; and *Tasmanian Journal of Science*, Vol. II., p. 305.

13. Several fungi were also eaten in the summer season, such as the two large terrestrial species called *pukurau* (*Lycoperdon fontanesei* and *L. giganteum*); the *harore* (*Agaricus adiposus*); the *hakekakeka* (*Hirneola auricula judæ*); and the *paruwatitiri* (*Ileodictyon cibarium*). Of this last, only the thick gelatinous volva, or outer shell, was eaten, and that when young and before it burst. For—after it had burst and thrown out its curious pileus of globe-shaped white network, covered with dark and fetid slime—its stench was unendurable; hence, no doubt, and from noticing how readily they sprang up after thunder showers, arose its Maori name—thunder excrement!* The two species of *pukurau* grew commonly in the open fern and grass lands, and were often of large size, and when young are very good eating. One species, *L. giganteum*, is said to be identical with the well-known edible European species of that name. The *harore* and *hakekakeka* were found plentifully on trees, both living and dead, in the woods, but were not greatly esteemed; recourse would be made to them in times of want.

14. The thick, fleshy roots of the New Zealand lily, *rengarenga* (*Arthropodium cirrhatum*), were also formerly eaten, cooked in the earth-oven. This plant grows to a very large size in suitable soil, and when cultivated in gardens. From this circumstance, and from having not unfrequently noticed it about old deserted residences and cultivations, I am inclined to believe that it was also cultivated.

* Rev. Mr. Berkeley has a curious error, in his work already quoted, respecting this plant (similar to that about the fern-root). He says,—“In New Zealand the gelatinous volva of *Ileodictyon* affords an execrable article of food, which would indeed be used nowhere except under great scarcity of better sustenance.” And again,—“The gelatinous volva of *Ileodictyon* is eaten in New Zealand, but it must be a very unpleasant kind of food; and the same part of *Lysurus mokusin* is eaten by the Chinese.”—*Loc. cit.*, pp. 254 and 334. No doubt Mr Berkeley supposed that this fungus was used as an article of food after bursting. Just as if one was to write against the use of asparagus for food after it was in flower! A similar or worse error is also made, or enlarged, by Dr. Lincley, in writing on the mangrove tree (*Avicennia officinalis*, Lin.); he says,—“It exudes a kind of green aromatic resin, which furnishes a miserable food to the barbarous Natives of New Zealand, who call it *manawa*.”—*Veg. Kingdom*, p. 665. Dr. Hooker, in his Handbook of the New Zealand Flora, attributes this error to Forster, who—certainly in two of his botanical works (“*Plant. Escul.*” and “*Prodromus*”)—had named the New Zealand mangrove, *A. resinifera*; but, as Forster was never in the North Island of New Zealand, where alone the tree grows, he could not have even seen the living plant. Forster had obtained that information from Crozet (*Voyage de M. Marion*); and Crozet had jumped to that conclusion from seeing the Bay of Islands Maoris chewing the *kauri resin* (not to eat, but as a mere masticatory, an old practice of theirs), and from noticing the large lumps of that resin floating about and stranded on the sea-mud among the mangroves,—and so error grows and is perpetuated!

15. The inner part of the white succulent roots (*koreirei*) of the *rauipo* or bulrush (already noticed), was also largely eaten raw, especially by children in the summer; it is mild, cooling, and refreshing, and not unpleasant.

16. In times of great scarcity of vegetable food, the globular nut-like roots of the *riiriwaka*, tall sedge (*Scirpus maritimus*), were collected and eaten,—that is, the kernel-like inner part. It was amusing to witness the half-wild pigs of the modern Maori in the summer season—before the arrival of the European settlers—when the littoral swamps were drying up, how they would go into them, and dig and crack and munch those roots, concealed in the sedges of the swamps; they were often detected by the sound of their cracking and munching!

17. Another fleshy root, and that a tolerably large one, of the *Orehis* family, often the size of a middling-sized *kumara* tuber, or of a stout, long-red radish root—the *perei* (*Gastrodia cunninghamii*)—was also eaten; but it was rather scarce, and only found in the dense forests.

18. Lastly, the leaves of several smaller plants were also used in their season as vegetables; as *raupeti* (*Solanum nigrum*); *toi* (*Barbara australis*); *tohetake* (*Taraxacum dens-leonis*); and the very young succulent and mucilaginous shoots of two ferns, *Asplenium bulbiferum* and *Asplenium lucidum*. But the use of these in modern times, or during the last 40–50 years, was commonly superseded by that of the extremely useful and favourite plant—the “Maori cabbage,” (*Brassica oleracea*), introduced by Cook (*nanii*, of the Maoris at the north; and *rearea* at the south), of which they carefully sowed the seeds. I have, however, often partaken of *Solanum nigrum*, boiled as greens, at the table of a settler.*

Before, however, that I close this subject, a few words on their summer fruits may not be out of place. Foremost here (the *karaka* having been already mentioned) is the *tutu* (*Coriaria ruscifolia*); the rich and wholesome juice of the berry-like petals of this plant, common everywhere, was in large request and plentifully expressed into big calabashes, which were kept in a cool place for immediate use. Next is the *tawhara*, which can scarcely be called a *fruit*, being the large thick white fleshy and sugary bracts of the

* I mention this as being a similar instance to that I have given of *Convolvulus sepium* (*ante*); the *Solanum nigrum* of Europe being narcotic and poisonous. Lindley says of it,—“It is more active in its narcotic and dangerous symptoms than *Solanum dulcamara*,”—the English bittersweet, both also being British plants,—“a grain or two of the dried leaf has sometimes been given to promote various secretions, possibly by exciting a great and rather dangerous agitation in the viscera. It is a narcotic, and, according to Orfila, its extract possesses nearly the same power as lettuce opium.”—*Vegetable Kingdom*, p. 620. I had both those plants, with others, and their common edible uses here, as vegetables, in my mind, when I wrote what I did in the “*Essay on Botany, North Island of New Zealand.*”—*Trans. N.Z. Inst.*,” Vol. I., p. 3 of *Essay*.

climbing *kiekie* plant (*Freycinetia banksii*), these were largely collected in the summer in big calabashes, being delicious eating when fresh;* curiously enough the real fruit of this plant (called *ureure*), which was also eaten, was only ripe in the winter season, thus being, as the Maoris say, the only New Zealand plant which yielded them its fruits *twice* in the year. The fruits of the larger timber trees, *totara* (*Podocarpus totara*), *kahika* or *kahikatea* (*Podocarpus dacrydioides*), *mataii* (*Podocarpus spicata*), and *rimu* (*Dacrydium cupressinum*), were also gathered in baskets full, and greedily devoured; these, however, were only obtained through difficulty and danger, in climbing those high trees and getting at the fruit on the very extremities of their branches, which the adventurous climber broke off and threw down; in doing so not a few accidents yearly happened, some being sadly maimed for life. The purple perfumed berry of the large fuchsia shrub, *kotukutuku* or *konini* (*Fuchsia excorticata*), were abundant, easily obtained, and very nice when fully ripe, even to a European. So were the orange-coloured berries, though small, of the *rohutu* (*Myrtus pedunculata*); these the natives obtained by spreading their larger garments, or floor-mats, on the ground, and shaking the trees, when the fruit fell in showers; the berry is about the size of a red currant, seeds large and very hard. The large berry of the *poroporo* (*Solanum aviculare*), was also eaten; it is about the size of a small plum, and when fully ripe it is not unpleasant eating, before it is ripe it is very acid. This fruit was commonly used by the early colonists in the neighbourhood of Wellington, in making jam. The *koropuku* (*Gaultheria antipoda*, var. γ .), a curious small white fruit (though large for the size of the plant), growing on a very low shrub only two to four inches high, on the high plains in the interior, is also good eating. And so is the pulp of the rich orange-coloured fruit of the *kawakawa* (*Piper excelsum*), when fully ripe, rejecting the numerous seeds.† The small fruits

* See Proverb 19, "Trans. N.Z. Inst.," Vol. XII, p. 117.

† I should here quote a passage from Dr. Seemann's Botany of Fiji; where, in writing on an allied species of *Piper* (*P. methysticum*), he makes some strange remarks on the New Zealand plant, and on the Maoris themselves. (Like not a few others, before him and since,—hastily adopting, or jumping to, a conclusion—not yet warranted by any known soundly logical premises—to bolster-up a pet theory!) Dr. Seemann says:—"Drinking *kava* being peculiar to all light-skinned Polynesian tribes, Dr. Thomson expresses surprise that the Maoris of New Zealand should have forgotten the art of extracting it, 'seeing that the plant (*P. methysticum*, Forst.) grows abundantly in the country.' But the *Piper* found wild in New Zealand is not, as Thomson supposes, the *Piper methysticum*, Forst., (the true *kava* plant), but the *P. excelsum* of the same author. Hence it can form no surprise that a genuine Polynesian people should have forgotten the art alluded to during the long lapse of time intervening between their departure from Samoa (*sic*) and their discovery by Europeans. They have, however, preserved the name

of several species of *Coprosma* (*karamu*, *kakaramu*, *taupata*, *papaauma*, *tatarahake*, etc., of the Maoris) were also eaten; so were the fruits of several species of *Rubus* (*tataramoā*), and of the *ngaio* (*Myoporum laetum*), especially by children. While the liquid honey-like fluid abundantly supplied in the perianths of the *korari*, or New Zealand flax (*Phormium* sp.), was commonly used by all, both old and young, and was very wholesome eating.

Lastly, and in conclusion, I would briefly observe, that this estimable trait in the character of the Maori,—of passionate attachment to cultivation, descended and remained with him down to modern times,—to times long after the foundation of the Colony. For many years, however, prior to that event, the chief harbours of New Zealand (North Island) were thronged with ships—whalers and others—which called in to get supplies, mainly of vegetables,—potatoes, *kumara* (both small and large, the latter newly introduced), pumpkins, onions, maize, melons, cabbages, etc.; these were all raised by Maoris, who often received but a very small return in barter, especially if sold by them to the intermediate men, the storekeepers and ships' husbands on shore. A writer on New Zealand in 1834 (who for some years previous had been a resident in the Bay of Islands) says,—“Vast numbers of whaling vessels touch at the various harbours on the eastern coast, for supplies of potatoes and pork and other fresh provision, the produce of the country. In the Bay of Islands there have been at anchor, at one time, as many as twenty-seven vessels, most of them upwards of three hundred tons burthen, all of which have been supplied, by the industry of the inhabitants, with a sufficient stock of fresh provisions for a long whaling cruise.” And a similar testimony I can also bear for the time (ten years) that I resided there. I have seen 400 seamen on shore at one time from those ships! and when the great and increasing number of the shore residents, including the several mission stations, the large number of their dependent natives at school, etc., and the sawyers in the neighbouring forests, are duly considered, the quantity of potatoes, etc., raised for all seems really astonishing! and all, too, done by manual labour, together with their bringing their produce many miles by land and by water—on their backs and in their canoes—to the market. And it must not be forgotten that the Maoris had now double labour in their cultivating,—in having to fence against the incursions of the pig, everywhere abounding; and, also, through their non-using of manure, as has been already shown. Such, indeed, was the strong, the passionate attachment of the young Maoris of

of *kawa*, which they have transferred to their indigenous pepper (!) (*kawakawa*), and also to a beverage (!!) (*kawa*) made of the fruits of the *Coriaria myrtifolia*, Linn.—a plant by them termed *tupakihī*, *tutu*, or *puhou*. *Kawakawa*, according to Colenso's statement in J. D. Hooker's *Flora Novæ-Zelandiæ*, signifies 'piquant'” (*Flora Vitiensis*, p. 261).

those days to the cultivation of the soil, that we were obliged to allow the young men residing with us,—whether as servants, boatmen, or scholars,—to return to their several homes for that purpose every year in the planting season.

And just so it was here in Hawke's Bay for several years; in 1845 the Maoris (south side) first sowed and reaped wheat (the seed of which I had obtained from Auckland); and in succeeding years they raised enough of wheat and maize (exclusive of potatoes and scraped New Zealand flax), to load annually several small vessels; and all the produce of *hand* labour! Truly the Maoris of to-day, with all their civilization and riches, may take for a proper motto *FUIMUS!*

APPENDIX A.

A List of the different Varieties of small Kumara formerly cultivated by the Maoris:—

1. Varieties in the northern districts, namely—Bay of Islands, Hokianga, and Kaitaia:—

(1.) White skin varieties, having white or whitish flesh—

* *Toroamahoe.*

Mapua.

* *Monenehu.*

Waniwani.

Kawakawa.

Maramawhiti.

Pauaataha.

Puurata.

Kanawa.

Maomao.

Mengerangi, with grooved sides.

Torowhenua, uniform small size, peculiar.

Pane, mealy dumpy sort.

Toitoi.

(2.) White skin varieties, having slightly reddish flesh—

Pohutukawa.

Kauto.

Hitara, a prized variety.

(3.) Red skin and flesh—

Whakakumu.

Toikahikatea.

Koreherehe, grooved sides, prized sort.

Taurapunga, a mealy sort.

* *Parakaraka.*

Awangarua.

Panahi.

(4.) Dark purple skin and flesh—

Makururangi.

Kauutowhau.

Kengo.

* *Pokerekaahu*, very dark throughout.

* *Anurangi.*

Matakauri.

Poranga, dark claret flesh.

Kaikaka, very dark throughout.

2. Varieties in Hawke's Bay and on the East Coast (exclusive of those, also cultivated by them, already entered in List No. 1, and marked with an *) :—

Tutaetara.

Tokouu.

Kawakawatawhiti.

Kairorowhare.

Hawere.

Paihaukaka.

Ngakomoa.

Raumataki.

Taputini.

Maori.

Pehu.

Kaawau.

Tutaanga.

Kurarurangi.

Patea.

Kiokiorangi.

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. My two lists I have obtained from six sources, three north and three east coast, extending over 35 years, and I have been surprised at their great general uniformity. In all, the sort called *parakaraka* is said to be "the oldest variety"; the lists from the East Coast did not clearly specify the differences.

APPENDIX B.

"I suspected the cause," says Mr. Knight, "of the constant failure of the early potato to produce seeds, to be the preternaturally early formation of

the tuberous root, which draws off for its support that portion of the sap which in other varieties of the same species affords nutriment to the blossoms and seeds, and experiment soon satisfied me that my conjectures were perfectly well founded. I took several methods of placing the plants to grow in such a situation as enabled me readily to prevent the formation of the tuberous roots, but the following appeared the best. Having fixed strong stakes in the ground I raised the mould in a heap round the bases of them, and in contact with the stakes: on their south sides I planted the potatoes from which I wished to obtain seeds. When the young plants were about four inches high, they were secured to the stakes with shreds and nails, and the mould was then washed away by a strong current of water from the bases of their stems, so that the fibrous roots only of the plants entered into the soil. The fibrous roots of this plant are perfectly distinct organs from the runners which give existence, and subsequently convey nutriment, to the tuberous roots; and as the runners spring from the stems only of the plants, which are, in the mode of culture I have described, placed wholly out of the soil, the formation of tuberous roots is easily prevented; and whenever this is done numerous blossoms will soon appear, and almost every blossom will afford fruit and seed."

APPENDIX C.

A List of the different Varieties of Taro formerly cultivated by the Maoris.

1. The varieties grown and used in the North, namely—Bay of Islands
Hokianga, and Kaitaia Districts.

The best kinds were the three following:

- | | | |
|-----------------------------------------------------------|---|------------------------------------|
| *1. <i>Pongo</i> , | } | Varieties having a pleasing scent. |
| *2. <i>Turitaka</i> . | | |
| 3. <i>Potango</i> , a very superior sort, greatly prized. | | |

Those three were eaten as *popoa*—sacred food used by the priests, (*tohungas*) on the death of chiefs; and also on the *Iriiringa*—the ceremonially naming of a newly-born chief's child; pigeons were eaten with them as a relish.

4. *Awanga*, a very abundant grower and therefore prized.
- *5. *Wairuaarangi*, a sweet, grateful kind, having a flesh of a peculiar pink tinge.
6. *Ngongoro*, a very large and prized sort.

Those three were used for noble or welcome visitors; one of this last variety, *ngongoro*, was said to have been sufficient for a man, but if a very great eater he might be able to manage two, hence, perhaps, its name, *ngongorō*—wonderful! from *Onomatopœia*, that being the name of the strong nasal sound usually emitted on expressing great astonishment at anything.

7. *Mamaku*, } Good kinds, usually eaten at the *hahunga*—ex-
 8. *Haukopa*. } huming and scraping the bones of a chief.
 9. *Tokotokohau*, a large kind used at feasts.
 *10. *Kinakina*, used by workmen when working together in large
 bodies.

2. The varieties formerly grown here at Hawke's Bay and on the East Coast, south of the East Cape, not included in the above list:—

11. *Paeangaanga*.
 12. *Kohuorangi*.
 13. *Patai*.
 14. *Matatiti*.
 15. *Takatakaapo*.
 16. *Tautaumahai*.
 17. *Koareare*, a white-fleshed sort.
 18. *Kakatarahaere*, a dark-fleshed sort.
 19. *Upokotiketike*.

Also Nos. 1, 2, 5, and 10, marked with a star.

Besides those they had here two others, which I have never seen; they were peculiar (if they really were *taros*, which, from their names, I doubt).

20. *Uhikoko* (" *he taro noa, otira he pai ano*"—a common *taro* of the usual kind, but a very good one).

21. *Uhiraurenga*.

Of this last it is said, "*he taro tapu tenei, he atua, whanatu rawa te ringa ki te hopu kia taona hei kai, vere atu ana.*"=This was a sacred *taro* (or one used only for tabooed purposes); it was a demon (or something extraordinary), when the hand of the taker was stretched forth to lay hold of it, that it might be baked for food, lo! it suddenly removed away.

Several of those *taros* I have both seen and eaten.

APPENDIX D.

The best kinds of *aruhe*, or fern-root, at the north were known by the general names of *maahunga*=mealy, and *motuhanga*=brittle, easily snapping. Here, however, on the East Coast, the best kinds were called *kaitaa*=gentlemen's food, and *renga*=mealy.

The *motuhanga* was really a splendid sort. I have seen it, a fine-looking black-skinned smooth root, eight to ten lines in diameter, with scarcely any woody fibres, and these were small, like a very fine rush, lustrous, hollow, and white. It would snap readily, like good biscuit, before being prepared or beaten.

Then the best was again separated, thus :—

1. *Kowhiti* = best selected ; for the chiefs.
2. *Huirau* = a hundred together in company ; for warriors. This was stored up in their hill-forts for sieges and fighting times*.
3. *Paka* = dried ; for general feasts.
4. *Ngapehapeha* = rinds, skins ; for common daily use.

There were also other names for the third best and inferior sorts, as *pakakohi* = dried and gathered scraps ; *pitopito* = ends ; and *pakupaku* = small in size (broken parts of the choicer kinds) ; *tuakau*, *parararaa*, etc., etc.—(See “Trans. N.Z. Inst.,” Vol. XII., p. 122, *Proverb* 55.)

ART. II.—*Historical Incidents and Traditions of the Olden Times, pertaining to the Maoris of the North Island, (East Coast), New Zealand ; highly illustrative of their national Character, and containing many peculiar, curious, and little-known Customs and Circumstances, and Matters firmly believed by them. Now, for the first time, faithfully translated from old Maori writings and recitals. By W. COLENZO, F.L.S.*

[Read before the Hawke's Bay Philosophical Institute, 12th July, 1880.]

THESE Maori relations which I bring before you this evening, are selected from several other similar stories which I possess, and I have no doubt but that other parts and other tribes of this island have, or have had, many such ; so, also, those other unhappy tribes who preceded them—and of whom not a vestige remains !

From the earliest traditionary times this country seems to have been exposed to the rage and curse of desolating wars, which every now and then sprang up from very slight beginnings (as it appears now to us), and which were too often carried to fearful lengths. This sufficiently accounts for its great depopulation. Nearly all their wars seem to have been of that kind so pathetically and truly deplored by Lucan—“as leaving no cause for triumph.” Nothing struck me more forcibly in travelling, (pretty extensively and always on foot, before the country became colonized and partly settled), than to find in all directions strong indications of a once heavy population, or a series (so to speak) of populations. And that those people

* This kind was what Cook, Crozet, and others of their early European visitors saw stored up largely in their forts and fighting places, which quantities excited their astonishment. Moreover, the Maoris would not sell them any.