

SECTION VI.

NEW ZEALAND'S NATURAL HISTORY.

FAUNA AND FLORA.

OUR NATIVE BIRDS.

HALF hidden away in the northern end of the gallery of the Main Building was the Natural History Court, where a large display was made of stuffed specimens of New Zealand native birds, together with illustrations of some of the most interesting indigenous vegetation. The natural-history collection here was confined to inanimate specimens, but outside the Exhibition Buildings, in a little aviary under the pine-trees in the park, the Natural History Committee had collected a number of live New Zealand birds—some of them the most curious specimens of the animal kingdom known to scientists—besides a number of examples of that strange survival of pre-historic creatures, the tuatara lizard. In addition, a number of inhabitants of New Zealand's offshore islands—seals, sea-lions, and penguins—were on exhibition in a fenced-off pond of the Victoria Lake.

The display of birds included all the most distinctive birds of these Islands, one of which—the moa—had disappeared before the days of European settlement and European-introduced birds and animals. Conspicuous above all other exhibits rose the reconstructed moa, the huge bird twice the height of a man, that once stalked through the forests and over the plains of New Zealand, perhaps the most singular feathered creature that ever the prehistoric natural world gazed upon. This moa reconstruction was the clever work of Mr.

**The
vanished
Moa.**

A. Hamilton (Director of the Colonial Museum at Wellington, and formerly of the Otago Museum), who made casts of the legs and claws from the bones of the moa, and used emu-feathers for the plumage. A monster bird indeed, but one that fell an easy victim to primitive man.

Close by was the kiwi or apteryx, that singular flightless, tailless bird, with the long sharp beak and soft furry plumage, which more than any other living feathered denizen of New Zealand has come to be considered typically representative of this country. It was the kiwi of which Mr. Charles Hursthouse, one of the early writers on New Zealand, gave an apt and witty description when he wrote, "If the reader will only picture a hairy hedgehog on stilts, with a long beak much too heavy for him, moping in a corner and kicking viciously when excited, he will have a rough idea of what the kiwi is like." Specimens of the kiwi were shown in the aviary.



THE MOA, AS RECONSTRUCTED BY
MR. A. HAMILTON.

An oil-painting by Mrs. Hocken, of Dunedin, depicted that most remarkable of living New Zealand birds (if indeed there should still be one in existence in its ancient habitat, the Southern Fiordland), the takahea (*Notornis hochstetteri* or *mantelli*). It was rather a pity that the fine specimen of this strange flightless bird now in the Dunedin Museum was not sent up to supplement the collection; but it is a treasure that is probably too precious to be allowed out of that institution, considering that it is the only one in a New Zealand museum. The takahea, as represented in the painting, is not unlike a pukeko or swamp-hen in general appearance; its plumage is of a bluish tinge, it has a very strong and peculiarly arched red bill; its wings are so rudimentary that they are useless for purposes of flight, but are armed below the carpal joint with a sharp spur or claw. Mrs. Hocken's painting was done from a specimen in Dunedin, which was captured on the shores of Lake Te Anau in 1898—the last occasion on which this vanishing representative of bird-life was seen. The southern Maoris say that the takahea was in former days often obtained around the mountainous wooded shores of Lakes Manapouri and Te Anau. The bird was hunted for food by the Natives, who used dogs in the chase; when attacked it showed fight, striking out with its feet, and biting with its strong short beak, and hissing like a bittern.

There were specimens of the two sweetest singers of the New Zealand forest, the korimako or bell-bird, and the tui or parson-bird. The korimako or bell-bird (also known in various Maori districts as the makomako, and in the extreme South as the koparapara) is now exceedingly rare in the northern part of the colony, at any rate on the mainland: it is only to be heard in numbers on the Government avifauna sanctuary islands, the Little Barrier Island, in the Hauraki Gulf, and Kapiti Island, off the Wellington coast, where its delightful early-morning concerts are to be heard as they were in the days of Maoridom. In the South Island the bell-bird is more plentiful, and it is particularly numerous in the wooded parts of Otago, Southland, and Stewart Island. In at least one locality it holds its own surprisingly right in the midst of pakeha civilisation: this is the Township of Akaroa (Banks Peninsula), where it breeds in a little wood quite close to the town, and feeds on the plums, pears, and peaches in the townspeople's orchards: in the same place it has developed a taste for the flowers of the acacia. An eloquent speaker was likened by the old Maoris to the sweet-tongued korimako. In ancient days when a chief's son was born, a korimako was sometimes killed and cooked in a sacred oven for the ceremonial feast of the *tuatanga* or "naming," and was eaten in order that the child might have a sweet voice and become an orator. Students of the classics will remember the Greek story of the swarm of bees that left honey on the lips of the poet Pindar in his youth.

Another beautiful bird shown was the huia, the aristocrat of the North Island forests. There were two specimens shown, male and female. Nowadays these birds are exceedingly rare, and are found only in the most remote parts of the Tararua and Ruahine Ranges, Wellington Province. A remarkable distinction between the male and female huia is in the bill: the male bird's bill is straight while the female's is markedly curved, and is considerably longer. Most naturalists who have observed the huia account for this unique divergence in the shape of the bills by the theory that it is to enable the birds to perform different offices in securing their food, which consists chiefly of grubs and insects found in the bark of trees and in decayed logs. The beautiful white-tipped black tail-feathers of the huia are highly valued by the Maoris as head and hat ornaments; the huia-feather head-dress is, in fact, the old Maori badge of a chief.

There were two New Zealand crows or kokako, one with blue wattles from the North Island, and the other with orange wattles from the South Island; the former is quickly disappearing before the advance of the white man and the destructive animals that come in his train.

Amongst the wading-birds, shown in contemplative attitude was the graceful white heron or crane, the kotuku, so famous in Maori poetry and proverb—"Te kotukurerenga-tahi," the rare bird whose flight is seen but once in a lifetime. It is now found in just one or two parts of the South Island. There are also some stray kotuku occasionally to be seen in the southern bays of Stewart Island. One of the very few places where the heron still exists is in the Okarito Lagoon, a labyrinth of tidal creeks and sandbanks and small islands down on the West Coast, about ninety miles south of Hokitika. This lagoon swarms with all kinds of water-birds and waders, and amongst them are some white herons. One of these birds is frequently seen, and ventures right into the quiet little Okarito Township. He is often observed fishing in stately solitude in a pond just at the back of the local hotel, and he seems to know he is safe—no gun is ever raised against the white spirit-like bird of the lagoon. The Maoris say that the kotuku is an inhabitant of the nether world, the spirit-land of the Reinga. An old funeral lament ends with these words, in apostrophe to the departed: "Ko te kotuku to tapui, e tama—e!" ("The white heron is now thy sole companion, O my son!"). A high chief or other distinguished visitor is often likened to the rarely-seen kotuku. The snowy feathers of this bird were the most highly prized head-ornaments of the olden Maoris.

**The
rare
White
Heron.**

Other interesting wading-birds shown were the pukeko, the long-red-legged, blue-plumaged bird of the swamps, whose progenitors, according to Maori tradition, were brought to New Zealand by the early Polynesian immigrants in their canoes; specimens of the New Zealand bittern, the matuku—type of all that is lonely and desolate—whose nightly booming "Hu-hu" in the marshes disquieted the first Maori explorers; and a beautiful white-fronted heron in the act of flying.

New Zealand's three large parrots, the kaka, the kakapo, and the kea, were represented by excellent specimens mounted in appropriate surroundings. Of these, the kaka, the large brown parrot, is numerous all over New Zealand. In some native districts it still forms an item of food. The Urewera and other mountain tribes until quite lately used to catch large numbers of kaka by means of noosed carved snares or perches called *mutu-kaka*. This ingenious art of woodcraft is still to be seen practised in such remote localities as the shores of Lake Waikaremoana and near Mataatua and other villages in the Urewera country. The kaka is the noisiest bird in the New Zealand forests, and its intense curiosity and inquisitiveness assist in its capture by means of decoy birds and by snares. The kakapo is a curious big brown parrot without means of flight; it inhabits the dense mossy forests of the south-western segment of the South Island, the great Fiordland National Park, and it is amongst the peculiar birds of that part of New Zealand that are being preserved in the southern bird-sanctuary, Resolution Island, in Dusky Sound.

Then there was the kea, the sharp-beaked alpine parrot (*Nestor notabilis*), notorious because of its sheep-killing habits. The kea, a vegetarian before the white man came, acquired carnivorous tastes when the southern runholders began to depasture their sheep around the foothills of the Southern Alps. A price is on its head in several parts of the South Island, where the County Councils pay a reward on every kea killed; so the sheep-killing parrot's numbers are being lessened on the sheep-runs, where the shepherds and runholders agree that the only good kea is a dead kea. But far away up in the mountains, in the wastes of rock and ice, is the kea's true home. Here his frequent plaintive scream will be heard as he circles round the climber on the cliffs or hops across the surface of the glacier after him—for he is as inquisitive and impudent as the weka—yelling "Kay-ah! kay-ah!" at the top of his voice.

**The
Kea
Parrot.**

The kea is a fun-loving bird too. When the alpine huts were first erected in the

Tasman Valley near Mount Cook, flocks of keas used to divert themselves in the early morning by noisily sliding down the iron roofs, with a tremendous amount of unmusical bird-laughter. They would keep up the game for hours, and evidently looked upon the huts with their shining roofs as a new kind of amusement specially provided for the kea tribe, and loud and shrill were their expressions of pained disappointment and surprise when the inmates of the huts emerged in hot anger to heave boots and rocks and pannikins at them. Not, however, that it is safe to pelt a kea with anything you want back again. He will deftly dodge the projectile and make off with it into the scrub, especially if it happens to be something bright and glittering. The kea is utterly destitute of principle, and, with the weka, his copartner in bird-iniquity, is an inveterate pilferer.

In the high sheep-country on the eastern side of the Southern Alps the carnivorous kea has his best hunting-ground. A little flock of sheep, or a solitary straggler lost in the snow, is his favourite spoil. The silly sheep, frightened by the mountain-parrot's sharp scream, runs round and round in the snow, weakening all the time, but still urged on to vain activity by its relentless enemy wheeling about its head. Then the kea pounces with a devilish swoop on to its back, and sinks its talons firmly into the wool. With its powerful curved beak it digs down through wool and skin and flesh into the poor animal's body, and literally devours its palpitating vitals while it is still alive. So the kea is an Ishmaelite of the mountains, and a price is on its outlawed head. The exact degree of the mountain-parrot's destructiveness is a moot point; perhaps he, like many another sinner, is sometimes blamed more than he deserves. But his reputation is bad amongst the sheepowners of the Waipounamu, and his discovery of the sweets of living mutton is bringing about his decimation and extinction. One method of capturing the kea on some stations on the eastern side of the Otira Gorge is an ingenious idea borrowed from the bird-snaring Maoris. A decoy kea is tied up near a trap in which food is placed. The fettered bird, with its shrill cries, soon brings its free-winged kindred around it, and they race greedily for the shepherd's bait. When a bird is in the net the concealed watcher twitches his string, the kea is caught wildly fluttering, swearing in bird-language in the meshed snare of the fowler, and soon thereafter his head is borne on a charger to the County Herodias.

New Zealand's most remarkable migrant, the godwit or kuaka, was amongst the other bird-specimens exhibited. The godwit is probably the most wonderful migratory bird known to naturalists. It is said to breed in eastern Siberia from June to the end of July, and then to take its long, long flight for New Zealand, passing on its way many countries and many seas. In November and December it arrives in New Zealand. At about the end of April the godwits assemble in vast numbers in the vicinity of Te Reinga, the rocky cape at the northern extremity of New Zealand, whence the spirits of the dead, say the Maoris, take their last leap into oblivion; and from this point the adventurous birds sail off again for their distant northern homes. The birds' departure from New Zealand takes place about the same time, in fact almost the same day, every year; the regularity of their movements, year after year, is one of the most wonderful facts in natural history.

The two migrant cuckoos were shown—the long-tailed cuckoo, koekoea or koheperoa, whose glossy barred tail-feathers are valued as head-dress ornaments by the Maoris; and the pretty pipiwharauoa, or shining cuckoo. These little ocean-fliers come to New Zealand for the summer, arriving about October, and breed here. The koekoea returns to the South Sea islands about the end of February; the pipiwharauoa takes its flight for its winter quarters in northern Australia and New Guinea. Like the English cuckoo, the pipiwharauoa is regarded as the harbinger of spring. The Southland Natives call it "Te Manu-a-Maui" ("Maui's Bird"), because its notes when heard in the

spring are a signal to begin the planting, Maui being the tutelary deity of the food-gardens and cultivations. Its sweet and frequently repeated whistling notes, heard oftenest round the sea-shore and in the coppices which compose the outer fringes of the forest, are interpreted by the Maoris as "Ku-i, ku-i! whiti-whiti-ora!" concluding with a long "Tio-o!"

Of New Zealand's water-birds, the various ducks shown included the now protected paradise duck or putangitangi, and the little blue mountain-duck or whio, so called by the Maoris because of its whistling cry. There were sea-birds of many kinds, from petrels to albatrosses.

All the specimens of birds exhibited came from the Otago Museum, of which Professor Benham is Director.

Of other living creatures, the tuatara lizard is probably the most strange that New Zealand has to show a visitor. The tuatara inhabits only a few of the small uninhabited off-shore islands, such as the Chicken Islands, off Whangarei Heads; Karewa Island, in the Bay of Plenty; East Cape Island; and Stephen Island, in Cook Strait. A singular fact about the tuatara is that on the Chicken Islands and elsewhere this curious harmless saurian shares the cliffy burrows of the mutton-bird or titi, and is also believed to share the fishy food brought home daily by that petrel.

New Zealand vegetation was illustrated by a large number of excellent photographs displayed on the walls of the court and at the back of the showcases. These pictures were taken by Dr. Cockayne, of Christchurch, who has made extensive use of the camera for plant geographical research. The pictures were systematized so as to illustrate the manner in which plants grow in the forest, the coastal and the alpine regions. Of particular interest were the pictures showing that most curious of New Zealand plants, the "vegetable sheep" (*Raoulia mammillaris*), so called because of its resemblance, seen from a short distance, to the wool of a sheep. This peculiar plant is seen in many places on the eastern slopes of the southern Alps and the upper parts of the Canterbury river-beds. Stephen Island, the home of the tuatara lizard in Cook Strait, has a very singular forest, which was illustrated by two good photographs. Of particular value were the pictures of the characteristic vegetation in the sub-Antarctic islands away to the south and south-east of New Zealand. The rare and beautiful native forest of the Chatham Islands was pictured, and there was also an illustration of the great Chatham Islands blue forget-me-not with its large leaves, which at one time formed a belt almost round the shores of the Islands.

Mr. E. R. Waite, F.L.S., Curator of the Canterbury Museum, exhibited several fresh-water aquaria containing fish and plant life. Amongst the fishes shown were New Zealand whitebait and kokopu, Australian carp, Japanese goldfish, and Chinese paradise fishes. Mr. Waite also exhibited in cases a collection of articles for catching snakes and extracting their poison, besides casts of Australian snakes and specimens of other animals belonging to various orders.

New Zealand's mammals were represented only by two species of bat, for this country was almost entirely devoid of mammals before Europeans settled here. The Maoris, when they reached New Zealand in their canoes from the Polynesian Islands, brought their dogs with them. Before this the small native rat was probably the solitary quadruped that lived on New Zealand soil.

In order to provide an exhibition of some of New Zealand's little-known animals, the Government had brought up from that most remote of its outlying islands, Macquarie Island, a number of seals, penguins, mollymawks, and petrels. These sub-Antarctic creatures were collected by Captain Bollons of the "Hinemoa" at Macquarie, a storm-bound, lonely spot, belonging politically to Tasmania, and visited only occasionally by a Government steamer or by a penguin-oil-hunting schooner from Dunedin or the Bluff. The seals included a great sea-lion, a rather savage animal with quite a



ONE OF THE INHABITANTS OF THE SEAL-POND.

lionlike mane. There were two black seals, and one of a light-brown colour, and a good specimen of a fur-seal. These birds and seals were liberated in a pond and enclosure made by fencing off a portion of the Victoria Lakelet near the tree-groves close to the Maori pa. The penguins, always interesting and amusing creatures to watch, were of the varieties known as crested and tufted: both kinds were much alike, with white breasts and black oily-looking backs. The mollymawks, too, were interesting birds—great petrels, with head and beak like the albatross and a huge spread of wing. There was also a pair of "Nellies," a species of brown petrel. At the close of the Exhibition the seals were liberated in the sea near the mouth of the Waimakariri River.

The flightless—or, perhaps more correctly speaking, short-flighted—duck of the Auckland Islands was shown in the aviary outside the Exhibition Buildings.

THE FERNERY.

Cool, fresh, and fragrant of the forest, the glass-fronted green Fernery that opened its doors just opposite the west end of the Main Avenue was a spot of delightful sylvan restfulness after the bustle and noise of the outer Exhibition world. Within those quiet mossy walls, where the subdued light came soft and pleasant to the eyes at night in refreshing contrast to the blazing radiance outside, it was a fairy dell in Fern Land.

A great glass-roofed building a hundred feet in diameter had been transformed into a true bush gully, where ferns by the hundred and masses of lycopods had been gathered from all parts of the land to make a woodland nook convincing to all who entered its shady portals that New Zealand well deserved her title of the "Land of Ferns." No section of the Exhibition was more typical of these beautiful Islands than



THE FERNERY.

the Fernery, with its little forests of rich frondage, deliciously soothing to the senses with its suggestion of some far-away valley in the heart of the mountains where the forest-roof made perpetual twilight; one almost expected to hear "the whirr of wings in the drowsy air and the cooing of pigeons." Of the 140-odd species of ferns that the New Zealand forests hold, there were about eighty species represented in this museum of plant-life; all kinds one saw, from the tall tree-fern that spreads its great languorous

crown of soft fans overhead, to the daintiest, tiniest filmy fernlets that matted the trunks of their big cousins or trembled in humble beauty on the dewy ground. Paths and walks led through the Fernland park, which sloped down to the centre, where a boulder-strewn pond held trout in its clear cold waters, and where fountains cast their cooling sprays in air. All around grew those sweetest of Tane's children, all plumed and feathery-fronded—offspring the most dear, most delicate of Maoriland's God of the Woods—

The solemn and beauteous Tane, who gathers his stateliest, green-ever,
tress-waving daughters
Into forests, the sunny, the songste.—bethriddén.

A true bush-bridge made of the springy trunks of tree-ferns spanned the pond. From the rocky moss-crustéd walls of the miniature gully gushed little waterfalls, and little streams came, tinkle, splash, and tinkle, down to the pond, just like any little bush-creek

That to the sleeping woods all night
Singeth a quiet tune.

A Maori would have called it the *wawara-wai*, the babble of the waters, that often carried in it to the brown forest-man's fancy the human-like voices of the spirit-world. The slopes on either side of the pathways were built of great blocks of stone (brought from the Port Hills) and specially prepared soil. On the eastern side there was a little rocky grotto; all that it needed by night was the glimmering of glow-worms to remind one of some hollowed bank on a South Westland forest road when the tiny worm nightly lights up her fairy lamp. The walls were everywhere concealed under a green garment of bog-moss, sphagnum, out of which grew little curling ferns. Mosses and creeping lycopodium filled the rocky crevices of the gully-slopes, and tree-bark so covered the pillars and posts that in the half-light they seemed veritable growing trees. The woodwork overhead in places had been so cleverly masked that it resembled tree-branches, and there were little "pockets" here and there from which sprays and festoons of the drooping spleenwort (*Asplenium flaccidum*) hung as in a natural bit of woodland; it is this pretty clinging plant that is poetically called by the Waikaremoana and Urewera Maoris "the Tresses of Raukatauri" ("Nga Makawe a Raukatauri").

And everywhere the ferns. Hundreds of them, of all sizes and graces, every one of them beautiful, diffusing in the humid air a scent of lush leaf and aromatic frond. There was the stately mamaku, the black-stemmed tree-fern *Cyathea medullaris*, the king of our ferns, a splendid plant 20 ft. high. Just such trees, but often twice the height, one sees everywhere in the North Island forests, or leaning out over the water on such a wood-belted river as the Mokau, where the canoe swings past beneath their spreading fronds. In the Taranaki forests the mamaku grows in particular abundance and to a great size. It provided the Maori with one of his bush-foods; the pith of the mamaku was often cut out and cooked in the steam ovens or *hangi*, then dried. During the last Maori wars the hunted Hauhaus, when driven into the forests far from their homes and cultivations, were often reduced to eating the mamaku; the Natives say it is a nourishing food, but that much of it induces heavy drowsiness. Maori songs make reference to the mamaku. There is one beautiful lament that compares a weeping mourner to this great fern:—

Ah, me, my children! I bow my head
As droops the mamaku fern-tree.

There were other arborescent ferns, of the kind called ponga; one of these was the beautiful silver fern-tree (*Cyathea dealbata*), with its great handsome fronds silvery-white on their under-sides. There was the *Dicksonia squarrosa*, smaller than the mamaku

but equally beautiful; the *Hemitelia smithii*, which is said to extend further southwards than any other tree-fern, and other tall ferns. Then came the smaller ferns that everywhere feathered the ground and filled the spaces between their tall relatives. The most plentiful one, planted like the other ferns in natural-looking groups, was the *Lomaria discolor*. But loveliest of all was that princess of Fern Land, the very beautiful feather-fronded *Todea superba*, lover of the damp cool bush shades where only the dimmest, softest of light can come. The rich clusters of this grand fern took one back in imagination to some of the innermost sanctuaries of the "Wao-nui-a-Tane," the "Depths of Tane's Woods"—away to the shadowy cañons and cloudy ranges of the Huiarau, in the Urewera forests, where the narrow old Maori war-tracks wind in places through whole acres of the *Todea superba*, everywhere concealing from view the ground and the lower part of the tree-trunks. Nowhere does it grow to greater perfection, this soft



IN THE FERNERY.

forest fairy, than in the very ancient bush-lands of the Urewera and the valleys around Lake Waikaremoana. An uncommon and beautiful fern was the *Todea barbara*, or royal fern; the specimen grown came from the Waikato district; it is only found in the north of New Zealand. An interesting plant was the para fern, *Marattia fraxinea*, sometimes called the horse-shoe fern. The root of this large fern, as well as that of the common bracken fern or rarauhe, was used as food by the olden Maoris; hence the Northern place-name Kai-para. And underneath these ferns again, and in and around the boulders and climbing the pillars and the fern-tree stems, there grew in great abundance the little thin filmy ferns of the genera known to botanists as *Hymenophyllum* and *Trichomanes*, including the tender maidenhair and the shapely kidney fern.

There were other plants that grew amid the ferns and on the borders of the pathways and the fountain-pool, and heightened the forest-like atmosphere. There were some nikau palms (*Areca sapida*), the heart of which is a bush-food in the northern Maori

districts, while the leaves make a splendid thatch for whares: some bushes of flax or harakeke (*Phormium tenax*); astelias, with heads of sword-like leaves, usually seen growing in great tufts in the forks of forest-trees; the straight and slender lancewood, with its sharp-pointed leaves; the familiar cabbage-tree or ti-palm (*Cordyline australis*); and, handsomest of all, the toi, or mountain-palm (*Cordyline indivisa*), with its great broad flax-like leaves, from which the Maoris in such mountain-districts as the Urewera country used to make their garments. The toi seldom grows away from the mountains, it is seen in its glory in the great hill-forests of the North Island; around the mountainous shores of Lake Waikaremoana its leaves, tougher and stronger than flax, measure eight or nine inches in width. Some of these plants, such as the nikau-palm, together with the immense variety of ferns, suggest the thought that New Zealand's unique and very ancient flora was originally a true tropical one.

The members of the Exhibition Horticultural Committee, with whom the idea of the Fernery originated, certainly succeeded remarkably well in their endeavour to present to visitors' eyes something of the charm and glory of New Zealand fern-forests. The ferns had to be brought from Westland and from the North Island, lifted and transplanted with great care, and carefully cherished in their new home. Mr. A. Pearson, the landscape gardener under the Tourist Department at Rotorua, was chiefly responsible for the excellent designing and laying-out of the Fernery, and it was constructed under his supervision. Mr. G. B. Armstrong, of Christchurch, gave advice and much assistance, and took charge of the Fernery when Mr. Pearson left for the North, after the work of erection was complete. The naming and labelling of the ferns and other plants, which helped to make a daylight visit to the Fernery an object-lesson in botany, was carried out by Mr. Armstrong.

The one fault that could be found with the Fernery was the colour of the glass used in the roof. The glass was of a light-green tint that gave the ferns a hue of an unnatural and sickly kind in the daytime. At night, however, the ferny bower was perfect.

