

EXCURSION

IN THE

NORTHERN ISLAND

OF

NEW ZEALAND;

IN THE SUMMER OF 1841-2.

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Memoranda of an Excursion, made in the Northern Island of New Zealand in the summer of 1841-2; intended as a contribution towards the ascertaining of the Natural Productions of the New Zealand Groupe: with particular reference to their Botany.

HAVING made arrangements for visiting the native tribes residing on the eastern coast of the Northern island of New Zealand, I embarked at the Bay of Islands, on Friday, November 19, 1841, on board a little vessel bound for Poverty Bay. The wind failing, it was evening ere we rounded Cape Brett, the southernmost head of the Bay of Islands. This peculiarly bold headland has a very picturesque appearance, from a high and perforated perpendicular islet lying off it, called by the natives, Motukokako; which formerly possessed a fortification on its summit. This natural tunnel, large enough to admit of a boat being rowed through it, is visible from a great distance. Many of the rocks on the eastern coast of New Zealand are thus perforated; a circumstance arising from their formation: one such, it will be recollected, is represented in the plates to Cook's Voyages. The next morning, the wind freshening, we progressed delightfully down the coast, which here is much broken, and but thinly inhabited; the high ground in the back being covered with dense continuous forests of Kauri (*Dammara Australis*, Lamb.). At Wangarei (Bream Bay), the sand-stone formation

first conspicuously shews itself; the lofty and fretted peaks of the northern side of the harbour invariably attracting the notice of the most careless observer. Of Manaia, the inner eminence of five jutting peaks, the natives tell a legend, stating that those peaks comprise Manaia, his wife, two children, and slave, who were here turned into stone. Paeko, the slave, is seen in a submissive bending position, just below the others, on the S.E. side of the eminence, to which place he was kicked by his mother! Among the natives, in cases where a female was suspected of adultery, and proofs were wanting, Manaia's aid was generally invoked in an ancient song. The scenery in this neighbourhood, especially from the village of Parua, looking over Kaiwa Bay, is of a very romantic character.

Evening overtook us off Aotea, or Barrier Island, where copper, and subsequently nickel, has been found. The wind falling calm during the night, we made but little progress. Morning discovered to our view the Mercury Isles, a group of small uninhabited islets lying off the northern head of Mercury Bay; one of the outermost of which has a gigantic perforation completely through, the bases of which natural arch are curiously ornamented with two colossal figures, in a reclining position. I obtained from these isles, a few years ago, fine specimens of menilite, wood stone,* and chalcedony; of the latter stone, which was unusually fine, large seals have subsequently been cut. Near Mercury Bay, the Damar forests cease; and beyond Tauranga, in the Bay of Plen-

* R. M'Cormick, Esq., H. M. S. Erebus, when looking over my cabinet, expressed his astonishment at my having similar specimens of wood stone to those collected by him at Kerguelen's Land; assuring me that they were perfectly alike.

ty, throughout the whole southern part of the island, a Dammara has never yet been seen. The wind being light, we made but little way; at evening, however, we had Tuhua, or Mayor Island, in sight. This island appears to be of volcanic origin, and abounds in pumice, obsidian, slag lava, pitch stone, and other vitreous and volcanic substances. I use the word *appear*, in consequence of a curious relation, which, some years ago, I received from an old priest, residing in the Bay of Plenty. I had been enquiring of him, the place where, and the manner how, they in former days obtained the green jade, or axe-stone, for ornaments and weapons of war; in answer to my enquiry, he asserted that this stone was both a fish and a god!—that it formerly lived at the island of Tuhua, whither the priests of all the neighbouring tribes used to go to take it; which was done by diving, accompanied with several superstitious ceremonies, in order to appease its wrath, and to enable them to seize it without injury to themselves—but that suddenly it made the whole island, and the surrounding sea, its *cloaca maxima*, covering every place thickly with excrementitious substances, which still remain; and swam away to the middle island of New Zealand, where it has ever since resided, and whence they have been obliged to obtain it. I scarcely need add, that those “excrementitious substances” comprise the different volcanic matter with which Tuhua is now covered. Perhaps, after ages may verify the tradition related, by the old priest, and bring to light the *soi-disant* god, in a buried stratum of axe-stone.

I obtained from this island, some time ago, several fine (though partly damaged) specimens of *Argonauta*, of a beautiful translucent texture. The whole body of the shell is

pearly white, with an ochreous tinge towards the upper part of the largely dentated keels, which, two in number, are there of a dark umber colour, They measure 6-7 inches in diameter, and are closely allied to *A. argo*; the last whorl, however, is higher, bolder, and more orbicularly involute than in that species, approaching very nearly, in general outline, to that of *Nautilus Pompilius*.

The wind increasing during the night, the next morning we passed Puaiwakaari, or White Island, whence the, steam and smoke ascended in dense clouds. On this island, as well as on other smaller islets in this bay, sulphur abounds. Soon after, we sighted Wangaparaua, or Cape Runaway, and towards evening I landed on the little sandy beach in Warekahika (Hicks' Bay); a small bay between Cape Runaway and the East Cape. At this place I had landed, about five years before, on a visit to the natives of these parts. Several natives ran down to see the foreigner, who had so unceremoniously landed on their shores, by whom I was conducted to their village of miserable hovels among the sand hills. Here I detected, growing in the sand, a pretty little procumbent *compositaceous* plant, which was new to me; and a small shrubby succulent-stemmed plant, with fleshy leaves, which, from its two-celled capsule, &c., I supposed to be a species of *Euphrasia*, probably *E. cuneata*, *Forst.*; that species having been found in similar situations a little further south, by Sir Joseph Banks, in 1769. At this village I passed the night, and in the morning commenced my march onwards by the coast. The rocks in this locality, were chiefly composed of sand- and pudding-stone; the latter containing immensely large oyster shells, some of which were petrified, and con-

tained in their cavities very fine crystals of lime. A walk of a few miles brought me to Te Kawakawa, a village situate on the immediate shore, under a high cliff of white clay. The cliffs here, are composed of a bluish indurated clay, and conglomerate, and abound with marine fossils. One of the chiefs of this village presented me with two fine fresh *Wapuku* (a species of *Gadus*, having close affinity with *G. morrhua*, *Lin.*), each weighing more than 20lbs. This fine fish is common on the New Zealand coasts; the natives having their marked spots for fishing, near rocks and shoals lying off the land in deep water, where they fish for the *Wapuku* with hook and line. These preserves are all “*rahui*,” i.e. private; and scrupulously descend from the chief to his nearest relatives. Any infringement on such a fishing preserve was invariably resented, and often ended in bloodshed. Before the introduction of iron among the New Zealanders, they used the tough forked branches of the Tanekaha (*Phyllocladus trichomanoides*.) and Kahikatoa (*Leptospermum scoparium*.) for hooks for this fish; which hooks are still used in many places. For bait, they preferred the flesh of the *Tarakihi* (a fish which migrates towards these coasts in large shoals in the summer), when in season, using at other times that of the crayfish. During my stay at this place, one of the heaviest hail showers fell that I ever witnessed. The hail were large and rhomboidal; the one-half (laterally) of each stone was composed of clear, and the other half of clouded, ice. The oldest natives spoke of only remembering one such shower.

Leaving Te Kawakawa, and travelling by the sea-side, I passed by several of the Taro (*Caladium esculentum*, *Vent.*) plantations of those natives. These plantations were in nice

condition, and looked very neat; the plants being planted in quincunz order, and the ground strewed with white sand, with which the large pendulous dark-green and shield-shaped leaves of the young plants beautifully contrasted. Small screens, formed of the young branches of *Leptospermum scoparium*, to shelter the young plants from the violence of the northerly and easterly winds, intersected the ground in every direction. Of the Taro plant the natives possess two kinds (species?), *Taro maori* and *Taro hoia*; neither of which being indigenous, the former is supposed to have been introduced with the present race of natives, whilst the latter, as they themselves state, is quite of modern introduction.

On these shores, the clayey rocks had been so acted upon by the sea, as to be worn quite flat; in many places stretching out into a continuous horizontal layer of rock, of nearly a mile in length. On them grew a peculiar kind of large procumbent Algæ, which, boiled, is commonly used as an article of food by the natives of these parts; they call it Parengo. The Pohutukawa (*Metrosideros tomentosa*,) here forms a thick and evergreen rampart between the sea-beach and the main-land, their roots and trunks being often laved with the flowing tide. The wood of this tree is exceedingly hard, close grained, and heavy, and is much in request for knees in ship and boat building. It invariably inhabits the immediate sea-shore, often grotesquely hanging in an almost pendant manner from rocky cliffs and headlands, and, although of irregular growth, attains a large size. Here, in a clayey rock near high-water mark, the natives shew the impression of the foot of Rongokako, one of their illustrious progenitors; the print of his other foot, made in striding hence, being near

Poverty Bay, a distance of more than fifty miles! Many marvellous exploits are related of this celebrated personage.* Near the East Cape I discovered, on a little sandy plain, a species of *Veronica*, a rambling shrub with large, oblong leaves, which to me was quite new. I did not, as on my former visit, go round the cape (a bold and high promontory composed of indurated clay, reclining back in solemn grandeur, on the face of which, from the continual descent of debris from its summit and sides, nothing grows), it being nearly high-water; but, striking inland through a narrow sandy defile, emerged beyond it to the beach. The natives call this promontory Otiki; and the little islet off it, about half-a-mile from the shore, Te Wangaokeno. Rain coming on, I was quite willing to halt at Te Pito, a small village at the end of the long beach I had just passed, three miles S. of the East Cape. Here, however, on the side of a very steep hill, open to the South Pacific, which rolled its immeasurable billows to our feet, both shelter and food were any thing but obtainable.

The next morning, the weather clearing, I resumed my journey. Ascending the precipitous hill before me, and entering a small wood, I discovered a slender tree of the *Melicytus* genus, with very long lanceolate leaves, some of which

* It is, perhaps, worthy of remark, *en passant*, that such supposed impression of footsteps are to be found in all countries. The writer has seen one in Cornwall, on the summit of a perpendicular and lofty crag, gravely asserted to be the last impress of his Satanic Majesty. None, however, has attained such celebrity as that on the summit of Adam's Peak, in Ceylon, of which a modern traveller states—“Boodhoo, when, one foot rested on the Sree Pada (Adam's Peak), and left its impression there, stepped across to Makoona, situated, the priest gravely and seriously assured me, in Siam!!”

measured 10 inches in length; making the third species of that genus hitherto found in these islands. The view from the rocky summit of this hill was most extensive, and very imposing. Here, on its peak, I gathered a specimen of a very narrow leaved *Veronica*, which may possibly prove to be a new species; unfortunately, it was neither in flower nor fruit. Descending this hill, and proceeding onwards, I found my new species of *Phormium** (*P. Forsterianum*, MSS., *ined.*,) growing plentifully. On the clayey hills in this locality, I found a handsome *Pimelea*, a shrub 2-3 feet in height. Descending to the beach, through a deep and narrow slaty defile, I was rewarded with specimens of an elegant little monopetalous campanulate-flowered plant; a peculiar species of *Plantago*, with small leaves, which was quite new to me; and a plant of the *Myosotis* genus, probably *M. Forsterii*, *Endl.* This beach was long and stony, and very tedious walking, the inclination seaward being so great, and the loose stones of which it was composed having their angles washed round, or nearly so. Arriving at the embouchure of the Waiapu River, I turned inland by its northern bank, and proceeded up the valley of Waiapu. My route now lay through the bed of the river, a considerable part of which was at present dry, but in winter (judging from the appearance of the vegetation and stones about me) a mighty torrent. I noticed young trees of the *Edwardsia* genus being very plentiful here, but whether differing from the two already known New Zealand species, I could not, at this season, determine. A *Carmichælia*, too, was very common, which differed much in habit from *C. australis*, found in the neighbourhood of the Bay of Is-

* I intend, at some future day, giving a descriptive account of this very elegant and useful, and very distinct species of *Phormium*.

lands, not being rigid like that plant, and much more filiform, with drooping branches.

Approaching Rangitukia, a large village of the Ngati porou tribe, I was not a little amused and gratified, on observing a written notice addressed to me, fastened to a post by the path side, informing me that the people of the village, who had heard of my arrival, were at their work in their plantations at some distance, and would not return till evening; directing me, also, to the house which I was to occupy, &c. This writing was etched, as it were, with a nail on a leaf of *Phormium tenax*—a common mode of graphical communication among the New Zealanders, when not in possession of paper; and in which they, unknowingly, imitate those nations from whom, doubtless, they are descended. At this village, where the natives are very numerous, I remained a few days, but had scarcely time or opportunity to eat or rest. During my stay, however, I succeeded in procuring several fossil bones of the *Moa*.*

On the 29th, I left this hospitable village, and proceeded, as before, up the dry bed of the river. I had, on my former visit, obtained specimens of basanite, siliceous schistus, sulphuret of iron, opal, &c. &c., from this locality; on this occasion, my collection of insects was large and curious, embracing individuals of different genera of the family *Arachnideæ*, which are here both large and numerous. Many of these insects often carry their strong and glutinous webs across the pathway; with which, if you happen to be at the head of the file, your face coming in contact, causes you suddenly to halt, to the detriment of your heels, and the disarrangement

* Vide Tasmanian Journal, vol. ii. p. 81, for an account of, and remarks on, the *Moa*.

of the whole line of march. The largest *Cicadæ* and *Libellulæ* are often seen entangled in those webs, and seized by their ruthless and powerful enemy. I also secured various species of the genera, *Vespa*, *Thynnus*, *Coccinella*, *Mantis*, *Forficula*, and *Dytiscus*, and of others quite unknown to me; several of which, are doubtless new to science. I could but remark, that in many of them their colour was assimilated to that of the plant on which they lived—a beautiful display of the Divine Wisdom, by which many of His smaller and stationary creatures are the better enabled to elude the unceasing depredations of their ever-vigilant and rapacious enemies.

“Where space exists, Thine eyes of mercy see,—
Creation lives, and moves, and breathes in Thee!”

On the immediate banks of the river, I discovered a new and peculiar species of *Rubus*; an almost leafless shrub, having only here and there at the extremities of its youngest branches, a small compound leaf of three leaflets. It was about five feet high, branches very long, filiform, and much entangled; in colour, a beautiful light green, thickly studded with orange-coloured prickles. The natives, who accompanied me, assured me that it bore red fruit in the winter, on which the birds fed. I could not, however, find a vestige of either flower or fruit. Here also I discovered two small cæspitose plants of the natural order *Compositaceæ*, called by the natives, *Papapa*; together with two species of *Epilobium*, which were new to me. This valley abounds in grass, and possesses a rich alluvial soil; slate, of a coarse quality, shows itself in large quantities towards its upper end. I soon arrived at Wakawitira, belonging to the Nagati-porou tribe, one of the largest native towns in New Zea-

land, containing, when all are assembled, from 3 to 4,000 souls. This village is not far from the celebrated mountain Hikurangi; an eminence belonging to the chain of mountains, which take their rise at the East Cape, and continue on to Wellington, Cook's Straits, and which were denominated by Cook, "the Southern Alps."

I remained at this village a day or two, and could but contrast with thankfulness, the wonderful change, outward at least, which had taken place in the people of this district, since my former visit with the Rev. (now Archdeacon) W. Williams, in 1838. Then, the inhabitants were living in the grossest darkness of heathenism; none knew how to read—none knew anything of an hereafter: now, nearly 700 persons assembled for service in the chapel of this village, a building which, they had themselves built of the bark of the Totara tree (*Podocarpus? Totarra Don.*), measuring nearly 80 feet by 40; while in the school, after morning prayers, I had, 1st class, readers in the New Testament, 77; 2nd ditto, readers who required prompting, 92; 3rd ditto, 128; 4th ditto, rehearsers of catechisms, &c. 240; and infants, 98—making a total at school, on a week-day, when numbers were absent at their plantations, of 635 persons, of whom more than 100 could read well.

Early in the morning of the 1st December, I re-commenced my journey. I had proceeded but a few yards, ere I discovered a very pretty procumbent *Ranunculus*, with imparipinnate leaves. Two fine species of *Gramineæ*, which grew here on the river's banks, I also secured. Crossing the stream, which at the ford was not waist deep, I found a curious little *Lobelia*, growing in grassy spots. Here, also, that pretty little thyme-scented species of *Labiataë*, *Micromeria Cunning-*

hamii, Benth., abounded. Leaving the grassy plains of Waia-pu, and proceeding towards the sea, through a long winding and stony watercourse, I descended to the beach, without detecting any thing new by the way, save a few mosses. Continuing on by the shore for a few miles, I arrived at Wareponga, a small village close to the sea. In my way thither, I noticed the great quantities of whole timber which every where protruded from underneath, the cliffs, buried in some places under hills of earth from 20 to 50 feet in perpendicular height; a faithful testimony to the convulsion which Nature must formerly have undergone in these parts. To all questions concerning this timber the natives invariably reply, "No te hurihanga wenua" i.e. caused by the overturning of the earth. In building of chapels, or good houses, throughout the district, the natives generally dig up the large trees out of the ground (which are mostly Totara), and, having split and smoothed them, use them for posts; the timber thus procured, is dark, somewhat of a chocolate colour, and has a very neat appearance.

Water, that indispensable refreshment to the dry and thirsty traveller, was rather scarce in this locality, being only observed here and there trickling from the cliffs. Underneath these drippings were small pools, and by their sides lay shells of the *Haliotis* genus, with which the passers-by drank, but not to their satisfaction; the water being strongly impregnated with some nauseous alkali, probably soda, the crystallized efflorescence of which lay deposited about.

From these cliffs the natives collect in large quantities the red oxide of iron, with which they make a coarse red pig-

ment, much used in smearing their canoes, architraves of their chief's houses, and stores in which they keep their sweet potatoes, images,* carved work, mausoleums, sacred enclosures, and every article, in fact, which they may please to make sacred; red being invariably their sacred colour.† The red pigment, with which they formerly anointed their hair and bodies, is of a finer quality, and is generally obtained by laying a quantity of fern fronds in some running chalybeate water, on which a fine ferruginous mud is speedily deposited; more fern is then laid, *stratum super stratum*, until they suppose they have a sufficient quantity, when the whole mass is taken out, the ferruginous particles collected, made up into balls, and baked for use. This fashion of anointing themselves with red, is, however, nearly obsolete;

* These images, like those of the *Lares* of the ancient Romans, appear to have been made in commendation of their ancestors; and may, I think, be not improperly classed as *Lares domestici et familiares*. It does not appear, however, that they were ever worshipped.

† Red, appears to have been a colour used for similar purposes from very ancient times. Herodotus states, that, according to ancient custom, all ships were painted of a red colour (lib. iii. *Thalia*, s. 58); and, speaking of the inhabitants of Western Libya, he says—“The Ausenses stain their bodies with vermillion” (lib. ix. *Melpomene*, s. 191). From Pliny, we learn—“this (red) was much used by the Romans in his time as a paint, and formerly applied to sacred purposes” (*Nat. Hist.*, lib. xxxiii. c. 7). The writer of the Apocryphal book of Wisdom, represents the carpenter fashioning a piece of wood into an image, laying it over with vermillion, and with paint colouring it red (ch. xii). And, in Holy Writ, Ezekiel, the prophet, reproving idolatry, says—“Aholibah increased her idolatries; when she saw men pourtrayed upon the wall, images of the Chaldeans pourtrayed with vermillion” (ch. xxiii. 15. Whether this anciently-used red pigment was, in every case, obtained from native cinnabar, I have not the means of ascertaining; but, from the red oxide of iron being a substance very generally distributed throughout the world, I think there is plenty of room for supposing that such might, with some nations at least, be commonly used.

being only followed by a few of the old grandees of other days. Nothing can possibly present a more disgusting appearance, than a half naked haggard old New Zealand lady with dishevelled locks, who, hearing of your approach, has hastily poured the contents of her *rouge-pot* over her head and face! Such disgust is only surpassed, when such a being condescends to move out of her little enclosure to embrace and rub noses with the white man; an act, requiring no small degree of self-possession and gallantry, on the part of the obliged gentleman, quietly to receive. This red pigment they here call Takou, while among the northward tribes it is known by the name of Kokoöé.

On the rocks near Wareponga, I observed a large species of red conical-shelled *Patella*, which sank the base of its shell considerably into the face of the rock on which it had fixed its residence; these rocks, as before, were composed of indurated clay. Here, too, I obtained some beautiful specimens of fossil marine shells, imbedded in sand-stone; the stone itself being extremely hard. On the sandy shore, in front of the village, I detected a rambling *Clematis*, with ternate, coriaceous, and glabrous leaves, the lower half of each leaflet being greatly crenate. I believed this to be a new species (or, perhaps, a variety of *C. coriacea*, *De Cand. prodr.* 1. p. 5) but, unfortunately, lost my specimens which I brought away for examination.

During the whole night, there incessantly descended—

—— “ Whole sheets of sluicy rain,

Suck'd by the spongy clouds from off the main;”

from which I was happy to take refuge in a native's little hut, which not being finished was far from being water-

proof. Here, among the reeds with which the hut was lined, were myriads of small insects of the *Anobium?* genus, who most annoyingly kept up a continuous drumming and tickling all night. I tried to secure some of these gallant little serenaders, or at least to get them to keep the peace, but in vain. Morning however broke, and being fine, I continued my journey. After travelling for four miles over beaches, I arrived at Waipiro, a small village, whence I directed my course inland, over high and craggy hills. A short distance beyond Tapatahi, a village romantically perched on a high and perpendicular crag, I discovered a timber tree of the Natural Order *Corylaceæ*, from 30 to 60 feet in height, with small oval entire leaves, which may possibly be found to belong to the Linnæan genus *Fagus*. I had first noticed this plant, in this very locality, a few years before, but had not subsequently seen it in any of my wanderings, until I came again to the same spot. I got a native to climb it, in order to procure me a branch, but was disappointed in not being able to procure good specimens. Proceeding onwards, I discovered two elegant species of *Epilobium*, a species of *Convolvulus*, with very small leaves; and a species of *Pittosporum*, which at first I took for *P. umbellatum*, Banks, but have since determined it to be a distinct, and probably a new species, ranking between *P. crassifolium*, Banks, and *P. umbellatum*. Here, while resting on the turf, I noticed the great prevalence of smut (*Uredo*, sp.) in the common indigenous grasses; and also the great profusion of *Edwardsia microphylla*, which every where abounded. At the northern parts of the Island, this tree is by no means common, nor do I recollect ever having seen a single plant in any other locality,

than close by the sides of rivers, and on headlands near the sea. A large erect species of *Ranunculus* I also found in this spot. Towards evening I brought up, in rain, at Te Ariuru, a large village in Tokomaru Bay; a spot, which, by the botanist, will ever be contemplated with the most pleasant association of feeling—for here it was that Sir Joseph Banks and Dr. Solander botanized, in October, 1769. This Bay was called Tegadoo, by Cook. I was obliged to remain at this village a day or two, in consequence of the very violent gale of wind and rain, which commenced on the night of my arrival, and which completely imprisoned me within the canvas-walls of my tent. On the ebbing, however, of the tide, I ventured to the rocks just below me, which, composed of a very hard stone, abounded with petrified marine fossils. In tumbling them over in the rain, I was rewarded with a truly elegant species of *Patella*, which, not finding described, I have named *P. Solandri*,* in commemoration of Dr. Solander.

On the morning of the 4th, I again resumed my journey. My route being by the sea shore, and the sea in many places laving the bases of the clayey cliffs, together with the extreme wetness and slipperiness of almost every thing from the late heavy rains, made this day's travelling very unpleas-

* PATELLA SOLANDRI. *Shell*, oval, anteriorly truncated, much depressed, faintly striated longitudinally, diaphanous, fragile, covered with a thin epidermis; *inside*, smooth, glossy; *vertex*, very much anteriorly inclined, sub-acute, produced, slightly recurved; *margin*, entire, obsolete crenulated within; *colour*, bluish-green, concentrically streaked with brown, beautifully blotched, or tortuously undulated, with same colour towards margin; 5-7 lines long, 4-5 lines broad. *Hab.* Adhering to the under side of large smooth stones; Tokomaru (Tegadoo) Bay, E. coast, N. Island, New Zealand. *W. C. MSS., ined.*

ant. At Motukaroro, the romantic and weather-worn S.E. headland of Tokomaru Bay, the colossal bones of a huge whale lay bleaching on the strand. A black and graceful species of *Hæmatopus*, with orange-coloured bill and legs, is common on these undisturbed shores. Their cry is very quick and shrill. These birds generally keep together in pairs; the plumage of the young ones is grey, with greyish bill and legs, totally unlike those of the parent bird. The natives call them Torea, and believe that this bird knows of an approaching storm, which he indicates by a difference in his note; crying, “Kería, kería” (dig, dig—i. e. shell-fish out of the sand, by the waves, as food for himself), before a storm, and “Tokía, tokía,” after one. At 3 p.m., I passed Waihirere, a beautiful waterfall, which fell down a perpendicular sandstone cliff, the face of which, covered with mosses and ferns, appeared more than ordinarily lovely in this desolate and otherwise barren spot. I took a hasty glance at the vegetation, in hopes of finding somewhat new, but could not detect anything. I obtained, however, another distinct species of *Patella* from the rocks, in this day’s journey. By sunset, I reached Anaura, a small village on the sea coast. Here, in the houses of the natives, a quantity of a thick succulent *Fucus* was hung up to dry, which they informed me they used as an article of food, mixing it with the expressed juice of Tupakihe (*Coriaria Sarméntosa*, *Forst.*), to give it consistency. This *Fucus* they called Rimurapa. I noticed the beautiful little glossy Cuckoo (*Cuculus lucidus*), as being very abundant in this neighbourhood. This handsome bird is migratory, only remaining about three or four months in New Zealand; but where it goes to in the winter has not yet been ascertained. The natives—

knowing that it left their country, and not being aware of the proximity of any land to which it could resort, nor of the powers of flight of which a bird is capable—asserted that it spent its winter on a whale's back! Like the European cuckoos, it changes its note in about a month after its arrival, which, to the New Zealander, is very pleasing, being his assured sign of summer. It is a bold bird, coming frequently into gardens in search of insects. By the natives of these parts it is called Koekoeä; but, by the northern tribes, Pipiwarauroa.

Leaving Anaura, and striking inland, I ascended some steep hills, on whose summits I noticed several fine trees of the *Trophis* genus (*T. opaca?* Sol.); none, however, possessing either flower or fruit. Passed some clumps of *Kahikatea* (*Dacrydium excelsum*) this day; the land about being swampy, rushy, and very poor. Secured some fine specimens of the genus *Epilobium*, and two new ferns, *Polypodium sylvaticum*, and *Davallia Novæ-Zelandiæ*,* which grew here, beneath the forest's shade. Arriving at the banks of the river Uawa, at present a muddy rapid stream, swollen greatly through the late rains, I noticed a *Lobelia* (probably, *L. angulata*, Forst.), and a species of *Violaceæ* (*Erpetion?* Don.), growing thickly on its banks. After some little time spent in fording the stream (which I managed to do with the assistance of some strong natives), I continued my journey until I arrived at Mangatuna, a small village, where, on the pressing solicitation of the chief, I consented to spend the night. Here, I found an old blind chief, who, for a time, valiantly defended the native superstitions. Our discussion, which was not a

* Vide "*Filices Novæ. A Classification*," &c. Tasmanian Journal, vol. ii. p. 161, for a description of these ferns, and of several other new species discovered in this excursion.

little animated, engrossed the attention of the by-standers. This old man, whose name was Hakahaka, also stated, that he recollected Cook's visit in 1769, although he was but a very little boy then. From this village, recrossing the Uawa twice, I proceeded over rich alluvial plains, which form its banks to the sea-side; obtaining a few small plants by the way, which were new to me. At 2 p.m. I reached Honurora, a large village on the sea coast, at the mouth of the Uawa river. This river has a bar at its mouth, but small vessels of 20 to 40 tons can come in, and lay quite alongside of the village. Such have entered, but the master of one of them informed me, that it is an utter impossibility to remain in the river during a fresh occasioned by heavy rains in the winter season.

This bay, or rather open roadstead, is the Tolaga Bay of our illustrious circumnavigator, Cook. Here, his ships were at an anchor in October, 1769; here it was, that the first of those elegant trees, *Knightia excelsa*, Brown, was seen, and the first New Zealand Palm (*Areca sapida*, Sol.) cut down for the sake of its edible top. Here, too, near the S.E. headland of the bay, Cook dug a well, for the supplying of his ships with water; which well is shown at this day by the natives, to the curious "white man" travelling this way.

The native-built chapel at this village, though not so large as some which I had lately seen, is well worthy of notice. Without, it is a plain building, 34 feet long by 24 feet wide, and nearly 20 feet to the roof. Within, however, it has an elegant appearance, being very neatly reeded with the long slender culms of *Arundo australis*, closely placed and firmly fastened on the outer wall, composed of flat bundles of *Typha angustifolia*. The broad posts, or rather pilasters, are

of the dark and almost fossil Totara already mentioned, cut and smoothed nicely with a little adze, without the help of a plane; whilst, upon and across the reeds in the interstices between the posts, narrow black and red wands of thin slips of wood are alternately disposed at regular distances, each being continuously and doubly bound, in the shape of a St. Andrew's cross, with very narrow strips of the white fibres of *Freycinetia Banksii*. On the morning of the 9th, I once more recommenced my journey, crossing the Uawa at its mouth in a canoe. At first my route lay inland, but I soon found I had to descend again to the sea coast. In descending a high hill near the sea, I was gratified and rewarded, in discovering an elegant little *Arthropodium* in flower. This very distinct species, only 6-9 inches high, I only detected in this locality, although I sought it assiduously throughout the remainder of my journey. Close by it, a fine shrubby *Pimelea* flourished. A very shy and peculiar bird, closely allied to the cuckoo tribe (perhaps a species of *Eudynamys*) was to be met with in these parts. This bird has a remarkably attenuated body and tail, with a silky spotted plumage, and a very sweet note. I have heard it, occasionally, in the middle of the night; the natives call it, Kohaperoa. Proceeding on, over long sandy beaches, I was soon overtaken with rain, from which I endeavoured to shelter under some fine trees of *Corynocarpus laevigatus*, *Forst.*, which often grow in clumps near the shore; but the rain continuing, I was obliged to proceed. From some natives whom I met I obtained a basket of fresh *Haliotes*, the black fish of which, my baggage bearers ate raw with great zest. On their shells I found a peculiar little *Patella*, identical with a species discovered by Dr. Joseph Hooker, at Auckland Island.* At 4 p.m., we arrived at

Parinuiotera, the high bluff promontory commonly known, from its appearance at sea, by the not inappropriate, though quite unclassical, cognomen of Gable-end foreland. This remarkable headland, of not less than 200 feet in perpendicular height, is entirely composed of white indurated clay, on whose face and sides grew not so much as a single moss or lichen, from the continual crumbling down of the clay of which it is composed. Here, in the pelting rain beneath this towering crag, where we could scarcely stand on our feet, owing to the extreme slipperiness of the clayey rocks, we found that the tide had not sufficiently receded to allow of our passing onwards without hazard. As, however, the evening was drawing on, and we had still some distance to travel ere we should meet with either food or shelter, we were necessitated to make the attempt. Scrambling, in some places, on all-fours like a cat, and upborne in others by my faithful natives, I rounded this cape through the breakers (passing under a natural archway in the rocky cliff), and got in safety to the other side. Continuing my march, I collected several species of *Algæ*, which were new to me. At sunset we arrived, wet, cold, and hungry, at Pakarae, a small village containing about twelve persons; who, according to their custom, heartily welcomed us, although, as we subsequently found, they had not a scrap of food to give us! The old chief kindly pulled up three stakes from the fence of his little city (for trees there were none in this neighbourhood), as tent-poles for my tent; and presented me with a dead cray-fish,

* Both the botany and conchology of Auckland Island, appears not only to be closely allied to those of the New Zealand groupe, but to consist of the very same genera, and in many instances, the same species.

which I was happy enough to obtain and divide among six of my party (including myself) as a substitute for supper. The next morning I started early (having procured a basket of sweet potatoes for breakfast, which were fetched during the night from some distance), travelling, as yesterday, by the seaside. At 2 p.m. my party halted to roast a few potatoes for our dinner, which afforded me an opportunity of straying about a little; in doing so, I was fortunate enough to find *Euphrasia cuneata* in flower, which was abundant hereabouts on the low clayey cliffs; and three plants of *Compositaceæ* which were new to me; one of which, a curious little one-flowered plant, was covered with a thick viscid substance, which exuded from its glandular pores. Here, also, procumbent on the sand, I found a small plant, in habit and general appearance somewhat resembling *Tetragonia expansa*, but differing widely in its fruit, its berries being large, succulent, pimpled, and dewy, and filled with a carmine-coloured juice. This juice is used by the natives of these parts in writing, as a substitute for ink; but, like most other simple vegetable dyes, is very evanescent. The natives call the plant Kokihi. A small straggling procumbent plant, which at first sight I supposed to be *Anchusa spathulata*, *Roem.*, also grew here; but that plant is described as possessing "*foliis ovatis obtusis*," which this one has not; to that natural order, however, it belongs. The summons being given, to dine and march, I obeyed; and, leaving the seaside, struck inland, over low sand-hills and through a long swamp of *Phormium*. About 5 p.m. I reached the river at Turangunui, a village in the inner N.W. angle of Poverty Bay Crossing the river in a canoe, I made the best of my way to Kaupapa, a church-mission station, where Arch-deacon Williams resides. This place I reached at 7 p.m.,

quite tired. The very hospitable reception, however, which we all received from the Archdeacon, went far towards causing us to forget the toils of the journey

I may here remark, that the White Mangrove (*Avicennia resinifera*, Forst., *A. tomentosa*? Linn.), so very common in salt water creeks and marshes in the northern parts of the island, was not seen anywhere on this line of coast. The natives say, that it does not grow in these parts; their name for this tree, is Manawa.

At Poverty Bay I remained several days, and during my stay obtained specimens of several new and little known plants; among which I may notice—a fine spiny shrub of the Natural Order *Rhamnaceæ* (probably of the genus *Discaria*, Hook.), which grows plentifully here in the alluvial plains on the banks of the river. It attains the height of 2-4 feet, and will, doubtless, make an admirable fence. The natives give this plant the expressive name of Tamatakuru, i.e. Standing-face-beater.—A very lovely and fine moss, with large membranaceous leaves;—a one-flowered *Compositaceous* plant, possessing an elegant coloured and imbricated involucre ;—and a curious minute *Lemna*-like floating plant, were among the number of my spoils. I was rather surprised to find the Ngaio (*Myoporum lætum*, Forst.) growing very commonly here as a small forest tree, with a straightness and height unknown in the northern parts of the island. In the Bay of Islands, and adjacent districts, *M lætum* is an irregular growing shrub, or *small tree*, and *only found* in the immediate neighbourhood of the sea, there, too, its wood as so small, as not to be of any use, and is not even collected for the purpose of firing; whilst, here, the tree at-

tains the height of 30-35 feet, and its wood is very commonly used by the natives for posts, poles, rafters, &c.

On the morning of December 20th, I once more recommenced my journey, directing my course, for the first time, directly into the interior. Proceeding up Turanga valley by the river's banks, over alluvial and grassy plains (sure indication that the whole of this ground had at some period been cultivated by the natives, who are very numerous in this district), I reached the forests at the base of the first high range of hills by 2 p.m. In my way thither, I observed another fine plant of that unique and leafless *Rubus*, which I discovered in Waiapu valley, much, however, in a similar state. Here, I obtained a tall and new species of Compositaceæ;— a *Viola*, which grew plentifully on the river's banks, though not in flower;—and an elegant membranaceous-leaved fern (*Lomaria rotundifolia*, *n.sp.* *W.C.*). In pools, in marshy grounds, I discovered a fine aquatic *Ranunculus*, with very long and fistulous petioles, nearly as stout as the barrel of a goose quill. On the clayey hills, and generally in dry elevated spots, I obtained specimens of two plants, possessing a very Aster-like appearance, and which may probably prove to be species of *Celmisia*. Ascending a hill, I discovered a plant with copious verticillate inflorescence, large subrotund leaves, and long succulent petioles. Most unfortunately I could not find a specimen possessing either flowers or seeds, although I sought most assiduously for such. It must have flowered very early in the season, as both carpels and peduncles in every specimen were quite withered. Some flower-stalks were from 12 to 20 inches in height.* From a barren hill in this locality I obtained a *Lycopodium*, which I

had not before noticed; together with a few mosses. From these heights the prospect is most extensive. Beneath me, as a panorama, was Poverty Bay, with its romantic headlands; while far away to the left, Hikurangi (the mountain near Waiapu) hid his venerable head in clouds. The atmosphere, however, was so filled with smoke, arising from the fern which was burning furiously to windward, that it was only with difficulty that I discerned a single distant object. Continuing my march till near sun-set, I halted for the night by the side of a small stream in a desolate wild, called by the natives, Tapatapauma. Here, several species of the genus *Epilobium* flourished luxuriantly, of which I secured specimens. The sides of the rivulet were ornamented with fine plants of a species of large-leaved ? *Fagus*, which I believe to be quite distinct from a closely allied species discovered by me at Wangarei, in 1839.† I think, however, that both of these species will be found to possess affinity with *Fagus Cunningkam.ii*, Hook., a species found in Van Diemen's Land.

* Since penning the above, I am happy in being able to add, that I have obtained (subsequent to my return to the Bay of Islands) fine living specimens of this plant, through sending a native from Turanga to procure some roots. These have flowered since they have been in my possession. Its corolla is monopetalous, labiate and quinquefid, with didynamous stamens, and superior unilocular ovary. It may probably rank under the Natural Order *Cyrtandraceae*; which order has, hitherto, been only represented in New Zealand by a solitary species.

† The leaves of the species of *Fagus* detected at Wangarei, are, ovato-cordate, serrate nearly to base, truncate, sub-tridentate, serratures in each leaf 15-21, petioles slightly villous, leaves larger and broader than in the species found at Tapatapauma; which are, rhombic-ovate, upper half of leaf serrate or sub-laciniate, much more truncate, tridentate, and attenuated at base, serratures acuminate or mucronate, 11-13 in each leaf, petioles and whole upper surface of leaf, tomentose.—*W. C. MSS., ined.*

The next morning I resumed my journey. Gaining the summit of the hill before me, I had an extensive view of the interior. Hill rose on hill (Pelion on Ossa) in continuous succession, as far as the eye could reach. To the left, was Waka-punake (the fabled residence of the gigantic *Moa*), an immense table-topped hill, or rather mountain; while to the right, far away in the distance, a peculiarly precipitous mountain cast its bold outline in fine relief into the sky; this, my native guide informed me, was Waikare, to which place we were going. Time, however, would not permit a lengthened gaze, so, descending the hill, I proceeded on. Here, among the short tufty grass, I detected a pretty little *Ophioglossum*, which apparently differed from those already noticed by A. Cunningham. Here, too, I first gathered that very graceful fern, *Lomaria linearis* (*n.sp.*, *W.C.*), which grew rather abundantly in one spot in these grassy dells. On the dry and barren summit of a high hill, I procured a peculiar little cæspitose *Composita* and secured for examination a specimen of *Leptospermum*, which appeared to be new. In this neighbourhood I discovered a new and very distinct species of *Coriaria*; an elegant procumbent plant, with undulated and sub-membranaceous ovate-acuminate leaves. It seldom rises above two feet in height, and is mostly found quite prostrate, and very abundant; disputing the possession of the soil with those very common occupiers, *Pteris esculenta* and *Leptospermum Scoparium*. Among the fern it has a strikingly peculiar appearance; and, at first sight, might almost be taken for a gigantic foliaceous Lichen overspreading the surface of the ground. I did myself the pleasure of naming this species *C. Kingiana*, in honour of my much respected friend,

Captain P.P. King, R.N.; and was fortunate enough in procuring good specimens in flower and fruit. At Hopekoko, a small stream (where we rested awhile to dine on roasted potatoes), the bed of which, at the ford, was one flat block of sand-stone, I procured specimens of a little *Restiaceous* plant, and a *Hydrocotyle*. Having feasted with most hearty zest on our roast, and fallen into marching order, I soon arrived at a small cataract, down which the water fell perpendicularly about twenty feet, into a deep and dark basin. The only ford at this place was on the very edge of the fall (composed of a single mass of rock), over which I was obliged to be carried, not daring to trust myself on that perilous and slippery path, which reminded me of *Al araf*, the bridge to the Mahometan Elysium. As it was, I very nearly fell, through nervous excitation, into the depth below. In this neighbourhood I detected another small *Lomaria* (*L. deflexa*, *n.sp.*, *W.C.*), together with a small *Compositaceous* plant, for which I had been some time looking out, having before seen its foliage. Passing through a deep swamp, I hastily snatched specimens of several plants, which appeared to be different species from those I had hitherto obtained, for examination. About sun-set we arrived at the banks of the river Wangaroa (one of the principal branches of the river Wairoa, which disembogues into Hawke's Bay); here I obtained two canoes from the natives, and paddled down the river about 2 miles to Te Reinga, the principal village of this district. This river winds round the enormous hill, Wakapunake, at the base of which the village is situated. I had often heard from time to time from the natives, of this place, and of the abyss-like cataract in its immediate vicinity, and had long cher-

ished a hope of one day visiting it. Tired as I now was, I wished for morning that I might realize my desire, and gain a few more additions to the New Zealand Flora. The roar of the waters during the stillness of the night, had much that was soothing as well as solemn in the sound. Morning broke, and, prayers and breakfast over, I entered into a little canoe and paddled about 200 yards to the bed of rock, which, crossing the river, dams up the water and causes the fall. This cataract, from its situation, is exceedingly romantic; the most so, I think, of any fall I have yet seen in New Zealand. The bed of rock, or rather deposit of indurated clay sand and mud of a very white colour, which here obstructs the progress of the river (and through a narrow pass in which the water rushes) is filled with marine shells in a fossil state; although at a great distance from the sea, and at a very great height above its present level. This bed of white rock is large, being not less than 200 feet in width; and, when the river is swollen by the winter's rains, surrounded as it is by high and densely wooded hills, the fall must present a very imposing appearance. I gained several specimens of shells, Uni- Bi- and Multivalve, by digging them out of the rock with my hatchet. Among them were specimens of the genera, *Terebratula*,* *Voluta*, *Pecten*, *Lepas*, and others at present unknown to me. The waters fell from rock to rock three several times, ere they were swallowed up in the dark eddy-

* TEREBRATULA TAYLORIANA (*Fossil.*); Shell ovate, ventricose, very solid, smooth, concentrically and absolutely striated, lamellar; margin apparently entire; summit of larger valve much produced, arcuated, sub-deflexed, thick, very truncate; perforation large; horn, or light mouse-coloured; length, $2\frac{1}{4}$ inches; breadth, $1\frac{1}{2}$ inches.

Hab. In a mass of indurated deposit of sand and mud, forming the cataract

ing gulph below. The deep gloom of the river in the gorge beneath—the different hues of the dense masses of foliage on either side—the sun-beams peering downwards through the tops of the trees—the enormous bed of rock above, as white as snow—the natives, who accompanied me, perched here and there upon the same—and the little village in the back-ground, combined together to cause an enchanting and undescribable scene, possessing powerful effect. In the height only of the fall, was I disappointed. I attempted a hurried sketch, but could not do the scene before me justice; in fact, I had too many things to do at once, consequently I did nothing well. I wished, afterwards, when it was too late, that I had remained a day at this place, instead of passing on post-haste in the manner I did. I just glanced at the vegetation here, and obtained some specimens of white-flowered *Gnaphalium*, with very narrow linear leaves, which I had not before seen. Returning to the village, and obtaining, though with great difficulty, guides and baggage-bearers to Waikare, I again resumed my journey. Paddling up another branch of the river, named Ruakituri, for about a mile, we landed on the left bank. The sun was intensely powerful, not a zephyr playing, nor a cloud in the air, nor a tree nor bush, which could afford a shade, anywhere at hand. Through unfrequented paths (if paths, such could be termed), up and down steep hills, overgrown with young fern (*Pteris esculenta*),

on the river Wangaroa, at the base of the mountain Wakapunake, near Hawke's Bay, E. coast, N. Island of New Zealand. *W. C. MSS. ined.*

Obs. This fine species of former days has been named after the Rev. R. Taylor, of Waimate, New Zealand; whose assiduity in both geological and conchological research is too well known to require comment.

which at this season is peculiarly disagreeable from the clouds of fine yellow dust with which it is loaded, and which, inhaled at every breath, causes you incessantly to sneeze, we travelled until 3 p.m., many times halting by the way. Oh! how often and how truly this day, might I have exclaimed, with the poet—

“All-conquering heat, oh intermit thy wrath!
And on my throbbing temples potent thus
Beam not so fierce! —————

—————In vain I sigh,
And restless turn, and look around for night;
Night is far off and hotter hours approach.”

Thoms. Seas., Sum.

Having roasted a few potatoes, on which we dined, I endeavoured to cheer my companions in travel, but to little purpose Re-commencing, however, our Journey, we continued our march, through want of water, until long after sunset. Fortunately, I succeeded in finding some, by the side of which, in the wilderness, we encamped—all too fatigued to care much about anything save rest. Gained nothing new in the whole of this melting day's horrid march; fern, fern—nothing but dry, dusty fern, all around! I gathered somewhere, in the course of the day, a diseased branch of *Haxtonia furfuracea*, which was curiously distorted, and surrounded with several cells of almost a regular hexagonal shape, probably caused by the punctures of insects. I have often noticed such deformities in various plants, but, as far as I recollect, I never saw it so regular or so large before. A river, the bed of which we descended into and crossed, ran at the depth of from 30- to 80 feet below the surface of the soil on either side. A coarse slate, and thinly stratified sand-

stone, formed its bed.

The next morning at a very early hour we arose, and, with stiff and unwilling limbs, proceeded onwards. Want of food, in great measure impelled us forward, as we had yesterday been led to suppose, that we should reach the next village by night. After three long hours spent in active exertion, we reached Wataroa, a small village, where we were heartily welcomed. Having breakfasted and rested awhile, we left this village, and continued our march, which, as yesterday, lay over high hills, which rose in perpetual succession before us, appearing as if they were without valleys between. The country, as we progressed into the interior, became more and more barren; a scanty vegetation of stunted *Pteris esculenta*, *Leptospermum scoparium*, *Leucopogon Fraserii*, and such plants, alone existed on these dry and sterile spots; save where, in the deep glens between the hills, a clump of wood was to be found, shewing their heads of foliage here and there like Oases in the desert. The soil was dry and dusty, and principally composed of broken pumice. Towards evening, from the crest of one very high hill, I had, in looking back, a splendid, though distant, prospect of Hawke's Bay, and the high and rugged land bounding the same. On the top of this hill I obtained specimens of a small tree, a species of ? *Weinmannia*; a few stunted plants of which were here scattered about. My native guides assured me, that no person could keep his footing on this elevated spot when the south wind blows; an assertion, which the denuded and bare aspect of the place, together with the very stunted appearance of the few trees and shrubs on it, seemed fully to corroborate. Bivouacked for the night at Wakamarino, a little village on the banks of a small river.

Early the next morning I re-commenced my march towards Waikare Lake, the old chief of Wakamarino accompanying me. An hour's walking brought me to Waikare taheke, a rapid stream of about four feet deep, caused by the exit of the waters of the lake towards the sea, and which here most outrageously tumbled over a long and sloping bed of rock. A bridge of trees (and one of the best constructed native bridges I have ever seen) was thrown across the foaming torrent, which, though strongly secured together, seemed as if every rush of the bounding water would carry it away. A nervous person would scarcely have hazarded himself on such a vibrating and precarious footing. The beauty of the spot riveted my attention for a few moments, and I almost determined to venture on a sketch. I gathered a handsome moss in this place; and, a little further on a *Polypodium* (*P. viscidum*, *n.sp.*, *W.C.*), every frond of which was more or less covered with pappus, downy seeds, and other such light substances, blown by the winds. We soon arrived at the village, situated on a high headland jutting into the N. side of the lake. The gateway was, as is often the case, embellished with a pair of huge and hideous clumsily carved figures, besmeared with red pigment, armed with spears, and grinning defiance on all comers. The wind now blew so very strong, that it was not possible to cross the lake in such frail canoes as this people had at command, so I was obliged to pitch my tent here, although it was not an easy matter to find a place suitable, owing to the very great unevenness of the ground, its unsheltered situation, and the very high wind. Here, I was confined a prisoner until the morning of the 29th, when the wind lessening I made my escape, and crossed in safety to the oppo-

site shore. Whilst detained, however, I made the most of my time, and was amply rewarded with specimens of new plants. And, first, I will notice another beautiful species of ? *Fagus*, with small, broad, adpressed, coriaceous, and biserrate leaves, which grew plentifully in the immediate vicinity of the lake, and possesses, especially in its young state, most elegant foliage. Unfortunately, however, I could not find a single flowering specimen, although I carefully sought for such, and hired natives to climb the trees in search of the same. A few capsules of the preceding year were all I could procure. The natives wished me to believe, that this tree did not bear fruit every year, and they had also remarked, that when this tree bore fruit other trees did not! It grows from 30 to 50 feet in height, and is not so robust as the large-leaved species; the natives call it Tawai. Here, also, the small oval-leaved species grew abundantly, attaining to a considerable size and height. A graceful shrub of the Order *Compositaceæ*, with sub-orbulate leaves and sub-sheathing petioles, I found near the edge of the lake This shrub grows in rather a diffuse manner, and is from two to three feet in height.* On the sand-stone rocks, I found a beautiful minute *Lobelia*; a perfect little gem! scarcely an inch in height. It was scarce, and grew where it could only have been nourished by the spray and waves of the lake. Among these rocks, I also found a species of *Plantago*, with long lanceolate leaves; and a fine *Hydrocotyle*. Just above, on the banks, I detected a peculiar ?*Araliaceous* tree, which was common here; it grew in a straggling manner to the

* I am much gratified, in having a fine young plant of this very graceful shrub now living, from seed sowed by me, on my return from my journey.

height of 25-30 feet. A large and new species of *Coprosma*, a small tree from 10 to 14 feet high, I also obtained good specimens of. Rummaging about among the dry and more elevated rocks (which lay piled in enormous masses on each other), I found an elegant little fern (*Asplenium Colensii*, *n.sp.*); and, on the top of the little promontory on which the village was situated, I discovered a very handsome *Dicksonia* (*D. lanata*, *n.sp.* *W.C.*). This graceful fern was abundant in this locality; some of its fronds were from 24 to 30 inches in length. Had I not been very anxious to prosecute my journey, I might have spent a very agreeable time at this romantic and interesting place. Such, however, was not the case; the people among whom I now was, had scarcely at this season any food for their own use, and, although they exerted themselves to the utmost in their endeavours to be hospitable towards me and my party, they could only allow us two scanty meals of roots and herbs per diem.

Although at this season, harvest was about commencing in the more northerly parts of the island, here, in these elevated spots, it was so cold, that I was often obliged to keep on my cloak, or walk briskly about to keep myself warm. The natives assured me, that the snow lay many feet deep on these hills in the winter; and that in such seasons they kept within their houses. Their houses are large and warm, and curiously constructed to keep out the severity of the winter's cold; being built over a large pit, or trench, the fill size of the house. Thus a house, which on the outside appears to be only three or four feet high, is, when you descend into it, from five to seven feet in height.

I obtained from the lake some fine, specimens of *Unio*;* the only living thing (according to the natives) found within its waters. I supposed this sheet of water to be about six miles in diameter; but could only guess as to its probable size, from its very irregular shape. The lake is very deep and clear, and the bottom rocky.

A peculiar sea-bird, called by the natives Títí, and which often flies irregularly at night, making a noise resembling, Tee-tee-tee-tee, rapidly uttered (whence its name), is sometimes taken here in large numbers. From the natives' account, it should appear, that these birds resort, at certain times, to the tops of the highest and barrenest hills, where the natives assemble and make fires on foggy calm nights, which fires decoying the birds thither, they are easily taken with nets. I have often heard this bird at night, but have never seen one. It is, I think, highly probable, that they may belong to the genus *Procellaria*.

On the morning of the 29th, the wind lessening, we hazarded a passage, and crossed in safety to the opposite side. The "ever-changing" woodland scenery appeared most lovely, as we, in our little canoes, wound round the bases of these everlasting hills. Here, for the first time, away from the immediate sea-coast, I noticed the littoral species of *Metrosideros*

* UNIO WAIKARENSE; Shell, oblong or oblong-ovate, concentrically and irregularly sulcated, sub-diaphanous, inflated; anterior side produced, obtuse, slightly compressed; posterior slope keeled, sharp; base, slightly depressed; umbones decorticated, flattish, much worn; primary tooth, large, crested; epidermis, strong, overlapping at margin, wrinkled on anterior slope; colour, brownish-yellow on posterior side, shading into dusky green on anterior, with alternate light-coloured lateral stripes; 3 1/2 inches broad, 2 1/4 inches long.

Hab. Waikare Lake, mountains, interior of the N. Island of New Zealand.
—*W. C. MSS., ined.*

(*M. tomentosa*, A. Cunn.). It grew, however, in similar rocky situations, close to the water's edge, and after the same very diffuse manner. Parasitical on its branches, in great abundance, flourished *Loranthus tetrapetalus*, Forst., gorgeously displaying its profusion of scarlet blossoms. On getting into shallower water, I obtained specimens of a graceful *Myriophyllum*, which was attached to the bottom of the lake, and grew under water to the length of several feet. We landed at the margin of a wood, the trees of which overhung the water; where, at the pressing request of the natives who lived near by, I consented to spend the remainder of the day and night. As they did not, however, assemble together till near evening, I had a little time to botanize, and which, I trust, I fully used. It was, indeed, a lovely spot: that constant humidity, so requisite for the full development of the varied tribes of the Cryptogamic Family in all their beauty, was ever-present in these umbrageous solitudes. Commencing at the water's edge, I gathered specimens of a peculiar *Rumex*-like herbaceous plant, which grew within the water. Close by a small *Myrtaceous* shrub, clothed with *Lichens* and *Jungermanniæ*, attracted my notice; this shrub attained to the height of seven feet. Several beautiful Mosses and *Jungermanniæ*, next entered my vasculum. A beautiful foliaceous *Lichen* grew here on the trunks of living trees, having spherical black *sorediæ* on its under surface, which appeared quite unique. Another fine species, bearing *scutellæ* on the edges of its *thallus*, grew also on these trees. I here obtained fine specimens of A. Cunningham's new genus *Ixerba*; and, in doing so, almost dared to hope that I had gained a second

species of this peculiar and handsome genus. This differs from *I. Brexioides*, Cunningham's plant, in its anthers being almost elliptical scarcely ovate, its twisted style, its larger corymbs containing 5-10 flowers, its lanceolate leaves shorter and broader, its much larger size, and robust habit, attaining the height of 40-50 feet, and being, too, one of the commonest trees of these woods.* I also procured specimens of a *Coprosma*, a graceful shrub, 3-6 feet in height, with oblong-lanceolate leaves; a *Senecio*; a *Solidago*, which, from habit and general appearance, being only from 1 to 3 feet in height, appeared to be distinct from *S. arborescens*, *Forst.*; and a fine shrubby *Leptospermum*: these plants were all quite new to me. Here, also, I was so fortunate as to detect several new species of the beautiful genus *Hymenophyllum*. *H. Franklinianum*, a lovely climbing species, pendulous on living trees, whose trunks it completely clothes with the exuberance, of its fronds—*H. pulcherrimum*, an elegant and noble species, also epiphytical on trees in the darker recesses of the forest; this is one of the largest species yet found in New Zealand, some fronds measuring 15 inches in length—*H. spathulatum*, also a fine species, epiphytical on living trees overhanging the lake; this fern possesses a peculiar appearance, from having a number of black botryoidal masses on

* IXERBA BREXIOIDES, Cunningham's plant, is, in these particulars, thus described by him: — "*Antheræ* ovatae acuminatae. *Stylus*, 1, angulatus, continuus, versus apicem attenuatus. *Flores*, corymbosi, pedunculis (uncialibus) plerumque trichotomis. *Folia*, elongato-lanceolata acuminata, 4-5 uncialia." [5-6½, *W. C.*] "*Arbor* elegans viginti pedalis et infra. A tree of very rare occurrence."—*A. C. in Ann. Nat. Hist.*, Vol. iii., p. 250.

the edges of the segments of its frond, evidently caused by the punctures of some insect—*H. atrovirens*, a small dirty looking species, found on wet stones in low shady humid spots—and *H. revolutum*, a small filiform species, epiphytical on reclining trees in damp places. A handsome species of *Polypodium*, apparently a variety of *P. Grammitidis*, *R. Brown*, but having its lobes deeply incised and sub-pinnatifid; and an elegant and new species of *Grammitis* (*G. ciliata*, *n.sp.*, *W.C.*). I also discovered in this locality. Several beautiful mosses, too, I gained during my short stay here; among which I was much pleased to find in fruit the very elegant species whose fronds I had before detected in a wood near Poverty Bay.

The next morning I resumed my journey experiencing no little difficulty in the obtaining of a guide over the mountains, in which service I was obliged to enlist all my suatory powers. This point settled, we commenced ascending from the shores of the lake, passing through dense forests, chiefly composed of fine trees of *Podocarpus*, *Fagus*, and *Ixerba*. Having gained the summit of the range, we found travelling easy; for in these forests, where the broad-leaved *Fagus* is the principal tree, there is but little underwood. Indeed, plants generally seem as if they did not like the shade of these trees. One of the first things which attracted my attention this morning was a peculiar little hexandrous plant of climbing habit, with large and succulent white superior-berried fruit, terminal and solitary, with alternate linear-lanceolate leaves entire and mucronate, having parallel veins, laterally netted, which grew here and there at, the foot

of large trees, wherever the light decaying vegetable mould was deepest. I sought assiduously for perfect specimens, and was at length rewarded with such in flower and fruit. This curious little plant has a most peculiar aspect, evidently constituting a remarkable link between endogens and exogens. To me, its affinities appear to rank it somewhere near the Natural Order *Smilacæ*. I have not, however, met with anything like it in New Zealand. Some small shrubs I noticed having the habit of *Myrsine*, but could not detect, them in flower or fruit. My peering about was eventually rewarded with a new terrestrial *Orchis*, a pretty little plant with a single leaf, bearing a long one-flowered scape; it grew singly about the bases of large trees, and, appeared to be scarce. The natives told us, before we started, that we might expect rain on these mountains (they having a proverb to the effect that it is never dry in these parts), and so, indeed, it came to pass. After we had proceeded for about two hours, it began to pour down in torrents; no shelter being at hand we were obliged to continue on in the cold and pelting rain. I much regretted the state of the weather, as I had every reason to expect many new and rare plants in these elevated regions. The trees and shrubs, large and small, were all beautifully festooned and draped with *Jungermannia* and *Musci*, as if done with fairy fingers; evidencing the eternal humidity of these forests. The family of *Filices*, too, presented the most lovely spectacle, this day, I ever witnessed. In these deeply-shaded recesses, my enchanting *Todea superba*, and graceful *Lomaria rotundifolia*, flourished in perfection; the densely-crowded and dark green fronds of the former, contrasting so beautifully with the light-coloured, elegant and

membranaceous ones of the latter. The fronds of these ferns were grouped in ever-living circles of green, from five to six feet in diameter; many single fronds of either plant measuring upwards of three feet in length. With them grew two species of *Aspidium*; one, *A. pulcherrimum*, a truly fine plant, is one of the most lovely ferns in New Zealand. Many of its gracefully flaccid fronds measured upwards of four feet in length. The other, *A. Waikarensense*, is also a handsome fern, though smaller, and more rigid in its growth and habit than the preceding. Another new species of *Lomaria* (*L. latifolia*), I also found growing in these spots. Notwithstanding the warring of the elements, I gazed entranced upon these beautiful productions of Nature, and wished much to secure good specimens. I was obliged, however, under existing circumstances, to content myself with a couple of specimens of each species, and these, too, hastily gathered and put up dripping wet, to the very great astonishment of my natives. Proceeding on, I found, in more open situations, a pretty little *Irideal* plant (perhaps *Libertia micrantha*, *A. Cunn.*, or a n.sp.) growing most profusely, reminding me, in the distance, of the "daisied meads" of my father's land. Ascending still higher, in pelting rain, I discovered a handsome species of *Viola*, bearing a large white flower with orange-coloured throat, and very fragrant smell. I hastily removed this interesting plant from its mossy bed to the bosom of my cloak, now nearly as wet as the bank where it originally grew. Growing with it I found a small *Epilobium* with axillary inflorescence. I had fondly hoped to have fallen in with a specimen of that rare, and hitherto little known, bird, *Neomorpha crassirostris* (the Huia of the natives), in this locality; hav-

ing understood that they were found in these parts. The name, too, of the mountain, Huiarau (i.e. hundred Huias), had not a little increased my expectations. I was, however, disappointed; the incessant rain preventing my seeing anything but what lay just before me. This bird only inhabits the mountainous districts of the southern part of this island. It is said to be small, black, and slender, its tail feathers being long and broad, tipped with white. These feathers are much valued by the natives, as ornaments for their hair. I obtained from Te Kaniatakirau, chief of Uawa, a Huia feather from his hair, on leaving that place. In this locality I secured specimens of several plants of the *Coprosma* genus, all small shrubs from three to five feet in height. A small divaricate shrub without fruit, but apparently a species of *Myrsine*; and a fine epiphytical *Lycopodium*, with terminal spikes of fructification, attracted my attention; in habit and growth, this latter plant much resembles *L. Flagellaria*, Hook., of which species it may possibly prove a variety. A small aromatic-leaved tree, with black bark, apparently belonging to the Natural Order *Winteraceæ*, I also discovered, and got good specimens of. A beautiful and delicately white *Lichen*, here grew on the trees, causing, in some situations, a very striking effect. The densely wooded mountains over which I this day passed, were chiefly composed of sand-stone, which shewed itself in various stages of decomposition, in the very many slips in their sides. In descending one of these gorges (which required in some places no little caution; for, on one occasion in particular, the native who carried my box of testaments, &c., slipped his foot and went—sliding away—until

he was staid by a friendly tree, fortunately without receiving any injury; the box, however, was knocked to pieces with the violence of the concussion), I found a small glaucous glabrous species of *Pteris* (*P. montanum*, *n.sp.*, *W.C.*), in affinity near *P. Brunoniana*, *Endl.* A smaller variety of *Polypodium sylvaticum* (already noticed), I also obtained in this district. After a silent and persevering march of some hours through the very cold rain (for in threading our tortuous way through the endless mazes of a pathless forest, in such weather as we now experienced, we found it impossible to keep ourselves warm), we began to shiver with cold, and determined on halting at the first sheltered spot. By the side of a rivulet at the bottom of a hill we found a deserted hovel; which, though open on all sides, offered us better shelter from the pitiless rain than we had expected to find in such a place. We repaired our hut with tufts of the different *Carices* that grew hard by, and pitched my tent, and, throwing off our dripping garments and kindling a fire, we endeavoured to make ourselves as comfortable as we could in our present circumstances. Fortunately we had a few potatoes with us, which, not knowing how long this weather might continue, we divided *una voce* into three small portions, so as to afford us two meals for the morrow. The rain continuing to descend in torrents, swelled our little rivulet to a large stream, causing me to fear that the little level spot on its banks, on which we were now encamped, would soon be overflowed.

Day-break this morning found us much the same as daylight last evening left us—with water on every side. The past night was one not likely to be soon forgotten. The

heavy rain and rattling hail which unceasingly poured down—the vivid lightnings and hollow sounding thunder reverberating awfully in never-ending echoes among the hills—the angry winds which furiously rushed in fitful roaring blasts through the ancient forests, rocking and creaking and lashing the monarchs of centuries as so many saplings of a year, stripping their “leafy honours” and cracking off their branches hurled them to the earth—the hooting of owls and shrieking of parrots, which flew affrightedly about seeking shelter—all united to declare, in a voice too plain to be misunderstood, the great commotion Nature was undergoing; fit knell for the departing year. The bard might, indeed, truly say—

“A thunder storm! the eloquence of heaven,
When every cloud is from its slumber riven;
Who hath not paused beneath its hollow groan.
And felt Omnipotence around him thrown?
How stirs the spirit while the echoes roll,
And God, in thunder, rocks from pole to pole !”

Montg. Omnip. of Deity, part 1.

The morning was most gloomy, the rain still incessantly poured, and our cold, wet, lonely, and starving situation was anything but pleasant; when, as if we wanted somewhat more to taste of the very acme of cheerlessness, our only guide deserted us, returning to Waikare! He had intimated enough last evening to lead me to suspect him, and I had kept a watch over him, but he easily found an opportunity of leaving us. My other natives were all from distant parts of the island, and knew no more of this neighbourhood than I did. We were now in a dilemma; to go back to Waikare, was, from there being no proper path, not a whit easier journey than to go forward to the next village. The weather, however, confined us to our rude shelter, under which I,

clad in light summer clothing, shiveringly sat, holding an old umbrella over my head! Towards evening the weather moderated, and I ventured to walk a few yards among the half-drowned vegetation on the banks of the river. Here, I obtained a fine specimen of a small but handsome shrub, belonging to one of the genera *Haxtonia*, or. *Brachyglottis*. At night, rain still pouring down, I called the natives to council, to consider what we had better do in this our exigency; so we unanimously agreed, "rain or shine," to proceed on our journey to-morrow morning, trusting somehow or other to find our way—a determination to which we were compelled through hunger, having consumed our last scanty meal.

1842. January 1st.—Early this morning the rain ceased; but, as the heavy clouds still shrouded the face of heaven, it was just as wet from the dripping trees and rank vegetation around us in these deep valleys and dark forests, as if it was still raining. We commenced our wet and cold march *sans* breakfast, with perhaps a more hearty will than if we had sumptuously fared. We kept by the banks of the little stream, which we crossed and re-crossed repeatedly, making our walk very unpleasant. Here, in these deep secluded glens, I discovered a new and unique species of *Lomaria* (*L. heterophylla*, *W.C.*), some of whose immense pinnatifid fronds measured near three feet in length. Here, also, I discovered a large, climbing, and peculiar species of *Aspidium* (*A. Cunninghamianum*, *n.sp.*, *W.C.*), differing much from all other species of *Aspidiæ* that have come under my notice. This is the largest climbing fern yet detected in New Zealand; some fronds measuring near three feet in length. I dedicated this plant in memory of that very zealous botanist, my much-

lamented friend,, the late Allan Cunningham, Esq. In this locality I obtained another species of *Hymenophyllum* (*H. villosum*, *n.sp.*, *W.C.*), which was epiphytical on reclining trees, and, a beautiful long-froned and pendulous *Moss* (*Hookeria pennata* ?), whose long diaphanous fronds of 6-inches grew horizontally and solitarily from the sides of ravines, in these damp woods; I could only detect one specimen bearing capsules. I gathered specimens of several other *Mosses* and *Jungermannia*, which appeared to be new. About noon, to our very great surprise, our runaway guide overtook us, bearing a large basket of fine potatoes on his shoulders, for which he had purposely gone back all the way to Waikare in that heavy rain, in order that we might not suffer from hunger. I could but esteem and applaud the man's kind consideration, whilst I disapproved of his leaving of us in the manner he did, without saying a word as to the object of his returning.* At 2 p.m. we arrived at Ruatahuna, a small village, surrounded on all sides by dense forests, where we were hospitably received. The natives soon cooked us some potatoes, on which we made a very hearty meal. Several of the natives of this village were engaged in making and carv-

* This, however, is quite in keeping with the national character of the New Zealander. Prompted incessantly by an ever-restless and indomitably independent principle of doing some capricious work of supererogation, whilst their defined duties are left undone, they often sadly try to the utmost the patience of those with whom they have to do. In their own language they have a word (*pokanoa*) which, while it fully conveys the force and meaning of the foregoing remark, is, from the frequency of the occurrence of such conduct, in daily if not hourly use by every native of New Zealand. Nor is such a capricious way of acting confined to those who are still in their novitiate, on the contrary, those who may have been for years in your employ, are equally, if not more, prone to such conduct.

ing *poukakas*, i.e. parrot-stands; which they use in catching the large brown New Zealand parrot (*Plyctolophus Meridionalis*). These birds, which are very numerous in these woods, are decoyed, by means of a tame one fastened to a perch, to alight on the snare-like *poukaka*, when they are instantly seized by the native who is concealed for that purpose. They are fond of taming these birds, which if taken young will soon talk, but they are very mischievous, and their bite is hard. Their body is a dark-russet-brown colour, with red feathers under the throat and wings. These red feathers are in great request for ornamenting their *hanis*, i.e. carved-headed staffs, which they use as weapons of defence. The flesh of this parrot is dry and lean, but is eaten by the natives, who call it, Kaka. That little black pest, the sand-fly, was here in countless swarms; owing, I suppose, to the sandy nature of the soil. I never before noticed them in such numbers at any place away from the immediate coast, to the sandy shores of which they are generally confined. Their bite is most virulent just before and after rain. The natives call them, Namu.

At this village I remained for three days, busily engaged with the natives. On the fourth I again resumed my journey. At first, my route lay over high and steep hills, clothed with forests to their summits, which having gained, I descended to a deep valley, where ran a rapid brawling stream of from two to three feet in depth. By the banks of this river, among gigantic ferns and underwood, decaying logs and fallen trees, we travelled on, every now and then crossing the stream, which we certainly did more than fifty times! This was by no means pleasant travelling, but there was no alter-

native. On the banks of this river I first obtained specimens of a fine arborescent fern, *Dicksonia fibrosa*, *n.sp.*, *W.C.* This fern attains to the height of 18 feet. Its large and spreading living fronds measure from 6-9 feet in length; these, however, are generally few in number, and deciduous. Its caudex is composed of thick layers of fibres, resembling, at first sight, the fibrous interior of the husk of a cocoa-nut. In this locality, I also found a species of *Myrtus*, a small tree bearing orange-coloured juicy berries, growing to the height of 10-15 feet. The natives spread their blankets, or mats, under these trees, and shaking them, soon procure a quantity of fruit, which is very good eating. Each berry generally contains three reniform hard seeds. The natives call it Rohutu. Towards evening, we emerged from the dense forests, in which we had for some days been confined, to a large plain covered with fern, the first fern we had seen for several days. My natives rejoiced at the sight, vociferating loudly their being privileged to see a "koraha maori" (indigenous fern-land, open country,) again! Their uncontrolled joy forcibly reminded me of the rejoicing of the "ten thousand" Greeks, on their again seeing the sea. In crossing this plain I obtained, from a boggy watercourse, a small plant with white flowers, probably a species of *Limosella*— a fine species of *Marchantia*—a *Hydrocotyle*—and a species of *Hypericum*. This last appeared to me to be very distinct from *H. pusillum*, *D' Cand.*;* this being a plant of erect growth, with oblong calyces, and oblong-ovate or obovate undulated and

* *H. pusillum*, is thus described:— "Caule debili prostrato, foliis ovatis obtusis, calyce lanceolato" &c. (*D' Cand., prodr.*, I. p. 540); and is mentioned by Cunningham, in his "*Precursor*," as being found in New Zealand. Vide, *Ann. Nat. Hist.*, vol. iii. p. 317.

margined leaves. We halted this evening at Te Waiiti, a fenced village, situated on the banks of the river at the end of the plain. The bed of this stream (here large enough to float a moderate sized boat) was composed of ashes and other volcanic substances worn into pebbles.

The next morning we resumed our journey. Passing on through a low wood by the river's side, I noticed several fine plants of *Dicksonia fibrosa*, their trunks grotesquely hewn by the natives into all manner of uncommon shapes, in cutting away their fibrous outside for the purpose of plank for their houses and stores. Discovered another *Lomaria* (*L. deltoides*, *n.sp.*, *W.C.*) this morning, in ascending the first wooded hill after fording the river. This species approaches very closely in general appearance, *L. deflexa*, already noticed. In a damp forest I obtained fine specimens of my new *Davallia*, some fronds measuring 18 inches in length. I only observed this elegant fern growing in two places during the whole of my journey; and not above half-a-dozen plants in either spot. Toiling up the barren and lofty hills before me, I found, near their summits, a species of yellow-flowered *Compositæ*, which I had not previously seen. These hills were composed of broken pumice and ashes. The sun was intensely hot, and the roads, in several places worn into deep and hollow gorges, were extremely dry and dusty; our feet, and even our ankles, being often buried in the loose and broken pumice through which we had to travel. Gaining the summit of the highest hill, the view was most extensive and striking. Immediately beneath meandered the Wirinaki, a bold brawling river, flowing quickly over its stony bed, and possessing water sufficient to float a moderate sized boat; beyond, were

barren hills of all possible irregular shapes and heights; further still, an extensive plain extended E. and W. as far as the eye could reach; beyond which a chain of lofty table-topped hills bounded the range of vision; while here and there, far away in the extreme distance, several high and isolated mountains reared their barren heads above the horizon. On the left appeared Tauwara, a high mountain in the Taupo district; Paeroa, and Kaingaroa, near Rotorua, presented themselves in front; whilst, on the extreme right, Putauaki, the high mountain near Wakatane on the E. coast, upreared its two-peaked summit to the clouds. Here, notwithstanding the pleasurable height to which my imagination had been raised, whilst engaged in contemplating the magnificence and extent of the prospect before me, it soon sank below its ordinary level, on finding that not a human being dwelt in all that immense tract of country on which my eager gaze then rested! The grass grew, the flowers blossomed, and the river rolled, but not for man! Solitude all!! Even the very little birds, few though they were in number, seemed to think with me; for they flew from spray to spray around and about my path with their melancholy “twit, twit,” as if wishing to have all they possibly could of the company of a passer-by. Their actions were quite in unison with my thoughts; and I feelingly exclaimed— “Oh! Solitude, where are thy charms,” &c. Descending to the banks of the river Wirinaki, I was rewarded with the discovery of a few new plants, among which were—two species of *Epilobium*, one of which was very beautiful, having its small linear and serrate leaves densely imbricated, and fruit alternately and longitudinally striated and striped with black stripes—a small shrubby *Dracophyl-*

lum—and a very pretty little *Polygonum*, some plants being so small as not to exceed an inch in height, although bearing both flower and fruit! Proceeding on, over the long plain I had seen from the summit of the hill, I got specimens of some small ? *Restiaceus* plants, which, with *Leucopogon Fraserii*, and the minikin *Polygonum* already noticed, composed the vegetation of this very desolate and sterile spot. I think I never before saw so barren a plain as this; a truly “blasted heath;” or, in the nervous language of Holy Writ, “a parched place in the wilderness, a salt land and not inhabited.” Night was fast closing around us, and we quickened our pace, although excessively tired, in hopes of finding a few sticks, wherewith to kindle a fire, for none at present appeared within ken. After some time we found some small dry scrub (*Leptospermum scoparium*) on the bank of the river, where we bivouacked for the night.

At a very early hour the next morning we re-commenced our journey. Crossing the rapid river Rangitaiki, at the end of the plain (which, at the fording-place, we found to be breast deep, and which we were obliged to cross in an oblique direction that we might not be swept down with its strong current), we travelled over a country more sterile, if possible, than that of yesterday. An interminable succession of dry and barren hills of broken lava, pumice, ashes, and other volcanic matter, where the stunted vegetation was all but quite burnt up with the exceeding heat of the sun’s rays, afforded but a very scanty gleanings to the botanist. I was, however, rewarded with a few new plants; among which were—a fine species of erect *Cardamine*, which I found at Mangamako, a little wood through which we passed—a

graceful species of fragrant-scented *Dracophyllum*, a small shrub 2-4 feet in height; which grew sparingly in the little dells between the hills— and two curious and minute species of *Compositæ*, which grew in dense patches upon the dry and broken pumice. These interesting little plants were scarcely above an inch in height, presenting quite a unique appearance with their brown and hoary leaves closely imbricated and decussated, and terminal receptacles of yellow silky flowers. I had previously obtained (through a friend) specimens of one of these species, which was procured from a mountainous spot in the vicinity of Taupo; these I sent to Sir W.J. Hooker. Here, in these sultry hollows, the insect tribes were very numerous. Brilliant *Libellulæ* darted about in every direction. I captured one fine fellow, dappled with burnished gold, measuring nearly four inches in length; others, having filiform attenuated bodies, were carmine-coloured, with elegantly disposed lozenge-shaped gold spots; whilst others were adorned with alternate stripes of black and ultra-marine. Of the beautiful genus *Buprestis*, too (or some very nearly allied genus), I gained several specimens; some of which were abundant on the fragrant *Dracophyllum*, allured, doubtless, by the scent and honey; the moment, however, you attempted to take one, down he would let himself drop as if dead. The greater number of the insects I obtained were quite new, and belonged to genera unknown to me.

Towards evening I arrived in the neighbourhood of the Rotorua Lakes. Crossing a deep bog, I discovered a very peculiar little leafless monopetalous plant growing in, or rather on, the surface of the mud. On nearing Rangiwhakaaitu, the first and southernmost lake, I was much gratified with the truly

lovely appearance of a very beautiful species of *Leptospermum*; a small tree of from 15 to 25 feet in height, which flourished here, growing in clumps and rows as if artificially planted. These trees were literally laden with a profusion of beautiful blossom, and, from there being no underwood about them, not so much as a tuft of grass, looked conspicuously charming. Another circumstance appeared to me as being singular, there not being any small or young plants of the species to be met with; all were old trees of many years growth. I say, old, because the *Leptospermum* is a slow-growing plant. Beneath them grew a curious woolly-looking white moss, which, though I sought assiduously, I could not detect bearing any fructification. We had arranged to make Tarawera (the second lake where some natives resided) our halting-place for this night, but, although we had nothing to eat, we were so excessively tired as to be obliged to bring up on the white gravelled shores of the placid Rangiwakaaaita. I offered my natives the choice of staying supperless where we were, or of proceeding on to Tarawera, distant about three miles, and there getting supper; fatigue, however, overcame hunger, even in a New Zealander, and they chose the latter. The whole face of the country in the neighbourhood of the lake, was overspread with massy blocks of compact lava scattered in every direction; many of which were vitrified on the surface. The ground gently rose on every side from the lake, which appeared to occupy a deep hollow; and, I could but venture to suppose, that this might perhaps have been the crater of that volcano, which, in some by-gone age, inundated the whole of the adjacent country with showers of pumice and ashes.

At an early hour the next morning we arose, feverish, stiff, and sore, to re-commence our march. We soon came within sight of the place where the hot-springs were situated; from which the steam and sulphureous vapours ascended in dense white clouds. The air, this morning, was cool and bracing; and, after travelling about an hour and a half we arrived at Tarawera Lake. Here, at a little village on its banks, we gained some potatoes, on which we breakfasted with a hearty zest. At this place, were several small hot springs, which flowed out of the earth near the edge of the lake; the water of some was hotter than the hand could bear. Just within the lake, the water was warm; a little further on, it was luke-warm; and further still, it was cold; so that these natives have baths, of every requisite degree of heat, always ready, without any trouble whatever. The water of the lake, I supposed to be specifically heavier than the sulphureous hot waters which flowed into it; as, whenever the natives of the village wished to drink, I observed them to go into the lake, and dashing the uppermost water aside with their feet, quickly take up some from beneath; which, they said, was good and cold. The natives of the village informed me, that, at a spring on a hill at a little distance, the water was quite hot enough for the purposes of cooking, for which they often used it. Sulphur, too, abounded there, and was often “thrown up” out of the earth, from which place the steam and smoke ever ascended. My curiosity being excited, I, while breakfast was getting ready, set off with a native of the village as a guide to the boiling spring; but, after going up one steep hill and not perceiving any sign of the same, and being almost exhausted for want of food, hunger conquered curiosity and

I returned to the village. I have often been surprised at the great carelessness which I have exhibited towards rare natural productions, when either over-fatigued or ravenously hungry; at such times, botanical, geological, and other specimens, which I have eagerly and with much pleasure collected and carefully carried for many a weary mile, have become quite a burden, and have been one-by-one abandoned; to be, however, invariably regretted afterwards. Breakfast ended, we, accompanied by the chief of the village, paddled nearly to the opposite side of the lake. This sheet of water is about three and a half miles in length, and from one to two miles in breadth; is surrounded on all sides by barren hills, and is very deep. Landing, and walking about two furlongs, we came to Kareha, another little lake much smaller than the preceding. Here, we were obliged to sit and wait some time before we could get a canoe, which having obtained, we paddled to the opposite end. This little lake is about a mile in length, and about three quarters of a mile in breadth. Resuming our journey, and gaining the top of a high hill, we had a fine prospect of the principal Lake of Rotorua; a fine sheet of water about six miles in diameter, with a very picturesque island nearly in the midst. An easy journey of a few miles from the top of the hill, brought us to Te Ngae, a church mission station on the eastern side of the lake; where we were very hospitably received by Mr. Chapman. I gained not a single botanical specimen throughout the whole of this day.

I remained at Te Ngae for a few days; during which time I visited Ohinemutu, a large and fenced town on the banks of the lake, celebrated for its boiling springs. This village is one of the principal ones belonging to that very turbulent tribe,

Ngatiwakaau; in it the head chiefs of the tribe have for a long time resided. The large spring at this place was boiling most furiously, throwing out many gallons of water a minute, which rolled away steaming and smoking into the lake, a second Phlegethon. In the smaller springs, of which there were several, the natives cook their food, merely tying it up in a rude basket made of the leaves of *Phormium tenax* woven together, and, placing it in the boiling water, where it is soon dressed. For this purpose, and for that of bathing, they have made a number of holes through the crust, or scoria, on which this village is principally built; so that it may truly be said, that this people dwell in houses built over subterranean fires. The sulphureous stench which abounded here, was almost insupportable. The blade of a knife immersed for a short period in some of these waters, soon becomes as it were superficially bronzed. Pebbles and small stones lying within the influence of the water or steam, wore a bronze-like appearance. Accidents not unfrequently happen to children; and to dogs and pigs brought from a distance. The quadrupeds, however, of the place, appear instinctively to be well aware of the potential callidity of these streams, and shun them accordingly. The natives who live in this neighbourhood are, when travelling, easily recognised as belonging to this district, in consequence of their front teeth decaying at a very early age, contrary to those of other New Zealanders. This is supposed to be caused by the sulphur with which these springs are impregnated, being deposited on the surface of their food during the operation of cooking, which, consisting chiefly of roots, is mostly bitten into morsels with their front teeth. The natives of this vil-

lage are celebrated, among other things, for their manufacture of tobacco-pipes; an article of first-rate utility to a New Zealander. These they carve out of a white stone which is found in this neighbourhood, patiently finishing a short-stemmed pipe in a day. These pipes look well, and stand the heat of the fire.* I saw some beautiful white blocks of this stone near the village, lying on the surface of the ground; some of which were vitrified on the outside. The natives of this neighbourhood grow their own tobacco, which they gather, and, separating the large fibres of the leaf, twist up into *figs*, in imitation of our negro-head. Here, on the very edge of the large boiling spring, several plants flourished in perfection; particularly *Pteris Brunoniana*, *Endl.*; and two small plants which I considered new. One of these, a species of *Carex*; the other a *Compositæ*, probably a species of *Myriogyne*, differing, however, from *M. minuta*, *Less.* (the already-described New Zealand species), the leaves of which are sessile and much smaller. I regretted that I had not a thermometer, with which I might ascertain the temperature of the water. Fine specimens of crystallized sulphur abound in this neighbourhood, but, from their delicate structure and extreme fragility, it is rather a difficult matter to convey them to any distance, and at the same time to preserve their beauty. From the barren hills in this locality I gained an elegant *Lycopodium*, and a new species of *Gaultheria*, a branching shrub, 4-7 feet in height. Some natives informing

* I have a large pipe now by me, made of pumice, which I obtained at Wareponga, on the E. coast, in 1838. The native from whom I received it, was smoking from it when I came up. Of necessity it was very thick, but a reed was introduced as a mouth-piece. The owner gladly exchanged it for a common clay pipe of European manufacture.

me of a new and peculiar tree which grew on Mokoia, the island in the midst of the lake, I crossed over to it and sought for the same, but gained nothing new. From subsequent information I was led to conclude, that the tree which I had been in quest of, was no other than the *Vitex littoralis*, one of which species, according to the natives, grew on the island, but not another in the whole district. I observed the natives continually masticating a kind of resinous gum, which was insoluble in water, and which did not decrease through the process of repeated chewing; this, they informed me, they obtained from the Pukapuka (*Brachyglottis repanda*, *A. Cunn.*), assuring me that the swallowing of the substance caused death. They pointed me out the shrub, which, although slightly differing in general appearance, bore strong resemblance to Cunningham's plant; as it was neither in flower nor fruit, I did not take any specimens: it may, however, prove a new species. Through the kindness of Mr. Chapman, I obtained, from a spring in the neighbourhood, several specimens of a Siliceous matter, deposited by the waters of the spring on twigs, leaves, &c. lying in it. During my stay I procured fine specimens of two large species of *Curculio*; the head and snout of one, without its antennæ, being more than two inches in length; the other had a peculiar flabelliform tail, somewhat like that of a small shrimp. The lake contains an abundance of small crayfish, which are very good eating. Here are, also, two small species of fish, called by the natives Kokopu, and Inanga; and a black bivalve shell fish, a species of *Unio*; the whole of which are common in most of the fresh water streams in New Zealand.

On the 13th of January I left Te Ngae. Crossing the lake, I landed at the N.W. extremity, and once more resumed my journey. I soon entered the dense forest, through which the road to Tauranga lies, in which we continued travelling until sun-set. In this forest, in a low, wet, and dark spot, I obtained another new and peculiar species of *Lomaria* (*L. nigra*, *n.sp.*, *W.C.*); and on the stony banks of Mangarewa, a small river running in a deep ravine, I discovered an elegant species of *Lindsæa* (*L. viridis*, *n.sp.* *W.C.*). In travelling this day, I carelessly plucked a fern which grew pendulous from a tree, believing it to be *Asplenium falcatum*, *Forst.*; happening, however, to preserve the fragment, I have since examined it, and find it to be a distinct and new species. This I have named *A. Forsterianum*, in honour of that celebrated botanist, whose name should ever be had in remembrance by all persons botanizing in the forests of New Zealand. I also obtained some fine specimens of *Tmesipteris*, which (if not possessing distinctness of character sufficient to constitute a new species) differs much from my specimens of *T. Forsteri*, *Endl.* (the described New Zealand species) in size and general appearance; some plants being between two and three feet in length. Whilst my natives were pitching my tent, I, wandering about, obtained a few specimens of small *Jungermanniæ*, and a *Moss* with a peculiar yellow lichen parasitical upon it. As the shades of night closed about us, in the deep recesses of the forest, we were visited with numbers of a large green coleopterous insect, which my natives caught, roasted, and ate. During the night the mosquitoes so sadly annoyed us as to keep us all from sleeping.

At an early hour the next morning we re-commenced our march. Continuing our course, as yesterday, in the forest, I discovered a fine moss, a species of *Polytrichum*; and an *Urtica*, with lanceolate leaves. From the summit of the hill, where this long forest terminates, a fine and extensive prospect of Tauranga harbour, distant about fifteen miles, presents itself to the view. The path hence to the sea-side lies through fern land, and is chiefly a descent the whole way. Towards evening we arrived, at the mission station, without observing anything worthy of notice by the way.

I remained a few days at Tauranga, and during my stay, obtained a fine species of *Hippocampus*, measuring nearly a foot in length. This animal the natives sometimes dry and use for an ear-ornament, suspending it by its tail, which they curl that it may the better remain in their ears. I once procured from this place a beautiful and unique specimen of the genus *Ardea*; it was a small bird, somewhat resembling *A. exilis*. The natives, however, did not know it, declaring they had never seen such a bird before.

On the 19th, I once more re-commenced my peregrination. Crossing the inner harbour, which is wide and very shallow, we landed at the N.W. extremity of the bay, where the road to Matamata commences. Our route this day (after landing) being principally by the sea-side, I obtained nothing new save a curious species of *Anthoceros*, which grew on the wet pipe-clay cliffs. We bivouacked for the night by the side of a small stream, where we were incessantly tormented with mosquitoes. To add to our misery my guides returned, *sans*

ceremonie, leaving my baggage in the wilderness, without saying a word to me, who was on before, on the subject; through this conduct of theirs we all had to remain supperless.

The next morning (after some delay from our want of guides, who were eventually obtained from a party of natives at work in the neighbourhood) we again proceeded, and entering a dense forest continued travelling through it for some hours. We emerged at length on the top of Te Wairere, a very high hill, from the summit of which the view of the surrounding country is most extensive. Tongariro (a very high and still active volcano in the Taupo district), my guide assured me, is to be seen in clear weather from this place. Beneath, in the vast plain, the river Waiho, hence navigable for canoes, meandered, mingling its waters with those of the ocean at Puriri, in the river Thames. In passing through the forest I obtained a few small Cryptogamic specimens; but no other plants attracted my notice as being either new or rare. Descending Te Wairere, we halted at a brawling stream at its base to roast a few potatoes. Here, on the brink of the stream, I discovered a small tree of a genus unknown to me (unless it should prove to belong to the genus *Tophis*); I only observed one plant, which was about 15 feet high, with smooth cineraceous bark, solitary crimson fruit, and small serrated oval dark-green leaves. On cutting its bark, a profusion of thick viscid milky juice gushed out. From the stream I obtained some fine specimens of *Algæ*. Leaving this place, we crossed the river Waiho, which at the ford was breast-high, and proceeded on, over the plain and through the extensive swamps, towards Matamata, a large native village,

which place we reached late at night. In crossing the marshes, I only noticed a *Coprosma* as being new, of which I brought specimens. The chapel at this village, being wholly of native execution, is worthy of notice, and does them great credit. Length, breadth, and height included, I suppose it to be the largest native-built house in New Zealand. It measures 95 feet by 40, and is nearly 18 feet to wall-plate. It has fine large smooth slabs of the Totara for posts, some of which were nearly 3 feet in width. The interior was very neatly constructed of a kind of chequer-work, composed of the stalks of the common fern (*Pteris esculenta*), placed laterally on each other, interlaced with strips of the fibrous Kiekie (*Freycinetia Banksii*). the grave colour of the fern stalks agreeing well with the purpose for which the house was built. The whole possessed a very neat appearance. From the natives I learnt, that they were indebted to the Taranake tribes, on the S.W. coast, for the knowledge of this kind of ornamental work.

Early on the morning of the 21st I left Matamata, travelling in a S.W. direction for Maungatautari, an elevated district situated nearly midway between the E. and W. coasts. In crossing a small stream, I discovered a peculiar *Carex*-like procumbent plant growing in its bed, completely under water. As it was now the driest season of the year, and as the water of the stream was nearly two feet deep, this plant must necessarily be always immersed. A graceful leaved *Hydrocotyle*, I also obtained from the same locality. After walking about eight miles over level and barren ground, we entered a romantic valley, called by the natives Hinuera. This valley has, on either side, high and perpendicular volcanic rocks,

composed of a conglomerate of pumice, scoriæ, obsidian, &c. On the S. side of the valley, this rocky rampart ran continuously for nearly two miles; while on the N. side, the hills bore on their table-tops groves and clumps of graceful pines, contributing not a little to the beauty of the landscape. At 2 p.m., we halted to dine under a large and pensile crag, which, jutting out from the rocks on the N. side, overhung our path. Here, beneath this rock, I discovered an elegant *Asplenium* (*A. Hookerianum*, *n.sp.* *W.C.*), a species approaching, both in habit and affinity, very near to *A. Colensii*. I did myself the honor and pleasure of naming this graceful fern, in memorial of my much respected and talented friend, J.D. Hooker, Esq., M.D., who, as assistant-surgeon and naturalist, visited these islands in H.M.S. Erebus, in the winter of 1841. In a thicket in this neighbourhood, through which we passed, I detected a graceful shrub of very slender habit, with peculiarly hairy bark. This plant bears a small white blossom, has but few divaricate branches, and attains to the height of 6-9 feet.

Proceeding hence, we suddenly came upon a most remarkable subsidence of the earth in the midst of a large plain. Descending through a rapidly-inclining and narrow defile, having sandy slopes on either side, I came to a level, also of sand and destitute of the least blade of vegetation; thence I descended, an almost perpendicular descent knee-deep in sand, to another level, where a subject for contemplation and astonishment presented itself. On all sides rose perpendicular and sandy cliffs, varying in height from 150 to 200 feet, for the most part white and sterile, and composed of volcanic sand and pebbles to their very bases. At the bottom of this

immense ravine, a gentle stream wound its silent way, while, a little further on, whole trees, dead and charred (from whose sides the loose sand, &c. had been removed by the action of the winds and rains), stood erect, in the places where many ages ago they once grew; at a depth of from 100 to 200 feet below the present level of the soil! I greatly regretted my being so much pressed for time in passing this place, called by the natives, Piarere; but the sabbath drew nigh, we had no provision, with several miles yet to go ere we should reach a village; and the loose sand, through which we were now toiling, we often sank in up to our knees.

Quitting this hollow, and ascending its S.W. side, I was again agreeably surprised in seeing the noble river Waikato, with its blue waters (here wide, and swift, and deep), rolling majestically along. This is the largest fresh water stream I have yet seen in New Zealand. This river the natives navigate in their canoes from above this place to where it disembogues into the Southern Ocean on the W. coast, a distance of nearly 250 miles. In consequence of there not being any food at this place, we had to travel about five miles in an almost southerly direction by the bank of the river, before we could cross it. We found, however, a rude bridge thrown across, at a place where the river was very narrow, being confined within a sandstone channel, through which it rushes with fearful velocity, eddying, and foaming, and carrying everything before it. The sandstone rocks on either side, through the softness of the stone and the continual working of the waters, were fretted into a thousand fantastic shapes. Leaving the river, and ascending the western banks (which here rose in regular terraces over one another), we proceed-

ed in a westerly direction for upwards of six miles, arriving at sunset, unwell, in pain, and much fatigued at Wareturere, a small village in the Maungatautari district, where we were hospitably received by the natives. The sun throughout this day was intensely hot, and most of the country over which we passed quite free from wood, and very dry and dusty.

At an early hour on the morning of the 24th, I once more re-commenced my journey. The land in the immediate neighbourhood of this village appeared to be of very good quality; such also, is the land immediately around Matamata. The fervent sun, unobscured with clouds, told of another melting day, and the high fern-brakes, through which we had to force our way, abounded with their dreaded subtle yellow dust. I could but think how very applicable were the words of the poet:—

“In vain the sight, dejected to the ground,
Stoops for relief; thence hot ascending steams.
And keen reflection pain.—————
—————Distressful Nature pants.
The very streams look languid from afar;
Or, through th’unshelter’d glade, impatient seems
To hurl into the covert of the grove.”

Thoms. Seas. Summer.

Cheering my native fellow travellers, we struggled on together up the steep hills; gaining the summit of the wooded mountainous range, we descended over open fern-land into extensive swampy plains. I observed those pests to agriculture, the large-leaved docks (*R. crispus* and *R. obtusifolius*), to be very plentiful here among the fern; where they attain to a great size, 4-5 feet in height. The natives say, that the Ngapuhi tribes (who live in the northern parts of the island, and with whom they were formerly at continual enmity)

sowed the seeds of this plant hereabouts, in order to spoil their lands.* I doubt, however, the cause assigned for its introduction here in the very centre of the island, but not the fact. At Poverty Bay, and parts adjacent, the natives assert, that the seed of the dock, was originally sold them by whites for that of the tobacco plant! Various species of the genus *Rumex* are now too frequent in several districts, in common with many other noxious European weeds. I have often noticed, in travelling, certain spots abounding in the rankest vegetation, but without a single indigenous plant. The new comers appear to vegetate so fast, as quite to exterminate and supersede the original possessors of the soil. In crossing a very deep swamp, a beautiful bird, apparently of the crane kind, rose gracefully from the mud among the reeds, and flew slowly around us; its under plumage was of a light-yellow or ochre colour, with a dark-brown upper plumage. None of my natives knew the bird, declaring they had never seen such an one before. Leaving the swamp, and entering on a plain, I discovered a new and elegant plant of the *Orchideæ* family (probably belonging to the genus *Microtis*), possessing a lovely carmine-coloured perianth, with pubescent scape and spike. It was, however, very scarce, I only detecting it in one low spot by the side of the path. A pretty little *Lobelia* grew about here in great profusion. At sunset

* This alleged act of the Ngapuhi army, reminds us of what we read in the Sacred Writings, of the ancient custom of sowing the city of the enemy when taken with salt. —*Judg.* ix. 45. And, in more modern times, “the city of Milan was burnt, razed, sown with salt, and ploughed, by the exasperated Emperor Frederick Barbarossa. —*Comp. Sys. Geog.* v. p. 822.

we reached Otawao, a mission station. This place being in the midst of an extensive plain of fern, affords little entertainment to the botanist.

On the 26th I continued my journey towards the western coast. During the whole of this day I did not obtain a single plant, although we travelled over many a weary mile of desolate wild until some time after sunset. At one part of our route this morning, the scenery was of the most enchanting description. Groves and clumps of that elegant pine., *Dacrydium excelsum*, were intersected with small placid lakes and level plains, appearing like a work of art. Late at night we threw ourselves down to rest among the fern, in a small and miserable village near the banks of the river Waipa. Rest, however, was quite out of the question, for our old and implacable tormentors, the mosquitoes, were innumerable. The next morning, before sunrise, hungry, weary and sleepy, we willingly started from this wretched place, where our night instead of being one of rest, had literally been one of continual torment! Passing through a deep and muddy watercourse, I obtained specimens of a large-leaved *Myriophyllum*. Half-an-hour's march brought us to a village on the immediate banks of the Waipa river. Here, we obtained a canoe, and got some food, which, having despatched, we proceeded down the river in our little bark. This river has a very tortuous course, winding continually to all points of the compass.* Its width is pretty uniform, being generally from 70 to

* I will just mention the direction of the river, for the first ten miles below the village, as I took it down from observation with my compass: N. E., N., N. W. 1 mile, S. S. E., S., S. S. W., S. ½ mile, S. S. W., W., W. N. W. ½ mile, W. S. W., W. 1½ miles, W. N. W., N. W., N., N. N. E. ½ mile, N. N. W. Those bearings without distances, I supposed to, be under a half-a-mile.

100 feet, with a slow current. It is navigable hence to the sea for large boats, and its sides are, in many places, densely clothed with trees to the water's edge, among which *Dacrydium excelsum* shows itself conspicuous. In its banks, which are mostly composed of alluvial earth, and which in some places are from 14 to 20 feet in height, pipe-clay and volcanic sand often present themselves to the view. At 4 p.m., we reached Ngaruawahie, the spot where the junction of this river with the Waikato is effected. As before, the Waikato came rolling impetuously on, carrying its waters quite across the quiet Waiapa to the opposite bank. From this place the two rivers bear the name of Waikato to the sea, and justly so, as the waters of the Waiapa are completely lost in those of the deep and rapid Waikato.

A little below Ngaruawahie, we met a native in a canoe, with a live and elegant specimen of the genus *Fulica*. I hailed the man and purchased the bird, which he had recently snared, for a little tobacco. It was a most graceful creature, and, as far as I am aware, an entirely new and undescribed species. Its general colour was dark, almost black; head, grey, and without a frontal shield; fore-neck and breast, ferruginous red; wings, barred with white; bill, produced and sharp; feet and legs, glossy olive; toes, beautifully and largely festooned at the edges; eye, light-coloured and very animated. It was very fierce, and never ceased attempting to bite at everything within its reach. I kept it until we landed, intending to preserve it, but—as it was late, and neither *material* at hand nor time to spare, and the animal, too, looking so very lovely that I could not make up my mind to

put it to death—I let it go; it swam, dived, and disappeared. From its not possessing a frontal shield on the forehead (which is one of the principal generic marks of the Linn. genus, *Fulica*), it may possibly hereafter be considered as the type of a new genus, serving to connect the genera *Fulica* and *Rallus*. Not a doubt, however, in my opinion can exist, as to its being naturally allied in habit and affinity to the *Fulicæ*; I have, therefore, named it *Fulica Nova-Zelandiæ*. In size, it was somewhat less than our European species, *F. atra*.

I gained not any botanical specimens this clay, save the *Myriophyllum* already mentioned; although I had every reason to believe, that many new and interesting plants would doubtless be found, in the dense and ever-humid forests on the immediate banks of this noble river: time, however, would not permit my delaying for that purpose.

At an early hour the next morning I re-commenced my voyage down the Waikato. I found the river to widen considerably as I advanced, being in some places from 300 to 500 yards in width, but very shallow. Its course, here, was not so sinuous, and much more northerly, than those portions we passed over yesterday. The land is low on either side, and, as I proceeded, several small and flat islands divided the river into channels. After paddling about 20 miles, we beached our canoe on a small island, in order to breakfast. The river here is very shoal, with a sandy bottom, which, together with the sub-soil of the island on which we landed, is of volcanic origin, consisting of broken lava and pumice. I found nothing new among the vegetation of the islet. Near this place, the natives informed me, and at a short distance from the right bank of the river, is a large lake, in which are quantities of

Kanæ (*Mugil* ——) and Patiki (*Pleuronectes* ——), neither of which are found in the Waikato. These fish are found, in their season, on all the New Zealand coasts, and are very delicate eating. The lake is named Waikare, and runs into the main river a little lower down. As we proceeded, the banks of the river became more and more lovely, being in many places clothed with the richest profusion of vegetation to the water's edge. Among the trees, the Kahikatea (*Dacrydium excelsum*) was ever predominant. We noticed a Kauri (*Dammara australis*) to-day, for the first time since we left the Bay of Islands. At seeing this pine my natives, whom I had brought from the E. Cape, and who had never seen one of these trees before, were much gratified. Towards evening, we passed several islets in the river, some of which were high and beautifully wooded. Noticed the Kahikatea to stand very close together in the forests. I gathered, overhanging the banks of the river, a specimen of *Parsonsia*, with axillary inflorescence; this, however, may prove but a variety of *P. heterophylla*, as that plant continually varies in appearance, hardly two specimens being alike. Two species of *Epilobium*, one a very fine plant—a *Myriophyllum*— and a linear-leaved floating plant (? *Potamogeton*), I also obtained in this locality. Bivouacked for the night on a little open flat on the left bank of the river. The mosquitoes, as might have been expected, were in interminable clouds and most annoying. Large quantities of an elegant species of *Cyperus* (*C. fulvus*? *R. Brown*) grew here, on either shore.

Early the next morning we resumed our paddling: down the river, which here begins to be under the influence of the

tides. The morning was squally and lowering, with every indication of a gale at hand. As we neared the sea-coast the river became very wide, being from two to three miles across, and containing several flat islands. The water here is shallow. At noon I had a prospect of the outer range of hills on the western coast, and a more dreary and sterile one can not easily be imagined. High and broken ferruginous coloured sand-hills, destitute of the least vestige of vegetation. The wind setting in from the sea, against the ebbing tide, caused the water to be very rough, and called forth our united energies to keep our frail bark from swamping. At 2 p. m. we landed in safety at Maraetai, a station belonging to the Church Mission, where the Rev. R. Maunsell resides, whose kind and hospitable reception quickly made us forget the little danger we had so lately been in.

Maraetai, is on the immediate south bank of Waikato river, and only about a mile distant from the heads. The land on the southern side is very high and precipitous, while on the northern it is hilly but lower, and, for about three or four miles, the very perfection of barrenness. Mr. Maunsell, who has several times been up and down this river, supposes the distance which I came by water to be from 130 to 150 miles; being very nearly what I had calculated it to be. The river decreases rapidly in width as you approach its mouth, which is very narrow with a bar across it, on which there is two fathoms of water. Here, the breakers burst continually; one or two small vessels have, however, entered.

At 6 a.m., on the 1st February, we left Maraetai. Crossing the river in a canoe to the northern bank, we proceeded over

the sandhills on our journey towards Manukau. Descending to the outer coast, we continued travelling over the interminable sandy beach until after sunset; when, much fatigued, we halted for the night on the sands, about three miles within the southern head of Manukau Bay. The cliffs to our right in this day's travelling, were high and much broken, composed of sand and sandstone, and in many places covered with verdure. The continual falling, however, of the sandy material of which they are composed, will, in process of time, cause them to entirely disappear. In several places, for many yards together, the line of cliff nearest the sea had recently fallen, bringing with it quantities of small trees and shrubs, causing, at the time of high water, no small obstacle to our progress. I noticed some small shrubs, evidently species of *Edwardsia*, the habit and foliage of which differed from the one I had hitherto seen; I took specimens, regretting there being neither flower nor fruit. A little *Limosella*? also, grew here in the sand. On the face of a damp cliff, near a small watercourse which trickled down the rocks, I discovered a peculiar succulent plant, bearing a raceme of obovate red drupæ. These, with a curious moss, from the wet rocks in this locality, comprised the whole of my collection in this day's journey. Here, on the sandy beaches, feeding on small marine insects, the Dusky Plover (*Charadrius obscurus*) and Southern Godwit (*Limora australis*) were in large flocks. The natives call the former, Tuturuwatu; and the latter, Kuaka. The Godwit is, when in season, very fat, and good eating.

The next morning we continued our course by the sinuous shores of Manukau Bay. We soon reached a native village,

where, gaining a supply of potatoes, &c., we recruited our strength, and, engaging a canoe, paddled to the upper extremity of the harbour; landing at Otahuhu, the isthmus connecting the northern and southern parts of the Northern Island of New Zealand. The appearance of the strata in the low cliffs at this place is very curious, and worthy the consideration of the geologist. Alluvial earth, clay, volcanic sand, pipe clay, and peat, present themselves in beds one above another, the peat being invariably underneath. Steatite, in small masses, I found mixed among the clay. A stratum of fine white clay, much resembling pipe clay, is generally visible below the bed of volcanic sand, which I believe to consist of either disintegrated lava and pumice, or fine white volcanic ashes. In the sand and mud beneath the cliff over which the tide at high-water flows, calcined and charred roots, and portions of the lower trunks and stems of trees and shrubs abound, still standing in the position in which ages back they grew. The whole appearance of the country in this neighbourhood is of a highly volcanic character. Several abruptly rising isolated hills, partly covered with scoriæ, having their sides peculiarly terraced (which, though doubtless augmented by art,* attest their volcanic origin), are here scattered about. On the northern side of the bay, and about a mile distant, scoriæ abounds; the ground being in some places as if entirely composed of it, in massy flat and continuous layers. This isthmus is very narrow, being only about three quarters of a mile across, and that over an almost level plain, a few feet only

* The natives made places of defence for themselves, when attacked, of these hills, before the introduction of fire-arms. Some of them bear evident signs of having been long inhabited.

above the level of the sea. There are not any forests in this locality; the eye wanders over a succession of low volcanic hills, bearing nothing but the monotonous brown fern, with here and there a shrub of *Coriaria sarmentosa* rising a few feet above the common denizen of the soil, by which it is every where surrounded. Here, among the fern brakes, the New Zealand quail (*Coturnix* ——) is found. This bird, once (according to the natives) very common in this island, has become somewhat scarce, owing, no doubt, to the increasing number of its introduced foes—dogs, cats, and rats. The natives used to take this bird with nets; their name for it is Koitareke. It is a shy bird, being but seldom seen; their cry, however, is often heard. From the dry hills, I obtained two new species of ferns; one, an elegant little *Gymnogramma* (*G. Nova Zealandia*, *W.C.*) only two or three inches high, I found growing on the scoria among the grass; the other, a species of *Asplenium* (*A. oblongifolium*, *W.C.*), I gained from the sides of the dark pits and ravines in the same locality. A peculiar species of *Coprosma* (*C. crassifolia*,* *W.C.*), I detected growing among the scoria on the northern side of the bay; together with a curious slender tree, bearing a profusion of red drupæ, and having spathulato-orbiculate leaves,

* COPROSMA CRASSIFOLIA. *Foliis* ellipticis orbiculatisve (3-5 lineas longis) obtusis fasciculatis laevibus carnosis petiolatis subtus pallidioribus, margine revolutis integerrimis rubescentibus, *petiolus* pubescentibus purpureo-coloratus. *Fructus*, solitariis ad apicem ramulorum sub-sessilibus glabris viridimaculatis; *sepalis*, monophyllis circumscriptis seu 2-4 angulatis irregularitise persistens. *Ramis*, brachiatis rigidis adscendentibus glabris. —*W. C. MSS.*

Hab. Scoria, and rocky spots, shores of Manukau Bay, western coast.

Obs. Closely allied to *C. rhamnoides* and *C. divaricata*. Flores nondum vidi.

white and downy underneath, perhaps a species belonging to A. Cunningham's new genus *Corokia*. This neighbourhood was once densely inhabited; but the frequent and sanguinary wars of the ferocious tribes of this benighted land, all but entirely depopulated these fertile districts.

Having concluded to return overland to the Bay of Islands, and having obtained a supply of rice from the *capital*, the only portable article of food procurable in these parts—for we were now about entering on an uninhabited route, and that, too, without a guide—early in the morning of the 4th, we left Otahuhu, in a small canoe which we had borrowed, and paddling down the bay about four miles we landed on the north side of the harbour; continuing our course by the muddy winding shores to Te Wau, a little cove where the path leading to Kaipara commenced. Here, while my natives were engaged in cooking our breakfast, I, looking about, discovered a shrub of a genus altogether unknown to me. This plant bears an oblong succulent crimson-coloured *bacca*, containing several large angular and irregularly shaped seeds; its growth is diffuse and slender with but few branches, and its height is from 5-9 feet. In *habit* alone it closely approaches to some species of the *Coprosma* genus. There were several of them here, on the immediate banks of a little rivulet which ran through this dell; I did not, however, observe it in any other locality. Continuing my journey, I found (in ascending the first clayey hill from the seaside) a handsome shrubby *Dracophyllum*; a species not noticed by Cunningham in his "*Precursor*." This shrub is from 2-5 feet in height, somewhat rigid in its growth, and branched at bot-

tom. It will (with the other new species already mentioned, p. 266) naturally fall between *D. latifolium*, Banks; and *D. Urvillianum*, Rich., and thus well connect the whole of the already known New Zealand species. We travelled on, over open and barren heaths, in a northerly direction until sunset. Observed nothing new in these dreary and sterile wilds save the *Dracophyllum* already mentioned. Bivouacked for the night in a little dell, nestling among the close growing *Lep-tospermum*, not a stick being any where within ken large enough to serve as a tent pole.

The next morning we re-commenced our journey in rain. Country, for several miles, much the same as that we passed over yesterday. About noon we passed by some forests of *Dammara*, which were burning fiercely; some person or persons who had lately passed that way having set fire to the brushwood, which soon communicated to the forests. This is an event of very common occurrence in New Zealand, and is often thoughtlessly done by the natives to cause a blaze! through which means many a noble forest of pines has been entirely consumed.*

* It is a very common practice with the New Zealanders in travelling (especially when passing through forests and over paths by which they will have to return), to select some noble Rata tree (*Metrosideros robusta*), or Rimu (*Dacrydium cupressinum*), of giant size, having a hollow near the root. In this hollow they make a small fire, which burns slowly on for several weeks, eating its way upwards through the tree,, even to the ends of the larger branches, ere the bark becomes injured or the leaves change their appearance. I have myself seen such a spectacle as the one just adverted to—a living tree on fire! the whole heart-wood of the trunk and main branches being entirely consumed, and smoke issuing from the ends of the largest limbs, at a height of 20 feet from the ground; the leaves being still green, and apparently not at all affected by the fire which had been for some weeks burning within. The na-

Arriving at Kaipara, we found we had no means of crossing the harbour; a sheet of water, which, from where we now stood (at the extreme southern inlet) to the nearest landing-place on the northern shore, was more than fifty miles across. Our situation at this place was rather unpleasant, no natives being near by; we preferred, however, to wait here a day or two, in hopes of a canoe arriving at the landing-place, rather than retrace our steps to Otahuhu. In this place we remained until the night of Tuesday the 8th, making fires on the brow of the hill, in order to attract the attention of the natives residing on the opposite shores of the water before us. No one, however, came; and on Tuesday, reconnoitring with my glass, I detected the roof of a hut about four miles distant, which, from its construction, I knew to belong to a white. Thither, without delay, I despatched two of my natives; who, to their credit be it recorded, willingly went, although they had to force a passage through mud and underwood the whole distance! At night they returned, with two whites, in an old patched-up and leaky boat, in which we gladly left this miserable place, where the mosquitoes were more numerous and intolerably annoying than I had ever before found them. So thick and tormenting were they at night, that I was obliged to leave my tent, and wander about in my cloak from place to place as they successively found me out. We had, in hopes of avoiding them, pitched on the top of the hill, more than a mile from the water below, but without the least change for the better.

tives do this, in order to procure fire for their tobacco pipes; or rather, to save themselves the burden of carrying a tinder-box and the labour of striking a light.

On the morning of the 12th, after encountering no little hardship and danger, we landed near the upper end of Otamatea inlet, on the N.E. side of Kaipara. Here, the boat left us, and we soon found that our situation was ten times worse than it was before; for there was not any path, nor the slightest indication of the treading of a human foot on these solitary and pathless deserts. Return, we could not, as our boat was gone; stand still, we dared not, as our small supply of food was fast diminishing; proceed, we hardly cared to think of, not knowing whither our tortuous course would end—in a country like this, in which we now for the first time were, hemmed in among tangled brakes and primæval forests, bounded by a distant horizon of high and broken hills.. In this exigency I determined on proceeding by compass, in as straight a line as possible to the eastern coast; for, although I had not a map with me, I was well aware that the island was narrow in these parts. Words, however, fail to describe what we had to undergo, in forcing our way through the horrid interwoven mass of shrubs and prickly creepers, fern and cutting-grass, and prostrate trees, and swamps, and mud! Suffice to say, that, by dint of extreme exertion, I providentially gained the sandhills at Mangawai, on the east coast, by 10 a.m. on Monday, the 14th. Descending the hilly range near the sea coast, I found I had an extensive inlet to cross, which, as the tide was flowing fast I lost no time in fording; so, plunging in, I waded to the opposite shore, the water being breast-high. I supposed my natives to be following pretty closely after me, and, having quite an appetite for my breakfast (having walked nearly six hours this morning), I com-

menced looking narrowly about for fresh water, continuing my journey towards the coast. Exhausted as I was, I discovered and secured, an hitherto unnoticed species of *Leptospermum*, a shrub, or small tree, growing plentifully on the high ridges of the sandhills, from 6-10 feet in height, bearing a villous capsule, apparently near *L. attenuatum*, *Smith*. A pretty compositaceous shrub (*Cassinia leptophylla*?) grew profusely here on the sand. Travelling on by the rocky coast, I detected in a little watercourse which trickled on the beach, a small peculiar plant, probably a species of *Chara*. It was now past noon, the day was very sultry, and I was tired, wet, and ravenously hungry in a desolate and wild place, when, for the first time, I realised a conviction which had been for the last hour gaining ground in my mind—that I was alone! I retraced my steps to the sandhills, and sought about, and bawled repeatedly, but all in vain; nought but the loud dash of the billow as it broke on the lonely strand, with now and then the melancholy wail of the Sandpiper burst on my expectant ear. My natives, somehow, had strayed into another direction, or lagged behind, so that I saw nothing more of them until after sunset on Tuesday, the 15th, when they joined me on the outer beach of Wangarei Bay.

During these two days I managed to subsist on some shellfish (*Mytilus*, *sp.*) from the rocks, the scanty sarcocarp of the fruit of the *Corynocarpus lævigatus*, *Forst.* (the large kernel of this fruit being in its raw state an active poison), and the inner young leaves of *Areca sapida*, *Sol.*; this latter plant (the palm of New Zealand) affords good eating, a *bonne bouche* to any one in my situation. My natives were

exceedingly happy the next night, on coming up to the spot where I had brought up for the night, and finding me safe and well. To their honour be it mentioned, that, though they were bearers of provisions, they would not touch a morsel of it during the two days we were separated from each other knowing that I was without food; saying, "What! shall we eat when our father is fasting?" Like myself, they subsisted on shell-fish and the fruit before mentioned.

On the morning of the 16th, leaving the little fishing hut in which we had passed the night, we struck inland towards Te Ruakaka; a small village a few miles from the south shore of Wangarei Bay. Arriving thither, we were hospitably received, and, having breakfasted, resumed our journey onwards. In the low rushy land between this village and the inner shore of the harbour, I discovered a species of *Lycopodium*, with axillary spikes of fructification, which was new to me; it grew together with a closely-allied species, *L. laterale*, *R. Br.*, from which plant, however, it differs much in habit, this being erect and almost invariably bifurcate. In this locality, too, I detected another fine species of *Pterostylis*, with undulated oblong-lanceolate leaves; which will rank between *P. Banksii*, *R. Br.*, and my minute and truly elegant n.sp., *P. collina*. Its time of flowering had scarcely arrived when I passed; I gained, after some search, a specimen or two with unfolded perianth. Arriving at the water's side, we found, to our disappointment, that we could not obtain a canoe, all of them being in use further up the harbour. As, however, we could not cross the water without one, I sent two of my natives to fetch it, patiently awaiting their return on the solitary mud banks. While here, I was much amused in observing the

predatory habits of the metallic plumaged Kotaretare (*Dacelo Leachii?*). Perched on an outstretched branch of a Mangrove tree, intently watching for the appearing of some unwary little crab from his hole in the mud beneath, the *Dacelo* quietly sits. Presently some ill-starr'd wight would be seen peeping out of his dwelling, suspiciously reconnoitring about him; being satisfied that the coast was clear of enemies, he suddenly pops out and commences his irregular sideway run, when, swift as an arrow, the *Dacelo*, who has attentively beheld all his movements, pounces down, seizes the hapless little wanderer in his capacious beak, and returns to his station on the tree, with as much haste as if he knew himself to be a thief and trespassing on forbidden ground. I have often witnessed their mode of obtaining their prey, and hardly ever observed them to vary in the least, rarely venturing into the shallow water. Towards evening my natives returning with a canoe, and an old female slave to bale! we entered our frail bark and paddled directly across the harbour to the northern shore, a distance of about five miles. A heavy swell setting in, we ran some risk, but crossed in safety; landing at Tamatarau, a small village, at 9 p.m., where we passed the night. The natives of this place, and in fact the whole neighbourhood, stunk insufferably from shark oil, and the effluvia arising from thousands of the *Squalus* genus, which were hung up to dry in the sun in all directions. This bay being shallow and sandy, is a favorite resort of several species of *Squalus* in the summer season; at which time the natives congregate together, and take them in great numbers. They call them Mango, their ova, which they carefully preserve and dry, is considered a great delicacy. Several species

of the genus *Raia*, *Linn.*, are also taken here in multitudes. I have seen the natives capture them, by plunging a long pole through their horizontally flattened bodies, when passing in a canoe over the extensive mud flats with which this bay abounds. The tail of one large species, is armed with large spines of three inches and upwards in length, which spines are deeply, closely, and sharply serrated. One pretty little species, I once saw, had a very long filiform cylindrical and smooth tail. These fish are called 'Wai, by the natives. A species of the Hammer-headed Shark (*Zygæna*, *Cuv.*) is sometimes met with on these shores among the shoals of its congeners in the summer. I have only seen a small one, about 2 feet 6 inches in length; the natives know them by the name of Mangopare.

The next morning we again re-commenced our march. On the clayey hills near Te Karaka, in this neighbourhood, I discovered a graceful and minute *Lycopodium*; a curious and unique little plant, scarcely two inches high, bearing a yellow terminal spike of fructification on a white stalk, with few linear-lanceolate patent radical leaves, and tuberculated root. At first glance I took it for a little *Orchideous* plant; but soon found what it was in reality. I have never met with the description of any plant of that Natural Order, at all resembling this. On the high hills in this locality, I also detected an elegant and new species of *Microtis*, closely resembling *M. Banksii*, but differing in having a much shorter subulate fistulous leaf, and beautifully coloured perianth, as well as in its flowering in the autumn, that species only being seen in the spring. Here, in the forests on the hill tops, an enormous Fungus grows pendant from the larger branches of the large-

leaved *Fagus*,* some of which measures a full yard across, and about eighteen inches in width and thickness. These, the natives call Putawa, and when dried use them for tinder, for which purpose they are excellent. Hitherto, I have only found them to grow on this tree. A fine plant of that truly sweet genus, *Alseuosmia*, *A. Cunn.*, I also discovered in these dry hilly forests. This species† is, in appearance, very near *A. linariifolia*, *A. Cunn.*, though differing much in habit. Its leaves, too, are longer, midrib and petioles villous, and its numerous flowers both axillary and terminal. It is the largest shrub I have yet seen of the genus; growing to the height of 5-7 feet. In the forests, a little further on, I detected a new species of *Mira* (another new genus of *A. Cunn.*'s), a small graceful tree bearing elegant blossoms.‡ The wood, of the different species of this genus, is very hard, dark, and heavy, and is used by the natives in making walking-staffs, spears, and, in former times, implements of war. The native name, Maire (whence the generic appellation), is proverbially applied, when speaking of any obstinate determined person. A new species of *Coprosma*,§ I also detected in these woods; a

* *Vide*, mention made of this *Fagus* (a fine species discovered by *W. C.* in 1839), Note, p. 27.

† *A. HOOKERIA*, *MSS.*, *W. C.*, *ined.* *A. linariifolia*, is thus described:—"Foliis (uncialibus) lineari-lanceolatis acuminatis margine revolutis, floribus terminalibus solitariis aggregatisve, ramulis virgatis pubescentibus." —*A. C.* in *Ann. Nat. Hist.* vol. ii. p. 209.

‡ *MIRA UNULATA* (*MSS.*, *W. C.*, *ined.*), foliis obovato-oblongis, acuminatis undulatis integerrimis. Arbusculis, 12-20 pedalis, et ultra.

§ *COPROSMA ARCUATA foliis* (parvis) obovato-oblongis sub-spathulatisve truncatis seu emarginatis basi attenuatis petiolatis glabris sub-fasciculatis, margine incrassatis; ramis valde arcuatis dependentibus, ramulis villosis; caulibus arbusculus sesquiorgyalibus gracilis. —*W.C.*, *MSS.*, *ined.*

slender shrub with long drooping filiform branches. Proceeding on, through the forests, I discovered two, if not three, small aromatic trees of a genus evidently belonging to the Natural Order *Winteraceæ*; one of which, a handsome tree, had large obovate shining leaves. A species of the same genus I had before detected in the humid forests on the mountains near Waikare Lake. A fine and handsome species of ? *Myrsine*; an elegant tree, 20-35 feet high, with a full branched head, long linear leaves, and straight and smooth bark; often found on the skirts of woods in dry hilly situations. A dwarf species of the *Melicytus* genus;* a small tree, 6-7 feet high, apparently an intermediate species between *M. ramiflorus*, *Forst.*, and *M. macrophyllus*, *A. Cunn.* A curious parasitical black *Fungus*, hanging suspended like a black ball of fine silk by a thread of the same texture to the fruit of a Cyperaceous plant; together with several specimens of *Musci*, *Jungermanneæ*, and *Fungi*.

Crossing the mouth of Horahora creek, in the evening at low water, a small red-coloured fish swam towards us, and bit a toe of the native who was carrying me. I immediately got down and captured the little assailant, putting him into my specimen bottle. It was a curious little scale-less fellow, about three inches in length, with a large broad compressed head, eyes distant, red and sunk, wide mouth, projecting jaws, numerous small and pointed teeth, pectorals very large, ventrals forming somewhat of a reniform and concave disk, and dorsal small and near the tail; it may possibly prove to be a new species of *Cyclopterus*, *Linn.*

* MELICYTUS COLLINA, W.C., MSS. ined, 1842.

Late at night we arrived at Ngunguru, a village near the coast, situate on a river of the same name navigable for small vessels. Here, I obtained a few John-dory (*Zeus, sp.*), which the children captured in the shallow water at the ebb tide. It appeared to differ but little from the common English species. The natives call it, Kuparu.

Leaving Ngunguru the next morning in a boat, the sea being very calm and the wind favorable, a voyage of six hours brought us to Owae, a small village in Wangaruru Bay. Here we landed and remained during the sabbath.

On the high southern headland of Wangururu Bay (near which we landed), I discovered a clump of small trees, bearing a handsome fruit of the size of a large walnut. Each fruit contained three large shining seeds somewhat crescent-shaped, and having the front as it were scraped away. Its leaves are oblong glabrous and much veined, and its young branches lactescent. I have little doubt but that this tree will be found to rank in the Natural Order *Sapotaceæ*, and probably under the genus *Achras*. The natives call it, Tawaapou.

At Owae I obtained a fine specimen of *Scolopendra*, measuring nearly six inches in length, and beautifully coloured with brown and blue. I found it beneath the bark of a decayed *Dammara*. It bit my native lad, in seizing it, through his thick-skinned hand, which it caused to bleed; neither swelling nor great pain, however, followed. The wood of the *Dammara* (especially when decaying) is often found pierced with large cylindrical holes, extending a great way into it; this is the work of the *Larvæ* of some insect at present unknown to me. I have, however, several of the *Larvæ*, which are large, wrinkled, and of a dirty-white colour, with a black

head. Some measure from four to six inches in length, and are proportionably thick. The natives call them, Huhu, and consider them a great delicacy! devouring them greedily when roasted. Here, too, I detected an active little insect of the scorpion family, or rather (being tailless) of the genus *Chelifera*, Geoff. This small insect is about four lines in length; its body somewhat oval, grey, and annulated; its palpi red and elongated, with forceps resembling a hand, which, when at all checked in its movements, it raises and opens in an attitude of defence. It runs very swiftly, and equally well backwards as forwards, or sideways like a crab. Near logs of wood and roots of trees, I noticed the *Larvæ* of some species of the *Myrmeleon* genus, hidden at the bottom of their funnel-shaped cavities in the sand; which much resembled those of *M. formicarium*, Linn. Its body is about 4-6 lines in length, and is of the colour of the sand it lives in. A fine dark-coloured bulky *Scarabæus*, I also obtained; together with several elegant and graceful species of *Sphinx* and *Phalæna*. One of the *Sphinges* being the parent of the *Larvæ* on which the curious parasitical *Fungus*, *Sphaeria Robertsii*, is produced. Two species of the *Phalæna* were particularly interesting; one, a small species, whose wings were of a delicate and bright grass-green colour studded with triangular spots of the deepest black;—the other, a large downy species (? *Pyralis*, Fab.), with brown wings having oval silver spots in relief, peculiarly arcuated and raised, upon its body, and four distinct and plaited red crests on its back, the upper one being nearly two lines in height.

On a tall branching Pohutukawa tree (*Metrosideros tomentosa*), which grew on the rocky cliff at the northern end of

the beach of Owae, I observed several Cormorants (*Pelecanus, sp.*) had built their nests. These birds had inhabited this tree for many years; yearly increasing the number of their nests, which they build of dry *Algæ*, sticks, and small plants. Their social habits and large nests, forcibly reminded me of an English rookery. Two species inhabit these shores; one, with entirely black plumage, which the natives call Kawau—the other, with white fore-neck, breast, and belly, and olive-black neck, back, and wings, called by them Karuhiruhi; this last is the most common.

From the rocks near this village, I obtained fine specimens of that peculiar univalve, the *Parmophorus*. The shell of this animal is almost entirely hidden with its large dark-brown and fleshy mantle, which curves upwards quite around. Some of these *Molluscæ* would, doubtless, weigh from eight to twelve ounces each. It is found adhering under *Fuci* in the hollow sides of rocks below low-water mark. Its flesh is eaten by the natives, who call it, Rori. On these rocks I noticed several fine species of the genus *Chiton*, some measuring more than two inches in length.

The natives of this village, who had been lately fishing, had taken several very fine Kokiri (*Balistes, sp., Linn.*); some being a foot in length. This fish they greatly prize; its large liver especially being a dainty. This species has a very large moveable spine between its head and its back, a little before its dorsal, which it can erect at pleasure, and (reasoning from appearance) use as a weapon of defence. Its skin is of a dirty-olive colour, and rough, resembling shagreen.

From these natives I obtained a large and peculiar species of *Asterias*, smooth and of a red-colour, with a pentagonal-

circular body of 1½ inch diameter, and five cylindrical and tapering rays, each ray 10 inches long, compactly covered with imbricated scales; the scales on the upper part of the rays being broadly lateral, each scale being minutely dotted with dark red in two rows; while those on the sides of the rays consisted of alternate rows laterally and longitudinally placed, one long narrow scale (lat.) being between 9-12 short (long.) ones; the scales in the undermost row were almost square and notched at the apices. The natives themselves had looked on the animal as being a curiosity; they give the different species of the *Asterias* genus (of which there are several here), the appellation of Korotupa.

Along the shore lay several *Zoophyta*, common to these seas in the summer season. Among them were species of *Medusa*, and *Physalia* (*P. pelagica*?); the last still retaining their lovely ultra-marine colour. These, the natives distinguish by the name of Aumoana. Routing over a heap of cast up *Algæ*, I found what appeared to have been the air-bladder of a fish; it was complete, stout, semi-transparent, and inflated, about 6 inches long by 2½ inches wide, and forked throughout three-fourths of its entire length. The natives assured me, it was the air-bladder of a fish of the *Diodon* genus, with which they were well acquainted, and to which they had given the very appropriate name of Koputotara, i.e. Prickled-belly. These air-bladders are sometimes used by the natives instead of small calabashes for the purpose of holding liquids, such as oil, ink, &c. A large *Cephalopod* (*Sepia*, *sp.*), with long formidable-looking tentacula studded with large tubercles, I also noticed.

The village of Owae, being built on a sandy spot close to the sea, the sand flies are here exceedingly numerous and annoying. When at this place, in 1839, I detected a very tall and graceful fern-tree (*Cyathea dealbata*) growing by the river side. Sending one of my native lads to the top of the fern to measure its height, I found it to be upwards of 38 feet. Another arborescent fern of the same species, which I subsequently discovered in a wood in the neighbourhood, was three-branched at about 5 feet from the ground, each branch being 4 feet in length, and bearing a fine head of living fronds.

Leaving Owae in a canoe, on the morning of the 21st, we paddled across Wangaruru Bay, and by noon gained the upper end of Wangaruru River. This salt-water inlet is famous for a species of Grey Mullet (*Mugil*——), which is very numerous. It is a particularly interesting sight, and one that invariably gives an additional beauty to the delightful scenery of the New Zealand rivers, to witness this sportive fish leaping out of the water on a still fine summer's evening. It is not an unusual thing for one of those fish to leap into a passing canoe. In some rivers, where they are very plentiful, the natives moor their canoes off in the stream on a fine night, and are sometimes rewarded with a fine fish or two for their trouble. The New Zealanders, however, take them in large quantities in their nets.

Landing at Tutaimatai, at the head of the river, we proceeded on over Te Ranga, a high hill, from the summit of which on a clear day the traveller has a most magnificent and picturesque bird's-eye view, extending over the whole of the Bay of Islands, and northwards beyond the Cavalles. The

dense forests of *Dammara* and other pines, with their foliage of every hue, cresting the hills in the immediate foreground, and spreading up the steep sides of the eminence beneath his feet, heighten, not a little, the surpassing loveliness of the scene. Those gallant little gentlemen, the *Cicadæ*, who make—

“Their summer lives one ceaseless song,”

were rattling away at a merry rate on the different trees and shrubs around. Of these insects, several species inhabit New Zealand. One species of a light emerald-green, and another of a golden colour, are peculiarly charming: the natives call them, Tatarakihi. Descending Te Ranga, I detected, growing in a mossy bank, a fine *Pterostylis*, with numerous lanceolate bracts, its radical leaves and perianth much like those of *P. collina*, with which elegant species it has close affinity. Passing through a swamp at the base of the hill, a fine bird of the *Ardea* genus, rose gracefully and slowly from among the rushes. This bird, which resembles very much the English Bittern in its general appearance, is large, being upwards of three feet in length, and is very shy, mostly remaining solitary in swampy places. Its plumage has a very elegant appearance, being of a light colour underneath, and reddish-brown on the back and wings, dappled with black. Its bill and legs are of a delicate yellowish-green colour. The native name for this bird is, Matukuhurepo. In about three hours from our leaving the landing place at the head of Wangaruru River, we arrived at Waikare, a village situate on the inner waters of the Bay of Islands.

It was from the woods in this locality, that I first obtained specimens of the Para, a fine fern of the *Marattia* genus,

whose curiously jointed and bipinnate fronds attain to the height of 10-13 feet. This plant was formerly in great request among the natives, the large gibbous fleshy and vaginant bases of its petioles, being an article of food of the first quality. Hence its scarcity, a few plants only being found remaining in the deepest and darkest recesses of the forest. The largest tree fern I have yet seen, I found in these woods. It was a *Cyathea medullaris*, and measured, from its base to the springing of its petioles, 42 feet! My admiration and astonishment were greatly increased, on detecting this fine fern, and ascertaining its height, as all of this species I had hitherto seen seldom attained a greater altitude than 10-12 feet; and A. Cunningham (in *Comp. Bot. Mag.*, v.ii., p. 368), speaking of it, says, "*Caudex orgyalis.*" Here, too, I noticed a splendid plant of *Fuchsia excorticata*; quite a tree, being 21 feet in height, and 2 feet 9 inches in girth; bearing a profusion of lovely blossoms and fragrant edible fruit. Don (*Syst. Bot.*, v.ii., p. 679), describes this species as "a shrub from New Zealand, 2-3 feet in height."

At Waikare I remained during the night, and, on the next morning, the 22nd, obtaining a boat, a row of three hours returned us in safety to Paihia, one of the Church Missionary Society's stations in the Bay of Islands. In our passage down the Waikare River, several fine Gannets (*Sula*, sp.) attracted our attention. We pursued one, swimming on the water, and very nearly seized him. In order to escape us, and just as our boat was upon him, he disgorged a large fish which he had recently swallowed, and took to flight. This fish measured 11 inches in length, and 9 inches in girth, and was quite whole. The natives often take this bird by watching its movements,

and giving chase directly after it has gorged itself with food, when it is easily taken. They call it Takupu. A small but graceful species of Garfish (*Belone, Cuv.*), hastening away from its voracious pursuers, flew, or rather sprung, into my boat. This fish is common here in the summer months. Its under jaw alone is produced. It swims in shoals, and often scuds along on the surface of the water, sometimes taking a long leap, especially when pursued by larger fish. It is very delicate eating, and is justly esteemed both by whites and natives. The natives take them in large quantities with small nets. Here, they call them, Takeke; but among the southern tribes, Ihe.

In concluding this somewhat incongruous collection of Memoranda, I would embrace the opportunity of stating, as my decided opinion, that New Zealand presents a fine field of labour to the Naturalist, particularly in cryptogamic botany, conchology, and entomology. It is true, that here we cannot boast of many indigenous natural productions serviceable to man, nor of a showy flora, nor of splendid insects, such as many other and neighbouring countries can produce; yet the truly careful observer will soon perceive, that the productions of New Zealand are, generally speaking, peculiar to herself, and highly curious in structure.

Lastly, I would briefly remark, that the more I see of this country—now my adopted one—the more I feel assured that she is still but very imperfectly known, both in her productions and capabilities. Arising, I am persuaded (at least as far as her capabilities are concerned), more from carelessness and ignorance, or design, than from any other assignable reason. The soils, in particular, of New Zealand, have been rep-

resented as possessing a fertility unparalleled, and such everywhere abounding to an almost unlimited extent! Nearly ten years of residence (during which period a good share of travelling and numerous opportunities of obtaining the most correct information) has, however, convinced me, that such is far, very far, from the truth. Few, indeed, are the districts, which can in any sense be termed fertile; and where such exist, the native population is generally very great.

New Zealand (the North Island) is, on the whole, a barren country; and—bearing in mind the absolute and prior claims of her own sons—unavailable to the stranger to any very great extent for agricultural purposes. Nor must it be forgotten, that her best and most fertile portions (few though they be) are still in the hands of her children; whose eyes are now opening to the fact, that they cannot part with such lands to the foreigner without detriment to themselves or their descendants. Her natural productions—her fisheries, her metals, her timber, her flax, her pork, and her barks for dyeing and tanning—will, doubtless, prove an inexhaustible mine of wealth; but, ere these can be available, the spirit of labour and industry, of energy and alacrity, must be infused into her present occupiers; contentment and unity must dwell among us—and self denial be extensively practised.

Bay of Islands, New Zealand,
January, 1843.

P.S.—The total number of specimens in Natural History, collected and observed by me in this excursion, may amount to nearly 1,000, of which I have had the pleasure of transmitting to Sir W.J. Hooker, upwards of 600, being about the

number I considered new; two thirds of which, at least, I can but suppose to be at present unknown to science. It is chiefly in consequence of my having done so that I have not cared minutely to particularize or describe the greater number, knowing that that gentleman—and who more eminently qualified?—will not fail to do so.—W.C.

