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The Moa When did it become extinct

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SECTION I--MAORI LORE ABOUT THE MOA

Elsewhere I have expressed the wish that if anyone disagreed with any of the statements in any of my books the objector would state his or her objection while I was still capable of replying to it. It is easy to say of a writer who has passed from this fleeting scene that his work is full of error-the test is to say it when he is living. Such an objector has arisen in regard to my research into the Maori traditional knowledge concerning the Moa. I can afford to smile at the grotesque arraignment of myself as a conscienceless collector ?f ~radi-tions, but when the writer impugns the good faith of my Maori friends I join issue with him.

When I began collecting information among the southernmost Maoris I held many ideas which I had later to relinquish. Among these erroneous notions was one that the Moa was extinct when the Big Migration came to New Zealand (in about 1350 AD. approximately). This belief had been instilled in my youthful mind by writers such as Stack, Colenso, and others, but it had to be jettisoned when I acquired more light on this obscure' question.

Let us briefly examine what I have written about this subject.

FIRST ESSAY

My first essay to record what the Maoris said about the Moa is to be found in the Journal of the Polynesian Society, dated December, 191'). The information can be summarised:-

(a) Sorhe of the aged people had never heard the subject discussed.

(b) The others mostly considered the Kaitahu did not see the living bird.

(c) A Katimamoe taua (grandmother) told me it was a big, heavy bird with a tread like a man and that it broke leaves and small branches down from the trees.

(d) The last Moa killed in the Riverton district was at Pukorokio. The last one killed in the Molyneux district was under a waterfall.

(e) A Moa at Wakatipu killed some children and chased a man. The bird became entangled in the bush and the man killed it.

(f) A Moa was killed on the Waimea Plain in the generation before the white settlers came.

It will be noticed in reading this account I followed Stack in placing the Rapuwai tribe as prior to the Waitaha. Later, when I got hold of the Waitaha traditions, I found the Waitaha were here five centuries earlier than the Rapuwai. Hence, when I stated the birds were common in Rapuwai times and much less common in Waitaha- times the statement should be reversed. It will be further noticed that I ventured no conclusion of my own-I simply recorded the few opinions I had collected and let the matter fide.

SECOND REFERENCE

The Journal of the Polynesian Society, September, 1918, I gave Tare Te Maiharoa's reference to the Moa. His statements can be briefly presented here:

(a) Waitaha killed out the Moa before the Big Migration arrived.
(b) The Katimamoe never knew the living bird.
(c) The Waitaha called the bird pouakai; the name "Moa" was given by modern Maoris.
(d) It was killed out so long ago that little is known about it, but the bird, some place-names perpetuate its memory.

It must be clearly understood that each of these statements was made by Tare himself, and that they did not necessarily reflect my opinion. The Waitaha headquarters used to be on Banks Peninsula. Tare was a Canterbury native, and his remarks might not apply to say, Nelson or Southland. He strove to be accurate, and I endeavoured to report him as faithfully as I did all my other informants. I may have some further remarks to make on Tare's ideas ere I close.

THIRD VENTURE

My third venture in writing up Maori information about the Moa was in a series of 53 articles entitled, "The Southern Maori. Stray Papers," written for the "Otago Daily Times" and published between June 7, 1930, and June 6, 193. No. XX of the series was on "The Moa," and in it I stated a number of relevant facts the main additional items may be summarised as follows:

(a) J. T. Thomson in Central Otago in 1857 found numerous Moa bones so fresh-looking he estimated they could not have lain over 30 years, and he would not have been unduly surprised to have met a live Moa.

(b) Moa feathers were found in a cave near Lake Wakatipu.

(c) Hutton and Drummond reckoned it had been extinct 400 years in the North Island and 300 years in the South Island.

(d) Lack of tradition was no proof the Maoris did not know the bird as I found it just as hard to get information about the recent kuri (dog) and kiore (rat) as about the Moa.

(e) The Kaitahu generally did not know the bird, and were vague about it. The Katimamoe were slightly better informants and the Waitaha were best at describing it.

(f) Tare te Maiharoa said the Waitaha called the big birds poua or pouakai.

(g) Another man said the pouakai was only one of the various kinds of Moa.

(h) A Moa was said to exist in the Takitimu Mountains up to about 70 years ago.

(i) One was killed at Waimea Plain a generation before the white settlers came, but how to reconcile this bona fide account with the other statements the writer could not say.

(j) Crop stones of defunct Moas were familiar to the Maori, and it was said the birds resorted in large numbers to a range between Wanaka and Wakatipu because it had so many suitable pebbles.

It can be seen that information was slowly coming in, but the publication of this article gave a fillip to the quest. Seeing the interest taken in the subject, I concentrated a bit more on it, with a result to be seen in the information that accrued.

FOURTH INQUIRY

In the book, "Moriori-The Morioris of the South Island," published in 1941, there is a chapter headed "Man versus Moa" and in it. I give what I had collected in the previous 10 years. These additional items can be summarised "as follows:

(a) There is a tradition the Moa was a night bird.

(b) The Waitaha had a proper season for killing it.

(c) The bird was not hard to kill.

(d) The names manu-nui and kiwi-nui were applied to kinds of them.

(e) Some kinds had feathers like the woodhen, with finer feathers in parts.

(f) The Morioris who migrated to the Chatham Islands took a memory of the "poua" with them.

(g) An Otago description of the bird.

(h) Grass and scrub fires and eating the eggs led to its disappearance in easily-accessible parts.

(i) The survivors retreated to the backblocks.

(i) Here they lingered until the Kaitahu came.

It will be noticed that my informants generally date the extinction of the Moa to just prior to the advent of the Kaitahu to the South Island. This happened about 1650 A.D. approximately, but it was 75 years later ere they penetrated down to Otago. Accepting the year as 1650 and computing that Rakaihautu came about 850 A.D., this would mean that the Waitaha people-quiet, peaceful, orderly and unaggressive lived with the Moa for 800 years.

If we accept Tare te Maiharoa's belief that the bird died out before 1350 AD., that would leave 500 years of intimacy, but if Maui found men on the South Island in 450 AD. (approx.) that could still leave 900 years when man and Moa were contemporary. Was Tare correct in his belief?

He may have been as far as the Canterbury Plain and Banks Peninsula were concerned, but I do not think he was correct as concerns Otago. Here I consider the bird continued until a much later date. It is even doubtful if Tare was strictly correct for the interior of Canterbury as there is a tradition that the Moas retreated into the district west of Lake Ohou and continued there long after their extermination on the plains. That district is Te Whenua-o-te-moa (the country of the Moa).

With regard to the name "Poua" for the Moa , Mr. S. Percy Smith, who spent almost a year in the Chatham Islands about 1868, identified the name with their memory of the New Zealand Moa, a much more reliable identification than that of later inquirers.

FIFTH NOTICE

Scraps of information kept coming in every now and then, and were inserted in the book, " The Maoris and Fiordland" page 93.

The items not already mentioned are as follows:

(a) If one of a pair was killed its mate made a large circle, but came back to where the other was killed.

(b) If a Moa was pursued in the bush it would sometimes stick its head in a clump of vegetation.

(c) A panic-stricken Moa would sometimes run crashing through the bush or shrubs.

(d) The Southland Maoris say the bird nested on two eggs.

(c) Traditionally the last refuge of the big bird was between Te Anau and Big Bay.

Concerning these items the first one was told me in Canterbury, and was made of the region west of the Mackenzie Country. My informant said the hunter did not need to pursue the living bird, but could simply sit down and wait for its return. The remaining four items were all told me in Southland. In 1861 Mr. J. H. Menzies took up a selection at Ringway and had two Maori assistants, who used to occasionally tell him Maori lore. They said the Moa nested on two eggs and that they thought it was still living west of the Waiau. Moa skeletons were frequently found, each spot being marked by a dense growth of wild Maori cabbage. Mr. Menzies found in the tussocks Moa remains "in a very perfect state, and also lying quite on the surface of the ground." In reference to the two eggs we know the kiwi only lays one egg, so the number seems probable. In corroboration it is

district knowledge that when a small landslip occurred at Moa Flat it uncovered a Moa's nest with two eggs in it. Another nest with eggs in it was found in a cave at Limehills in the year 1920.

ADDITIONAL INFORMATION RE MOA NAMES

Even since the publication of "The Maoris and Fiordland" in 1949, additional items have come in, and I have also ransacked my early notebooks. The question of the Maori names for the various kinds of Moa came up, but cannot be settled with any definiteness except that the smallest kind was known as kiwi-nui and a kind bigger than it was called moa-iti or moa-riki, The Waitaha called the bird poua, and the largest kind pouakai, and presumably a smaller kind was poua-riki, as an historic canoe was called this. A heavy kind was known as moa-nui, and the name kura-nui probably indicates a large bird with a reddish-brown plumage, and may be associated with the name rnoa-kura as indicating the colour of its feathers. Nothing can be stated with positiveness and scientists will have to allot the names as they can.

If the Waitaha had at least three names, Pouakai, Poua and Poua-riki for different species, their successors had several names also, mostly founded on the generic name of "Moa."

Tare te Maiharoa was puzzled over this name, which was more modern than the ancient name "Poua" and he solemnly told me he considered it was a corruption of the English word "more" caused by the Pakeha habit of asking to see more when shown dinornis remains. The Maori always thinks in different way to us.

The Katimamoe probably brought in the name Moa and soon there was a classification as indicated by the names Moa-iti, Moa-nui and so on. Under this new order the tallest kinds were no longer called Poua-kai but became Moa-teitei (lofty Moa). The Maori considered most had plumage like the kiwi, but two appear to have reminded him of the weka, and apparently the larger one of these two kinds was the Moakuranui and the smaller one the Moakura, the former name becoming shortened to Kuranui. I notice in one North Island account one kind was called weka-nui, which seems to denote this coloration.

ANOTHER MOA NAME

In writing of the "Forest Lore of the Maori," Mr. Elsdon Best says, " In the South Island we have learned from natives that a great bird called pouakai formerly existed. This creature, according to Canon Stack, was a great bird of prey that carried off and devoured men women and children in the wonder-laden days of yore. Richard Taylor says that the South Island Natives also mentioned a great bird they called the kiwi-papa-whenua, that was some seven feet In height, possibly a dim memory of the Moa.

While I have never heard this name there is no doubt the southern Maoris regarded the Moa as a big Kiwi. Listen to one of my informants: "A species of Moa known as the Moa-iti had plumage like the tokoweka. The tokoweka must not be confused with the roa as they are quite different in height,

colouring and in beak. An old man I knew used to reckon the tokoweka was a cross between the kiwi and the weka, having kiwi feathers and weka colouring. The plumage of the tokoweka is a light brown, varied, and has a small goldy check which showed up well on one I killed and hung up in Daggs Sound in 1914.

The tokoweka and roa, like the kiwi, are night birds, and the old Maoris reckoned that all three were just small kinds of Moa.

Tiori Paraire told me that when he was young he saw a kahu (garment) of much the same colour as the tokoweka, but it was said to be made of the feathers of the moa-iti. What became of that cloak I never heard.

THE OLD MEN TALK AT RUAPUKE

At the tangi for Teone Topi Patuki at Ruapuke Island, October, 1900, all the veterans from a very wide area assembled, and every evening had a korero (talk) on subjects of interest to themselves. One evening my informant, then a young man under 25 years of age, dropped in and sat in a corner entranced while the old men discussed the Moa. He told me what he remembered of that talk.

" It was said that the male bird was lighter in weight in comparison with the female according to their heights. As a rule the toa or male bird was taller and slenderer than the uha or female bird, which although shorter was heavier built, with big bones and massive frame and legs.

"When Te Rakitauneke lay dying he asked to be buried on the top of Bluff Hill for three reasons, so that his spirit could look back to see ka kaika o taku iwi (the homes of my people), ka whawhai o te iwi (the fights of the tribe), and where he had hunted the Moa. The word he used for 'hunted' was a Katimamoe word I cannot remember. It was not patu (kill), titiro (look), kimihia (search), hopukia (grab), or whai (chase), but a word I never heard used elsewhere in this connection, but which I knew could only mean 'hunting.'

"The old men said the bird lived a lot in swamps, but I do not remember what they said it ate, but it must have been leaves or plants that grow around swamps. One man said it was numerous about the Taieri swamps, and they used to dig pits to trap it. There are various ways to trap birds, and I would have thought snares would have been used to get the Moa, but I heard that the people of old used nets to catch it. This was the talk of the old men in the house, but I have forgotten some of the names that they used. They called this form of netting rapa, a word which means 'entangled. The position of the net was rere-rakau, which means it was hung up in the trees, and the name of the net was kupeka-rere, which means it was flying in the air unlike a kupeka-waitai (sea net). As far as I could understand a trap was fixed up, and when this was sprung the net fell and entangled the bird. This act was called kape, and I think it means the bird grabbed the bait and brought the net down on itself.

"There was a kahui-moa (Moa gathering), at a certain time of the year, and the Maoris hunted them then, when they were congregated together. I do not know why they flocked together, but perhaps it was the mating season. Other birds that cannot fly, such as the kakapo and weka, have similar gatherings.

In reply to my questions he did not hear any of the old men say any Moa had a crest, or that any were red or were called kura. He did not hear the old men name different kinds-all were called Moa except that the tallest ones were referred to as Moa-teitei. He understood the bird scooped a hole for a nest and perhaps lined it with grass. There was not hot sand here to hatch eggs, so it must have sat on its eggs. None of the old men mentioned the number of eggs in a nest, but one man said the people used to eat the eggs and he told a long story illustrating this fact. "It was a historical story, but I regret to say I did not memorise it. " He could not describe its voice, but he did remember it was said that one of its notes was a pipi (shrill sound), quite out of keeping with the size of the bird.

Another of my friends, when he was a boy, asked an aged man at Colac about the Moa, and was told it was a bird of the onamata (former times), and he had never seen one alive. In the days when it lived it was caught with ropes of whitau (flax), and could be caught by the neck or legs as desired. Fires drove it into the swamps and into caves. Old Patu of Riverton was credited with seeing one alive when he was young.

Recently I was told that the old Katimamoe word for hunting or stalking the Moa was "takahi" and that there is a proverbial saying, "Ko haere te takahi Moa" The words used for hunting other birds are pihere, tahere, whai and so on.

FEMININE KNOWLEDGE ABOUT THE MOA

Knowing that women sometimes remember traditions better than the menfolk, I sought their aid. One woman who was exceptionally well-informed in Maori lore said, "Waitaki was the great Moa river on the East Coast. The birds were floated down it. The people made raupo mokihi (rafts) and came down the river dragging a Moa behind each raft. There was one bird to a mokihi. The act of towing was called tautaki. Up at the upper parts of the river the birds were killed. If there was a pair of Moas and one was killed and the other escaped, the living bird would return to where its mate was killed, and it could be killed, too. You could sit down and wait for it. They were speared by skilled men. I only heard of them being speared, but sometimes when a bird was on the ground a man might hit its neck with a tokio If there was bush or tall scrub about, a wounded or chased or frightened Moa might try to huna (conceal) its head, its legs, or its whole body, and one hunter could call out to another 'toro i te huna i rota i te rnuhu' (crawling in to hide by pushing its way into the bushes)."

Another septagenarian said to me, "No one living among our people (Canterbury) has seen the Moa. I think bush fires finally destroyed it. Taare Te Kahu said it was a bird of the ancient times.

A proverb about it runs 'e noho koe he moa i hau te kai' (thou sittest like a moa that eats wind), and this was applied to people who went off eating. The Moa was said not to eat solid food, but when it was hungry it turned to the wind and opened its mouth. It was a very big bird, and its leg was strong enough to kill a dog if it got a kick at it.

FURTHER FEMININE REMARKS

An aged lady who had been brought up on Banks Peninsula told me that when she was a girl she heard the old people sometimes speaking about the Moa, but she sadly confessed she had paid no great attention to the talk and could not remember any of it.

Another who was brought up on the Otago Peninsula said that to them as children talk of the Moa was just a korero-tawhiti (a far-off tale, a fable), and they paid no special heed to it.

Another who was brought up on Stewart Island says she never heard her elders say the Moa had inhabited that island, but they did speak of it as being on the mainland.

Another whose girlhood (in the 'sixties of last century) was spent on Stewart Island told me she had never seen Moa bones, but she had heard the bird was as big as a cow, although she rather doubted it.

FIVE ITEMS FROM MAORI SOURCES

A Maori said to me, "Old Horomona Patu used to tell how when he was a small boy he accompanied some men who went to dig big holes alongside swamps where the Moas came to eat the young raupo and sedge. There were a number of these holes so that if a bird missed one it could still fall into another. The holes were covered with sticks with grass laid over them, and once a bird dropped through it was easily killed. The men could go away and do other things and return to find the birds trapped in their absence. Old Poko Matewai used to say that near the end of the time when the Moas were still plentiful a big fire swept the country and burned them out. Some of them rushed into swamps to escape the flames, and that is why their bones are found huddled up in old swamps."

When the Maori heke (migration) was at Omarama about 1878, an emu belonging to an adjoining runholder used to wander over to the camp and was much admired. The older Maoris used to say that this Australian bird reminded them of their own lost Moa.

When the Hawea people fled from Otago Peninsula to Te Anau about 1780 A.D., the saying about them was they had gone to "Te kaika o te takahea me te rua o te moa" (the home of the Notornis and the nesting-place of the Moa), as the Moa was considered to be plentiful there, although getting scarce in the more settled parts of Otago. The bird is said to have survived later in the district north

of Te Anau than elsewhere, and perhaps this is why the word Moa (accent on last letter), now means "wild, outlandish, in the back-blocks". Its meaning has been further extended to embrace the " Lost Tribe" or "Wild Natives," and can now be insultingly applied to unwanted guests.

In the story of Ngahue exploring New Zealand about 925 AD. (approx.) and killing a Moa at Wairere, it is hard to say where this place is in four accounts published by White two state the Moa was killed in the North Island, and two imply it was killed in the South Island near where the explorer procured the greenstone at Arahura, Westland.

An Otago Maori said to me: "I have heard a song which says the Moa was killed out by karakia or tau-whaka-moe-tia (enchantment), because it was a dangerous bird, but how long ago I cannot say."

TWO COMPARATIVELY RECENT CASES

One fine day, probably about the year 1800 or later, Parawhenua his party met a Moa on the Waimea Plain and promptly speared it. Although Moas were now quite scarce the party retained enough remembrance of former experiences to go about the business in a workmanlike manner, and soon despatched the bird. It was not one of the gigantic kind, massive and ponderous, nor one of the lofty ones lowering up twice the height of a tall man, but was taller than a man, so it may have been somewhere about seven feet in height. Be that it may, its flesh was eaten and its feathers were made into a garment for a young lady related to the chief.

Sometime after the year 1900 I asked my informant if the garment was still in existence, but he replied that as far as he knew it was either lost or worn out, probably the latter.

This bird was said to be the last Moa killed on the Waimea Plain. Parawhenua was then living in a village in the Hokanui Hills, but later shifted down to nearer the seacoast when the white sealers came about. He left seven stalwart sons, at least three of whom were well known to the early settlers on the Taieri, and they are described as fine types of the old-time Maori, friendly, truthful and honourable, but no one was sufficiently interested to take down their recollections.

A different set of circumstances accompanied the killing of the last Moa in the district of Oraka or Aropaki (known to the early white men as Orropucky and written down as Orepuki, the present form of the name). Here a solitary Moa turned up after its former mates had left the scene either by way of the Maori oven or by natural death, or by migration to the less frequented regions further back. The bird used to traverse an old Moa track, and while it did no harm to the human beings in the district its very presence was a challenge to the young men. These consulted the old chief as to how they could best accomplish its downfall, and he advised them to dig a pit on the path it usually strolled along. They did so one day, and next morning they found the big bird in the hole and killed it. Some of the participants in this exploit are said to have survived into the whaling era (1830-50).

The most notable thing about this account, to my way of thinking, is that it is one of the few proofs I have been able to collect to show that the Moa was a night-bird like the kiwi. The bird fell into the pit during the night-time, when it was taking its customary stroll.

W. H. S. ROBERTS INTERVIEWS MAORIS

Writing in September, 1892, this writer said: "When I was In Nelson in 1855 I had many opportunities of conversing with old Maoris. They described the Moa accurately from hearsay, for I never spoke to anyone who had seen a Moa, though they said their forefathers had eaten them. The Moas had regular paths, like sheep tracks, through the long fern, grass or scrub. In these paths the Natives used to set flax nooses, and frequently caught them by their long necks.

At times a regular Moa hunt would be instituted. Maoris would be stationed at intervals in the fern or scrub alongside the paths with spears, while other Maoris went out afield, and forming a semicircle would gradually close on the Moas while feeding and drive them into the paths, when the hidden Natives speared them as they passed. The reason given me by Natives, both at Nelson and Moeraki (when I was there In 1856) for the Moa having become extinct, was that they used to carry away the babies or very young children and cat them. It was therefore arranged that the Maoris should set fire to the grass all over New Zealand on a fixed day. This was done, wind and weather being favourable, and thus the Moas and many thousands of acres of forest were destroyed, besides reducing the other wingless birds to a bare remnant. I do not think it at all likely the Moas ate the children, for they are proved to have been graminivorous, yet they may, like our domestic fowls, have liked a little meat for a change occasionally.

It is more probable that the little children had been neglected, and had wandered away into the scrub and got lost, and the careless nurse, wishing to screen herself, had thrown the blame on the Moa. Then the revengeful Maori destroyed the Moa as 'utu' or payment for the lost child. It is quite evident the country has been devastated by extensive fires from the quantity of charred timber frequently found miles away from any existing forest. The Moa was much relished as food; and it was generally cooked with the koromiko (veronica) wood as it gave a better flavour than other firing

The Mea was a swift bird, and when running against the wind had the habit of keeping its mouth open, hence the proverb, 'a wind-eating Moa.' It appears that as far as the middle island is concerned, the last Moas were seen in the south. A Maori song says: " Far in the distant south is the Moa bird; the bird from which I may plume obtain, to flaunt me in my days of joy”.

The extinction of the Moa is a question which I fear now will never be decided. The opinions or theories differ so widely that without absolute proof it is impossible to decide."

JAMES DRUMMOND INTERVIEWS MAORIS

In the year 1910 Mr. James Drummond was over at the Muttonbird Islands acquiring information about the muttonbirds and other native birds. He was the guest for a time of Mr. John Bragg, an

intelligent half-caste who spoke Maori fluently and acted as Government interpreter while the older Maoris remained. He told Mr. Drummond that he knew of very few references to the Moa in the traditions and folklore of his mother's people, but "he once knew a chief at Colac Bay named Rawiri Te Awha who stated that his father had seen the last Moa. It is generally believed that the birds were hunted and exterminated in the South Island by the men of two generations ago."

John Bragg's Maori name was Kaiporohu, and I always found him a reliable folklorist. It will be noted that his approximate date for the extinction of the Moa agrees with the time stated for the killing of the bird on the Waimea Plain and also with that for the bird slain at Oraka.

MOVEMENTS OF TAKAHEA HUNTERS

In November, 1949, Mr. K. Miers discovered remains of one of the smaller Moas in a Maori birding camp west of Te Anau. When did the Maoris last go to that camp on their annual excursions after the takahea (notornis)? Let us devote a little space to this question.

In "Maori Lore of Lake, Alp and Fiord" page 77, mention is made of the periodic trips of Maoris after the takahea west of Te Anau, but it is not stated when these trips ceased. There was a Maori village about a mile or so from the present Te Anau township, and when the early runholders of 1856 went there they found it deserted.

Soon after it was burnt down in a fire lit to clear the country of its rank vegetation. It had been standing desolate some years when the runholders came and may have been deserted when the white settlers came to Otago in 1848, as the inhabitants would desire to be nearer the seaboard to participate in the supposed benefits of civilisation.

As long as it was inhabited the annual excursion over the lake to hunt the takahea would be sure to take place, and several trips later were undertaken from Riverton. A Maori party was on Te Anau in 1863. See" The Maoris and Fiordland," page 81], but I cannot affirm they hunted the takahea. The Maoris could still get a few takahea much nearer Riverton. At the meeting of the Otago Institute, April 6, 1881, Professor Parker exhibited and made remarks upon the skin and skeleton of the bird recently killed at Te Anau. Mr. F. Chapman communicated some particulars as to the occurrence of Notornis furnished to him by Mrs. Cameron of Centre Island. This lady stated that two specimens were killed and eaten by Maoris in 1878, who described them to her as resembling the pukeko, but of the size of a turkey. She had offered £20 for a specimen, but without success. Dr. Hector said that as three specimens of the bird had now been obtained from widely separated localities, he thought it highly probable that others would be found. He mentioned having heard, in 1862, near the Matukituki River, a loud booming noise followed by a piercing shrill whistle, probably made by some large bird (possibly Aptornis).

The noise had been heard again, this year at the same place. [Probably made by the kakapo and the kiwi.-H.B. J

I do not know if the Maoris allotted the different takahea hunting grounds to various families with hereditary rights, like they did the kanakana (lamprey), titi (muttonbird), and other fish and game reserves. If so one group of families would go to the Tunnel Burn, another to the Kepler Mountains and so on. Thus it would be hard to get particulars of any area except from descendants of those entitled to hunt that area.

In regard to the traditional name Te Wai-o-pani it was probably named in commemoration of a woman of the long ago who has attained such legendary fame it is even asserted she could fly from place to place. There was also a man called Pani, but two waterfalls in South Fiord, Te Anau, are named after the woman and the 17 lakelets south of South Fiord were fabulously formed by her and so are her property.

From all I heard I concluded the small lake Wai-o-pani was situated in the Kepler and not the Murchison Range.

It must be remembered that just as the takahea were becoming scarcer the white man introduced many foods so the Maori had not the same need to take long and arduous trips chasing a decreasing food supply.

In 1898, when £100 was given for a takahea, the Maoris talked of going after some "easy money" but as all who had taken an active part in the old-time expeditions were dead, or were past active work, nothing was done. Although there was still a traditional knowledge of the localities it was thought that the ferrets, weasels, and stoats would have cleared the birds out. From all the evidence so far before us we can assume that the Moa remains examined by Dr. Falla in 1949 were about 100 years old.

AN INTERESTING TRADITION

A newspaper clipping, presumably from the "Timaru Herald" of July 12, 1933, under a heading, "Moa Bones and Maori Ovens," proceeds: "A large Moa bone-of the lower leg-was recently ploughed up on Ben Macleod Station, in the Upper Rangitata. The bone, which is well preserved, is one of many that have been found on the station from time to time. When the first runholders went there in the 'sixties, a portion of the run near the homestead was liberally scattered with bones, but most of these were taken away by collectors. Many Maori ovens, with their lining of stones still complete, and some with Moa bones scattered nearby, were also found there, and even now new ones are sometimes discovered. A legend still exists that in former times Moas used to migrate to the West Coast by way of the Rangitata Valley, making a beaten track past the point where Ben Macleod homestead now stands, and that there the Maoris used to lie in wait when hunting the birds. The existence of the many ovens, and of the Moa bones, is the only evidence remaining to support the legend."

This is the sole tradition I know that affirms a definite migration from East to West Coast. and' we can neither prove nor disprove it. That Moas could cross the Alps by the various passes is not impossible, for their remains have been found as high as 6,oooft. There is also·a Maori tradition that the big birds would go a long way to get suitable crop stones and certain Otago ranges are mentioned as favourite resorts for this purpose. Certain of our Hying birds went from district to district according to the plentiful ness or scarcity of food, and the Moas may have followed the same practice, but a set or annual migration is another matter altogether. In "Maori Lore of Lake, Alp and Fiord," page 68. I tell of a Maori traditional route from Canterbury to Westland via the Upper Rangitata, and it seems to me that perhaps the above writer has confused Moa and Maori and made the pass a Moa track instead of a Maori one. He was misled by the fact that the Maori did pursue his prey here as his ovens prove. Then again, perhaps the Moa had a beaten track through the mountains and the Maori all his occasional trips to Westland may have used it. North Island Maori accounts tell of the Moa making trips to certain sea cliffs to gaze out over the sea, so there may be something in the migratory theory after all. I leave the question open.

R. W. REID'S ARTICLE

I have quite a number of accounts by other writers that shed fresh light on our investigation, and others corroborate certain standpoints.

In Chamber's Journal in 1910 R. W. Reid writes on "The Moa-a New Zealand Perplexity." and notwithstanding the flippancy of some of the remarks it is a well-balanced contribution. He writes: "One scientific expert says with authority-all experts speak with authority that the last Moa died more than 1,000 years ago. "Against this view he gives details of Maoris hunting the Moa in about r830, and of Te Heuheu's feast about that year. Then he gives the conclusions of a member of the Ngaitahu tribe who examined his own people concerning the Moa.

“Of all the aged Maoris he met he inquired if they or their forefathers had ever seen a Moa. Every answer he obtained was to the same effect - the Moa had never been seen by the Ngai Tahu, by the Ngati Mamoe, or by the Waitaha tribes. It was doubtful, said the veterans of the pa, whether even the Haweas had seen the Moa. "Mr. Reid concludes: "The weight of evidence seems to be on the side of extinction: but the query remains unanswered, when did the last Moa die?

NOT MUCH DISCUSSED

It will be noticed that the Ngaitahu tribesman in Mr. Reid's article speaks for all the other tribes in the South Island. This has been noticeable ever since the white man came, and has been the cause of much interesting information being lost. Kaiapoi district was the last place in the South Island where one should seek or items concerning the earlier tribes and their history. Shortland in 1843 mentions that the plan to get the oldest traditions is the far south. Even here not much was said about the Moa. Mr. Henry Watson, who was much in contact with the Riverton Maoris during the 'sixties of last century, said to me, "I never heard much talk among the Maoris about the Moa, but I remember one chief saying that only one kind of wood was used to cook it. This kind is very brittle when dry and breaks like a marrow-bone. It burns well but it takes such a lot of it to get much heat that I think they must have used some other kinds of wood with it to cook such a big bird. "The

absence of talk about the Moa does not imply that the Maoris did not know the bird. They wen as non-informative and uncommunicative about the kuri (Maori dog) and kiore (native rat), as about the Moa, and I had to exercise much patience to get any information about any of this trio.

Nor did the early white settlers talk much about the Moa. Mr. Thomas Ayson, in the course of his very voluminous and illuminative reminiscences of Otago and Southland in the 'fifties and 'sixties says "At that time there were plenty of Moa bones everywhere, but most of them were partly burned by fire, and crumbled away when moved; still, some were fairly well preserved, but very few troubled much about them. " I have heard this from other pakeha pioneers, too. It was only in the 'seventies and 'eighties when investigators began to argue over the Moa that interest was aroused to any noticeable extent.

The kind of wood Mr. Watson refers to is the koromiko or kokomuka but Rev. R. Taylor explains that the Moa oft resorted to veronica thickets and these would be fired, so originating the Maori saying that the koromiko was the tree that roasted the Moa.

THE EXTINCT EAGLE

Associated with the remains of the Moa we sometimes note that other extinct birds are mentioned. Notably is this so in the case of the cnemiornis and the harpagornis, or in common talk, the goose and the eagle. What the southernmost Maoris called the former I have never learned, but I understand it was known as tarepo in the North Island. According to Sir George Grey the eagle in the days of its flesh was called hokioi in the North Island. The southern form of this word seems to be hakuai, but this is applied to a mystery bird down at the Muttonbird Isles. The ancient people in southernmost New Zealand seemed to have called the eagle the monokia. Asking afteer this bird I was told it was a big bird of prey long extinct. The children were not allowed out in the open if it was about. It was very fond of the kaka parrot and sometimes when the Maoris had caught this parrot by the tuke method, the big bird would swoop down and eat them. Then the robbed Natives would fasten strong nooses above the tuke and catch the monokia. It was much bigger than the kahu (hawk) and had much the same nature. The mother of a wellknown Southland chief of the whaling era was known by this traditional name, Mono-kia.

SOME KNEW NOTHING OF THE MOA

It is surprising how little some otherwise well-informed Maoris knew about the Moa, and I have here collected some of their opinions.

The extent of Tikao's information about this big bird can be gauged by what he says in "Tikao Talks." Teone Matiu knew no tradition about the Moa except that the Waitaha killed them out. The long oven and other earth-ovens at Waitaki Mouth would be Waitaha work, but apparently they had left no traditions of their activities in this connection. Te Para said to me, "The sandhills at Mokamoka are full of Moa bones, but during my boyhood at the Bluff I never remember the old people speaking of Moas. "Tumeho, whose father lived to the reputed age of 121 years, told me he had never heard the old man speak of Moas, but it must be confessed that like many of generation Tumeho busied himself with pakeha things and paid little or no heed to Maori lore. Teone Te Ururaki said he

remembered Tare Te Maiharoa saying that the last Moa slain in North Otago was killed at Korotuaheka, but he gave no details of the event, nor did he state how many generations ago it was. Hipi's knowledge of Moas seemed to be confined to the statement that there was no history of any Maori having seen the bird alive. Moa bones were dug up in Kurupohatu's garden, but this led to no fresh accession of knowledge on my part. Pita Paipeta told me that the Maori residents of South Canterbury were surprised when Moa bones were unearthed at Waitaki Mouth (and also at other sites). An extremely well-informed Maori from Nelson who gave me a vast budget of information in 1920 said he had never heard the old people speak of the Moa. It must be apparent that those who had no traditionary lore concerning the Moa were mainly of Kaitahu stock, although a few of the Katimamoe-Waitaha stock knew practically nothing about the bird, probably through youthful inattention or uri-retentive memories. Then again if they lived where no finds of Moa bones stirred public attention there would be nothing to bring the Moa into channels of conversation.

VARIOUS CONSIDERATIONS

Another aspect worth considering is the rapidity with which vanished birds, animals and customs fade out of the common mind. A case in point is the koreke, or New Zealand quail, which abounded in almost incredible numbers in the fifties of last century and became extinct in the sixties. Some intelligent Maoris born in the seventies heard it's name and asked me what kind of bird it was!

Similar details about the Moa could easily fade away in general knowledge, and only be preserved in disjointed fragments. From these fragments we gather that the moa could be killed by fire, suffocated by smoke, noosed round the neck, snared by the feet, driven into swamps, caught in pitfalls, hit on the head with toki or patu (mere), disabled by striking legs with a long pole, entangled in nets set in trees, or speared either by spears held firmly or hurled. There are several instances in South Island Maori history of men being killed by spears thrown by hand. Not all these death-dealing methods would be used at the same time or place, but would be spread through the centuries and over wide districts. They would also vary with the size and abundance of the birds. The remains of 10 different kinds of Moa were found in Maori middens in one Otago district, so the versatile Maori hunter could exercise a choice as desired.

One man told me the Maori could distinguish between the sexes but I neglected to gather particulars. The question of places named from their association with Moas is dealt with in my books on Maori place-names.

THE MAORI THINKS DIFFERENTLY TO US

Having given some Maori information in this essay this seems an opportune place to emphasise the fact that very the pakeha and the Maori think differently, and it is useless for the former to judge the latter by the ordinary standards of the white man. Again and again we find British writers, or rather New Zealand writers of British descent, misjudging information given by Maoris. For instance, Hamilton's statement, obtained from a Maori in 1849, to the effect that where a Moa was known to inhabit a cave it could be caught by a noose suspended over the entrance, is referred to by a pakeha writer as " a new (and highly unlikely) snaring device," yet to a Maori it seems highly likely and reasonable and there is warrant for the use of nooses at cave mouths in the traditional history of the race. While on the subject of how the pakeha misreads Maori information, I note in several publications a tendency to disparage the information written down by H. T. Whatahoro and

published by S. Percy Smith, who writes, " I can say with certainty that H. T. Whatahoro is the most learned man on these subjects it has ever been my lot to meet. And moreover, if he could not answer any of my questions-and they were very numerous-he had the honesty to say so. "I have read all Whatahoro's very valuable recording in the 472 pages of volumes 3 and 4 of the Memoirs of the Polynesian Society, and I can acquiesce in Mr. Smith's opinion, even though some of that lore is opposed to my South Island information. Whatahoro's remarks and explanations are typically Maori, and we must remember "the letter killeth-it is the spirit that giveth life."

Therefore we must try and judge Maori descriptions with an understanding mind and a broad and friendly outlook.

We must also remember that in natural science the Maori has individual ideas even as the pakeha has, and that in nature lore no Maori can speak for his whole tribe, let alone the whole race.

SECTION II-PAKEHAS ASSERTING EXTINCTION AGES AGO

VINCENT PYKE'S CONTENTION

In 1890 Vincent Pyke wrote a paper on "The Moa (Dinornis), and the Probable Cause of Its Extinction." The printed copy I saw was Inscribed" To Hoani Taipua, with the compliments of Taotara. I copied portions of it as follows: "According to the best evidence available the Moa was extinct before the Maoris came to New Zealand.

Hochstetter in his otherwise excellent book strings together a ragged file of disjecta membra about the Moa, upon which no reliance whatever can be placed.

The writer then quotes White's "Ancient History of the Maori “ vol. 3, page 189, rather amazingly: "The Ngaitahu were in in their turn conquered and extirpated by the Ngatimamoes, and after a, further period of (as nearly as can be computed) 200 years, the original a ncestors of the present Maoris drifted here from the still unknown Hawaikii, If, then, these traditions are to be trusted, the Moa must have been extinct for many centuries."

He then tells of the traditional pouakai at Tawera (Mt.Torlesse), and adds: '" The Pouakai (great feeder), the Moa, the Taniwha, and the Bunyip of Australia must be relegated to the far-past period of the Megatherium and cognate creatures . The only difference is that the Moa and the Megatherium did once exist, and we have no sufficient evidence of the existence of the others". Next he gives a poem about the Hokioi collected by Sir George Grey, who explains: "The Hokioi

was a large eagle which preyed on the Moa. "The essayist comments: "The Poua-kai and the Hokioi are probably different names for the same gigantic bird of prey contemporary with the Moa. Fragments of this great bird have been found in several in several parts of New Zealand and principally in the South Island Like the Moa Its existence is only a tradition amongst the Maoris”

The essayist then proceeds: When I came to New Zealand in the early sixties, Moa Flat, Dunstan Flat and Maniototo, were noted for the quantity of Moa bones scattered around them. None of these

bones exhibited any signs of having been crushed by glacial action nor of burning-save a slight scorching by grass fires nor of human agencies in the destruction of the Moa.

They were simply lying exposed on the surface. That portions of the Moa with flesh and hair (or feathers) adhering, should have been discovered by Captain Fraser and others in Central. Otago, does not surprise me in the least degree. I know that there is a peculiar property existent in the soil there, which absolutely prevents and prohibits decay, and embalms, as it were, any mortal remains. deposited therein, or even thereon, I gather that there were no forests in Central Otago when the Dinornis gigantea existed and therefore it could not have been exterminated by the destruction of forests. And these also furnish conclusive proof, to my mind, that the period when the so-called Moa existed must have been posterior to the glacial period and the time when forests existed in Central Otago, but when the whole of the interior consisted of vast fresh-water lakes, and huge mountain ranges . In fact, it is admitted they were herbivorous.

The essayist goes on to say that in 1865 on his West Coast trip his party forded ice-cold rivers, with the, water up to, their armpits, by Maori chain, "that is, hand locked in hand with the strongest man upstream. "On this trip he found the kiwis stuffed to repletion with mosses and lichens, and his belief was that the old lake beds and swamps contained great stores of gigantic mosses, the chief food, of the Moas, and that as the lakes receded and dried up this food died out and the Moas starved-hence the great abundance of Moa bones round old lake-margins.

Near the end the essayist observes: "I note what has been said about Moa bones having been occasionally discovered in ancient Maori ovens, But to those who have studied the construction of a Maori oven it will be apparent that the fact of such bones being there does not indicate that the Moas were cooked therein. The Maori oven was prepared with stones, more or less flat, and heated to redness, upon which the food to be cooked was placed and covered over with damp grass and earth. It can be easily comprehended that in places destitute of forest-such as Puketoi and other parts of the interior-the Maori would use the scattered Mea-bones lying around them for fuel to assist the scanty scrub growing in the gullies. But it is very unlikely that if they cooked a Moa in one of these ovens they would return the bones to the oven. I have myself seen Moa bones burned in this manner-have so used them in fact in the early days of Otago-and they burned most satisfactorily."

The essayist concludes: "Thus, then, from the foregoing facts, I am led to believe that the Dinornis gigantea-the mythical Moa was only a bird of any sort, as the phrase applies to-day throughout the Pacific-that the glacial age, in its full significance had passed away that the original forests had been destroyed, and the brown coal-beds formed and that human hunting inhabitants had scarcely appeared on the scene at all, and certainly not in Central Otago, when this strange creature of the ancient world became extinct because of the lack of sufficient nourishment, and the disappearance of its customary food.

The same cause has admittedly brought about the extinction of many animals' and there is no sufficient reason why the Moa's disappearance should be attributed to other than natural causes. Vincent Pyke, Wellington, 9th July, 1890

T. D. BURNETT WRITES IN 1925

" When did the Moa die out in the Mackenzie Country? No one knows but one finds his remains everywhere there. It is curious that it is always big bones one sees, and it is still more curious that they are found near the surface in glacial silt, and not in moraine rubble.

So far as my experience goes, no remains have been found within five miles of the present terminal face of the Tasman moraine, and the inference is that the huge bird became extinct before the Tasman Glacier had shrunk back these five miles. The lake dams of Pukaki and Takapo, the sand hills of Edward's Creek, the plains and gorges all bear, on inspection, a rich harvest of Moa remains. The whole basin must have been the hunting grounds of thousands of these birds he fore a change of climate killed them off.

"The Moa's life and day was coeval with that of the ancient totara whose remains littered in the pioneer days the tablelands and gorses of the back country. The Moa and the ancient totara were mates; what killed one killed both ... In 1856 John McHutcheson saw so many remains of the Moa in the Mackenzie Country that he came to the conclusion that the bird had but recently died out. No one can imagine the immense number of Moas that the country at one time supported.

"I still think the Moa and the ca use of its extinction one of the most interesting of subjects. I do not believe the Maori ever saw or hunted the Moa; I do not believe the Maori ever saw the primeval forest that clothed South Canterbury from the foot of the Alps well nigh to the coast. I believe that such forests and such huge bird life were grown and environed in a climate much milder than we now experience, and that it was a sudden if only temporary recrudescence of a glacial age that killed off both".

Mr Burnett ranks with Rev. J. Christie and Vincent Pyke in believing in the extinction of the Dinornis at some very remote period.

The Moa bone cave at Sumner was scientifically explored in 1872, and Mr. Alexander Mackay concluded the Moa had been exterminated in ancient times, say 1,350 years earlier. Mr. H. D. Skinner revised the collection in 1933 and concluded that further evidence was required before the contemporaneity of man and the Moa could be regarded as proved.

SECTION III--PAKEHAS FAVOURING A PRE-MAORI EXTINCTION

This is a very small section with me, and I cannot find many pakehas who hold that the Moa was killed out by the Morioris, so that when the last or Big Migration arrived about I350 A.D. they found only the skeletons of the bird.

A writer in the "Timaru Herald" on July 10, I917, says: "It appears to be pretty well established that the Maoris did not exterminate the Moa. Their traditions, it is said, contain no reference to the gigantic birds. Some people did kill and eat Moas, for fragments of burnt bones are found among oven stones on sites of ancient encampments. "Moa bones and bits of Moa egg shells were found in

some of the caves and rock shelters in the limestone regions of Canterbury, in fact which suggests that the Moa hunters were in all probability the artists who decorated the rock walls. The writer was lately shown by Mr. Hugh McCully several rock shelters at Upper Waitohi, the dry walls of which are decorated with these queer pictographs.

Mr. McCully has picked up bits of Moa bone and of Moa eggshell at the larger shelter, and in a crevice between two large fallen boulders, he. many years ago, found a huge Moa leg hone."

That this writer did not reflect Mr. McCulley's view is shown by the following clipping:-" The Moa existed in this district at a much later period than was generally supposed," stated Mr. H. S. McCulley in a paper read at a meeting of the South Canterbury Historical Society in Timaru in August, 1942: "Numbers of Moas lived in the Mackenzie Country, where they were hunted by the early Maoris, and were floated down the Waitaki River by means of mokihis or raupo canoes." Reference to this proceeding is made in the Maori section.

MACMILLAN BROWN'S BELIEF

Professor Macmillan Brown was evidently a believer in the notion that the Moa period ended over 1,000 years ago, for he writes: "It is in the period of Te Rapuwai, that is before the eighth century of our era, that legend places the extinction of the Moa and along with it is bracketed the destruction of the Otago and Canterbury forests by fire. "From this latter circumstance he infers that the country being left bare would leave the surviving Moas open to the attacks of men on the Rats and of eagles on the mountain sides, and the birds would become extinct. The information about the Rapuwai people came from the last tribe to come to the South Island, and any surmise based on it must of necessity be questionable. A few people of Rapuwai lineage were living when the white people came to Otago.

SECTION IV-AVOWING THE MAORIS HUNTED THE MOA

Dr. de Lautour delivered a lecture on the Moa in Oamaru on September 11, 1892. He mentioned that bones had been found under the lava, the oldest geological find of such remains, but he had found bones and eggshells with Maori ovens, and he considered some human agency had come in to hasten the destruction of the Moa.

J. H. S., who syndicated a series of "Maori Nature Notes" in 1929-30, says a 12-foot Moa would weigh at least 4001bs. Unlike any other bird the bones were filled with marrow. What a feast for the meatless Maori the bird provided I Competent authorities give the year in which it was last seen alive as 1650. Nowhere else on earth may we find a truly wingless bird.

AN EARLY OBSERVER

Writing of his visit to Waikouaiti in November, 1843, Shortland says, "On my return I was shown some large hones, which had been discovered accidentally by a whaler who, as he was walking along the neighbouring beach, struck his foot against one of them which projected above the surface. This he naturally enough mistook for a human bone; but on bringing it to the village it was recognised by

the Natives as that of a bird now extinct, called by them a 'Moa,' and a search was at once made for more, with the idea that they would be saleable at Sydney or Wellington. The birds whose bones were found here belonged to wingless species like the ostrich. The native name, Moa, is the same which, in Polynesia, commonly signifies the domestic fowl. It would seem, therefore, that some of these birds must have been still in existence when the ancestors of the New Zealanders first colonised these islands; and so their traditions relate."

W. B. D. MANTELL'S RESEARCH

Writing about 1854 W. B. D. Mantell says: " The Natives possess genealogies from a period whose remoteness J have not yet fathomed. When they reached New Zealand in their first migration hither Moas were abundant. The average number of generations is 25, giving at the utmost 500 years, as although they reach puberty early they do not breed early. Thus the first Maori killed the first Moa while Edward the Black Prince was intimidating Frenchmen, having discovered the Dinornis while our respectable ancestors were discovering Dukes and Marquisses.

Among the Mantell papers preserved in the Turnbull Library at Wwllington are two telling of his discovery of Moa bones in Taranaki. Another one has a sketch of Otagoan interest in depicting the right foot of a 10ft high Moa found at Waikouaiti by Tommy Chaseland, the whaler.

Writing of his discovery of Moa bones at Awamoa, Oamaru, in 1851, Mantell remarks: "This kainga affords unmistakable evidence of the co-existence of man with the Moa. The bones and shells of eggs of the Dinornis and its kindred mixed with the remains of every available variety of bird, beast and fish used as food by the aborigines, being all in and around the umus in which they had been cooked."

OTAGO PENINSULA IN THE SIXTIES

That Otago pioneer and bird-lover, Mr. Alfred Reynolds, has this to say of the Otago Peninsula: "Anciently the Moa must have been fairly plentiful on the Peninsula, as skeletons have been found from high-water mark to the highest peaks. Some of these remains found in the late sixties about 1,000ft above sea-level, had the skull bones and back bones in a good state of preservation, although found quite on the surface in the forest among loose stones and moss. This, in my opinion, quite proves that the Moa has not been extinct for many centuries. Otherwise the bones would have been covered deeply with hush mould, and the smaller ones completely decayed away. There could be no preservative in such a damp forest, or the dry air conditions that would act as such. Birds have become extinct from many well-known causes. But, again, there are some such as the large goose common in New Zealand anciently, that have just died out for no known cause, and the many species of Moa becoming extinct seems to be another instance."

AT ALBURY IN 1890

That painstaking student of nature, Mr. W. W. Smith, said in 1916: "There is a wide range of opinion amongst scientists as to what led up to the extinction of the Moa. Some of the scientists contended

that the Maori knew nothing of the Moa. These scientists and their theories are now as extinct as the Moa. New facts are forthcoming daily, proving that the Moa lived within the last 25b years. It flourished in the Albury district contemporaneously with the Maori. It was in this locality that unquestionably the latest of the Moas persisted. In 1890 contract plough men were ploughing the downs at Albury and every day they turned up large quantities of Moa bones/

There were, among the bones that I collected, six or seven distinct species, including some of those of the elephant-footed Moa, which was a species of massive structure. The plough men turned up some of the Maori ovens, where we were able to collect enormous quantities of Moa bones. We also collected axes and adzes. some of greenstone, bone needles, made of Moa and Maori bones. The latter are now in the Buller Collection' in the Colonial Museum

In the Albury district in South Canterbury there is a considerable number of lime stone caves, in which the Moa hunter dwelt for ages. The walls of the caves are covered with grotesque figures and rock paintings, including figures of Moa eggs, taniwhas, etc., and numerous other illustrations of life in that period."

J. C. SMITH'S OBSERVATIONS

Mr. J. Crosby Smith contributed three informative articles on " The Moa Relics of Old New Zealand," to the "Otago Daily Times" in June, 1926. Dealing largely with the scientific standpoint, he mentions the numerous queries that arise from a consideration of its origin, the sex of the skeletons, the hatching of the eggs, and its extinction.

He writes: "But of all the disputed questions, the one that has been most discussed has been ' When did the Moa become extinct?' I will endeavour to give a summary of the substance of the discussion which has been conducted in a most amicable spirit by some of the ablest minds in New Zealand.

The camp has been divided into three-(1) Those who believe the Moa became extinct before the present race of Maoris arrived here; (2) Those who think it became extinct soon after they arrived; (3) Those who consider it did not become extinct till within comparatively recent times, say 100 years."

Mr. Smith quotes the opinions of "The Traditionalists" (Colenso, Tregear, Mair and Stack), that the Maoris never knew the Moa and then gives what he terms "observational evidence," as follows:-

"When the first settlers arrived in Otago, in many places bones were lying in exceedingly large quantities on the surface. These had all disappeared in 15 years-weathered away. Then, again, quantities of bones have been found with the skin, ligaments, flesh and feathers still adhering to them. There was the celebrated skeleton from Tiger Hill, which had the flesh and feathers still adhering to it, pieces of flesh on leg bones from Knobby Ranges, also on Dr. Thomson's specimens from Clyde. W. A. Low, writing to Dr. Hector, says: I have obtained a well-preserved piece of bird's flesh (of the Moa), with portions of down and numerous feather barrels observable on the outer surface.

The flesh is not the least fossilised, simply well dried, and can be easily separated into fibres.' Tames Buchanan, who accompanied the first survey party to Central Otago in 1856, said that' the upland districts, east of the Lammerlaws, were almost covered with bones and appearing almost absolutely

fresh.' One would think, from these instances, that the Moas had only been dead a few years when the first settlers arrived.

But there is undoubtedly something preservative to bones and flesh in Central Otago, else why should flesh adhere to bones like this, even for

Half a dozen years? I must close by saying that my opinion is, after reading all the evidence written on the subject, that although there appears to be a good deal of force in the' traditional' argument, yet in the South Island the Moas must have existed within the last 300 years. In the North Island it must be fully 500 years ago since they were destroyed, which would be near the time of arrival of the first Maoris in New Zealand."

THE MOA AT STEWART ISLAND

Mr. D. L. Poppelwell was an ardent birdlover and naturalist, and writing in 1931 he says: "For some time it was believed that Moas had disappeared from this country before the Maori arrived, but this theory now no longer holds. The weight of evidence seems to show that the Maori hunted the Moa for food. In ancient middens charred and broken legbones have been found. Moa eggshells have also been found in similar situations, showing that the Moa and its eggs were used for food. I have myself found Moa eggshells at Stewart Island in it very old midden where I also found Maori adzes. It is believed that the last of the Moas were killed in the North Island about 250 years ago, but that they were found in the South Island at a more recent date still.

There have not been many Moa remains reported from Stewart Island, and I remember being told it was doubtful if they ever existed there. My southern Maori friends knew a little about the Moa in Otago and Southland, but they were dubious about Stewart Island.

There may have been a number of unreported finds, but I only have only read of one besides the one recorded above.

A SOUTHLAND ESTIMATION

In 1937 the skeleton of a rather rare Moa, Emeus Huttoni, was found in Southland. It was one of the smaller Moas, standing only about 5ft 6in in height, and being of a comparatively slender build.

The indications were the skeleton was that of an old bird, and the presence of fragments of eggshell with the remains point to its having been a hen Moa. Under the sub-heading, "Habits of the Moa," the writer continues: "They (Moas) were birds able to run with speed, and to defend themselves by kicking out with their powerful legs. The Maori traditions state that they could kill man or dog with a single kick. The Maoris are believed to have hunted them extensively with spear and dog and pitfall, until they were reduced to extinction". Their charred bones have been found in many ancient Maori middens, relics of the feasts of former years. The Moa was a harmless enough fowl unmolested, a vegetable feeder living on the soft leaves of trees, fern roots and fruits of the forests. Sometimes, too, according to Native lore, it would eat freshwater shellfish and crayfish, and its favourite haunts were in the neighbourhood of river and lake.

It took two months to incubate its eggs, and according again to Maori beliefs, the hen bird hatched them, unlike the emu and cassowary and modern birds of similar type. The Moa was extinct before

ever the white man trod these shores. The precise date of its disappearance is uncertain, but it is generally agreed to have been several centuries ago. Much attention has been given by scientists to investigation of these fascinating birds, yet even now little is known, and most of the popular beliefs are founded wholly on assumption."

A newspaper writer says that there is not the slightest doubt that when the famous Maori chief Tu-te-makohu lived at Otaupiri the Moa was hunted in the Hokanui Hills, and large earth ovens tell the tale of many an enjoyable feast when the savoury smell of a cooking Moa arose from the umu. The early settlers at Caroline found numerous evidences that the Moas had abounded in fairly recent times.

SECTION V VARIOUS FINDS OF MOA REMAINS

This is not at all a comprehensive collection of data about discoverics of relics of the big birds, but a brief recognition of some finds that I have recorded in my notes.

On May 25, 1878, the "Western Star" announced: "A very important discovery of Moa bones was made by Mr. E. Webber during Easter holidays a short distance off the beach about five miles from Riverton. The bones form a complete skeleton, about 9ft or 10ft high."

At Moabone Hill (often shortened to Bone Hill), near Waikaka, a find of Moa remains was made in the digging days and local tradition is to the effect that these were sent to Edinburgh Museum.

In a book about Southland published in 1888 a writer describes a trip to the Waiau Caves and says that judging by the bones found at Clifden "it must at one time have been a favourite resort of the now extinct Moa." Another writer, viewing the wild land that lies west of the Waiau, adds: "In the recesses of this' dark country' the Moa may yet stalk in the flesh."

In September, 1892, the" Bruce Herald" recorded the unearthing of an extensive deposit of Moa bones at Milburn. They were found at a depth of 18ft, and were very ancient. "Probably," surmises the reporter, when the vicinity was covered with bush, a fire started and the birds, encircled by the flames, huddled up together and perished, a slip from the overhanging hill subsequently covering the remains."

Mr. E. C. Studholme, who saw the bones of some 800 Moas being excavated from a boghole at Arno in 1895, says the skeletons of cattle and sheep were on top, the animals having been trapped, like the Moas had been, in this quagmire which acted like a quicksand. How many centuries it took to almost fill the hole he could not estimate, but the presence of eggshells and gizzard pebbles proved the birds went in alive. This particular hole was a perfect death-trap for stock, the ground being sound all round it, and then, in one step, you could sink out of sight in the mud.

FINDS IN CAVES

In 1929 the Otago Museum staff excavated a small cave in the low cliffs south of the Taieri River Mouth. On the sandy floor of the cave were found fragments of Moa eggshell, the egg, in all probability, having been carried into the cave by some old-time Maori and eaten there.

An almost complete skeleton of a Moa was found in a limestone cave at Otiake, North Otago, the only bone missing being a small bone of one knee.

In June, 1941, "a most important discovery was made in a cave near Kingston of the bones of six Moa skeletons. The birds covered three distinct species. The bones, which are in good condition, have been placed in the possession of the Southland Museum. The largest skeleton is an immature bird of the biggest South Island species, Dinornis maximus, and when standing erect it would probably reach to 13ft or 14ft in height."

I n the sixties numerous bones in a good state of preservation were discovered in a cave close to Lake Manapouri. Many finds in the early days were never reported nor officially recorded.

A friend told me that in the eighties the Rev. Scott, of Queenstown, found a whole Moa with feathers still on it. It was in a hidden cave which he stumbled on accidentally, and he scrambled out meaning return but he could never find the place again.

MISCELLANEOUS DISCOVERIES

The "Southern Standard" published at Gore on September 26, 1899, reports: "Messrs. Strachan Bros., of Croydon, discovered a number of bones on Friday last which clearly demonstrate the fact that the now extinct Moa was an inhabitant of the Hokanui bush. There were two large shank bones, each measuring close on 7ft in length; also several bones of the foot, measuring between 11 in and 12in in length.

In addition to this, the hind part of the body as far as the wing bones was also found. The bones were found in the scrub, and partially covered by a large fallen tree, which indicates that the bird must have been killed by the falling tree. The Messrs. Strachan conveyed the bones to their farm, where they have been inspected by several. people."

The "Mataura Ensign" published at Gore on April 24, 1900, reports; "A Moa bone nearly 28in length was picked up in Croydon bush by Master George Biggar on Sunday. The bone, a tibia, probably belonged to a powerful bird, as it is 64ins in circumference at the thickest part. The bone must have lain in the bush for scores of years, as it now has the appearance of wood, and when found was half buried in the soil."

In November, 1907, an interesting discovery of a Maori camping ground was made on the bank of the Molyneux River about two miles south of Miller's Flat. The main evidence consisted in a huge Maori oven about 50ft long. This was constructed of large stones, and the bed of it was found to be strewn with charcoal and a very considerable quantity of Moa bones. The assumption was that a flooded river had swept away the covering silt and debris, and exposed the oven.

Many of the bones were submitted to Professor Benham, who pronounced them to be those of the now extinct Moa. This was not the first discovery of Moa remains in this particular district. - Otago Daily Times"

In September, 1934, the remains of at least 12 Moas were unearthed by a farmer when he was draining a swamp on his farm at Ashwick, near Fairlie (says the" Christchurch Press "). To date about a mile of ditch had been dug and the remains were all found within that distance. One theory advanced for their presence there was that they had sought refuge during a great tussock fire, but had perished.

Another idea brought forward was that the Maoris may have been in the habit of driving the big birds into swamps so that they could be easier killed.

In October, '937, Mr. McLennan found some Moa bones on the beach south of the mouth of the Waihao River, and three of the bones were brought into Waimate, the largest one measuring 35ins in length, and the local newspaper adds that this is regarded as quite a big bone indeed. The bones wert black, but otherwise were in excellent condition.

OTAGO MOA HUNTERS

At the meeting on May ,8, 19.37, of the Archaeological Section of the Otago branch of the Royal Society of New Zealand, Mr. H. D. Skinner gave an account of the results of excavations carried out in recent years by the Otago Museum authorities on various Mea-hunter sites in Otago, principally basing his remarks on the sites of Waitaki Mouth (Korotuaheka) and Papatowai. There were, said the speaker, two points in particular around which discussion had centred. In the first place, which species of Moa were actually hunted. The second place, what race of men were the Moa-hunters, and what type of culture had they? In his recent book on New Zealand birds, Dr. W. R. B. Oliver had distinguished 16 species of Moa which were found in the South Island only. The bones found by Mr. David Teviotdalc at Papatowai had been sent to Dr. Oliver for determination, and he had distinguished 10 species as present-a very surprising result indeed. In regard to the culture of the Moa-hunters the evidence was final and conclusive. The adzes and fish-hooks found in these sites were one and all of distinctively East Polynesian types, and the same was true of other classes of implements. The speaker said he did not doubt that when skeletons were found they, too, would be of Polynesian type. From all the evidence the conclusion could fairly be reached that there was in Otago one single culture from the beginning to the end, a culture which was characteristically East Polynesian.

The material found at the Waitaki Mouth was interesting, but owing to the shallowness of the soil, was of less scientific value than that from Papatowai. At the same time it did not conflict with the more southern material. In fact, it only corroborated the conclusions reached there.

WAITAKI MOUTH SITE

On January 9, 1936, the members of the Arowhenua Maori Women's Institute, with other Maori friends, were taken by Mr. H. S . McCulley on a visit to Korotuaheka, the old Maori village site at Waitaki Mouth, and they spent a memorable day inspecting one of the noted haunts where their ancestors ate the Moa. This site is still a rich storehouse of the remains of the thousands of Moas that must have been cooked here, and some of the bones were carried off as souvenirs. One mound of used oven stones is 16 yds long, 7Yds wide and from 2ft to 3ft high, and it is almost surrounded by ovens. Long after the birds were exterminated near the seacoast it is believed they were killed up the river and transported down on mokihi rafts. Mr. McCulley considered the birds would be snared, seeing the old-time Maori was such an adept at snaring all kinds of birds. The almost entire absence of other than Moa remains in the numerous middens and the scarcity of ground and chipped artifacts seemed to him to indicate it was only a seasonal camp.

We know from Maori information that there was a proper season for killing the Moa, but that Kororuaheka was merely a seasonal camp from the reason given did not appear likely to Mr. D. T. Larnach, who combatted the idea in the following issue of the newspaper. He had picked up considerable quantities of ground and chipped inclement of the Maori without special searching, and in numbers suggesting a prolonged residence. A piece of obsidian, a stone not native in the district, was included in the flints picked up by Mr. Larnach.

He noted that the Moa remains did not include any head or spinal bones, this seeming to show the birds were dismembered before being brought here. The number and position of the middens, moreover, showed that the Maoris had moved from one spot to another as each became foul, indicating a very lengthy occupation of the site.

MOA REMANS AT WAKATIPU

Writing to me on September 30, 1946, Mrs. John Mackenzie says: Moa bones were found aplenty at Walter Peak Station by H. Mackenzie & Sons. These bones were mostly found near Afton Creek, in or about 1899. Mr. Alex. Mackenzie, of Mount Nicholas Station, still has a few bones at his homestead.

He and my husband gave away a four or five-bushel sack full of Moa bones. These were given to (the late) Mr. Walker, watchmaker, Queenstown. All these bones were found in one spot, in a slip really, in the Afton Creek not 50yds apart. The leg and hip bones were bigger than those of a horse, and heavier. The Mackenzie lads even found the wee ring bones of the feet. One skeleton was found under a rocky ledge that no bird of that size could have got underneath, so it is supposed it was brought down in a land or snow-slip. There were several found like that. About three miles inland from the Walter Peak wharf is an old-time swamp, now a fertile field. In it these lads found wee mounds of round white pebbles just as though a child had gathered them in a wee seaside bucket and had tipped them out. In about 1882 there were quite a number of these mounds, and their uncle, the late Mr. Alex. Mackenzie, told the lads it was considered the pebbles were the grit pieces which the Moa swallowed to aid digestion. The mounds were the places where the Moas had died or been killed. The uncle was here before 1882, and he said numerous bones were lying on the surface of the ground. There is an idea that the Maoris may have chased the birds into the swamp for snaring purposes. There were numerous ovens right from the present wharf up to the Tin Hut, and there is a very large one there yet, with a small one just next to it, say a yard away. Many were

ploughed in, but in 1936 a perfect specimen of an adze was found by a ploughman. Some 10 years ago Moa bones were found down near Kingston as reported in the newspapers."

SECTION VI-VIEWS FAVOURING MODERN EXTINCTION OF MOA

This is the belief commonly held by the oft-quoted "man on the street," but it is also held by many thoughtful students. In conversation with me, Mr. H. G. Stevenson, the North Otago historian and investigator, said he considered the Moa survived until quite recent times. Other men have expressed similar ideas to me, but I intend in this connection to confine myself to the written word.

Henry Sewell, writing in 1853, says he gained from Mr. Stoddart information about the Moa bones found on a run in the Rakaia Gorge. The gizzard stones intrigued them all, until they were explained by an Australian, who remembered the same rounded stones from the crop of the emu" The diary states these stones were all of rounded agates and were found in heaps, and the diarist adds: "I have begged Stoddart to give me particulars of his experiences of the Moa to send home to Professor Owen. Stoddart thinks the Moa very likely not extinct, and that it may be found towards Otago."

A PRONOUNCEMENT OF CAPTAIN HUTTON

In a description he penned in September, 1874, giving an account of the Earnscleugh Cave where the remains of Dinornis, Cnemiornis, a duck (apparently belonging to an extinct genus), parrots, hawks, small birds, rats, tuatara and lizard were found, Captain Hutton adds:

"On the whole I am inclined to think, notwithstanding the fact that at least three of the birds found in the cave belong to genera now extinct, that the weight of the evidence goes to show that these remains are not very old, and that probably they do not elate further back than the commencement of the present century. " On hearing this pronouncement of the Captain, Mr. Gillies remarked: "Hitherto it was endeavoured to place the period of the Moa's existence far back in the past, but it would seem that after all they were going to have it as a contemporary. There were many of the old settlers whose statements III reference to this matter might be. of value."

Three of these statements will now be noticed.

VIEWS OF OTAGO OLD SETTLERS

Early in the year 1904 Rev. J. Christie wrote articles in the " Otago Daily Times" on "The Glacial Extinction of the Moa," in which he positively and emphatically stated that it was unknown to the Maoris; they never saw it; the living bird was never touched by human hands; and there was not a particle of proof for a more recent extinction.

This induced three old settlers to write lengthy letters to the Press , refuting such a contention. Robert J. Gairdner, who came to Otago in 1857 and took up the Beaumont Station in 1859, said he knew little of Maori tradition, but he had seen numerous Maori ovens and Moa skeletons. He considered that the Moa would be exceedingly clumsy, al most certainly slow of foot and wingless, and an easy prey to the Maori. He says: " In all my observations- and they were extensive – in newly occupied country in the early days I have seen not a single instance In which the natural inference could be that the remains were 50 years old."

Me. D. G. Polson details one striking instance out of many that came under his observation to show that glacial action could not have affected the heaps of pebbles, the broken Moa bones and the exceptionally large earth ovens of that sequestered spot. The locality was at the headwaters of the Pomahaka River at the southern end of the Umbrella Mountains, and the year was 1862.

Mr. Jas Robertson did not enter the arena to combat any particular theory, but to state a few facts which he observed when the face of Nature in Otago was clothed in its virginity. His observations began in 1858, and In 1859 on his way from Hamilton's to Murison's, he counted 30 or 40 Moa skeletons. On a spur on the Moa Flat run a very large number were to be seen, and he came to the conclusion. that fire had forced the birds into this trap and they thus perished.

In 1862 the old packing track led from Minzion Burn to the top of Oven Hill and alongside it were more or less broken Moa bones. There were Maori ovens adjacent to these bones to the very top of Oven Hill. The packers and diggers all agreed with him that the Maoris had had many a good feed of Moa flesh here. Mr. Robertson concludes: "I feel sure I could have convinced many from the evidence I have seen and could have produced the way the skeletons were lying, the fresh state of preservation, the rounded or cone-like heaps, showing that they had never been disturbed in anyway, that the Moa was a bird of recent years. Of this I feel certain, and from what I saw of the decay of bones and skeletons of animals after a sweeping fire of scrub and tussock lands in the early days, and from other experiences since, am thoroughly convinced and feel satisfied in my own mind that there were plenty of Moa birds roaming over this part of New Zealand within the last century."

To all these communications Mr. Christie replied, vigorously maintaining the glacial extinction of the bird, and affirming the Maoris saw the bones lying about and could use them If they desired.

J. T. THOMSON'S REMARKS

At the first meeting of the newly-inaugurated Southland Institute on July 5, 1880, Mr. J. T. Thomson, F.R.G.S., delivered the presidential address. From it I cull his remarks about the Moa: "Small heaps of white or variegated pebbles, in most cases not exceeding a handful, were very plentifully found in all directions. This feature was a subject of much attention and controversy amongst the early settlers of Otago and of Canterbury, many suggesting that they were remnants of the crops of the Moa. My own view is that they. had been dug out of the soil by native rats in making their holes, having myself detected one newly-formed in this manner. At Tomogulak, on 13th February 1857, many Moa bones were found about, some having a diameter of fully two inches. It is supposed that these bones are collections of the birds killed by the Maoris. The remnant of their whatas (store-houses) are yet to be seen, and do not appear to be more than 30 or 40 years old. Moa bones were also found abundantly on the Waiau, more particularly in excellent preservation in the limestone caves near the Gorge; and after leaving Southland and coming to the interior northern districts of Otago, they were yet in yet greater abundance. On the Maniototo Plains the ovens were literally surrounded by Moa bones and chert-stone chips, which the Natives had evidently used in cutting or scraping the flesh from the bones. At Maruwhenua, on the Waitaki, Moa bones were strewn in all directions, indicating that in this well sheltered and warm locality the bird had collected in great flocks, and I estimated at the time that many could not have lain over 30 years.

And so much was I convinced of the recent occupation of the country by the Moa, that when I explored the Waiau district I half expected to have met with them, and one of my men, an old sealer from Jacob s River, from information derived from the Natives, supported the suggestion."

DR. HECTOR'S INVESTIGATION

A long paper read by Dr. Hector before the Otago Institute in September , 1871, can be read, by those interested, in Volume II of the Transactions of the New Zealand Institute, but I propose only to make one or two extracts supporting the theory of the survival of the Moa to recent times. He says: "The above interesting discoveries render it probable that the inland district of Otago, at a time when its grassy plains and rolling hills were covered with a dense scrubby vegetation, or a light forest growth, was where the giant wingless birds of New Zealand lingered till latest times. It is impossible to convey an idea of the profusion of bones which, only a few years ago, wen: 101111111 in this district ... The greatest number of Moa bones were found where rivers debouch on the plains; and that at a comparatively late period these plains were the hunting-grounds of the aborigines, can be proved almost incontestably. Still clearer evidence that, in very recent times, the Natives travelled through the interior, probably following the Moa as a means of subsistence like natives in countries where large game abounds, was obtained in. 1865-6 by Messrs J. & W. Murison. On one of the flat-topped mountains near Jackson's Bay III, h I visited in January, 1863, I observed, at an altitude of 4,000ft, numerous well-beaten tracks, almost 16ins wide, intersecting the dense scrub in all directions, and which, owing to the height could only have been formed in the first instance by the frequent passage of a much larger bird than either the kiwi or the kakapo, which, judging from their droppings, were the only birds that now resorted to till now. On the sides of the tracks, especially near the upper confines of the forest are shallow excavations, two or three feet in diameter, that have much the appearance of having been scraped for nests. No pigs or any other introduced animal having penetrated to this part of the country, it appears manifest that these are the tracks of some very large indigenous animal, but, from the nature of the vegetation, it is probable that such tracks may have been for a very long period in disuse except by the smaller ground birds, without becoming obliterated.

This last opinion is contrary to the general impression that, owing to the high rainfall, tracks on the West Coast are soon overgrown. It would be interesting if Dr. Hector had inspected those same paths ten years later. It would appear that those tracks were made by the Moa. Over near the Kaipo River Dan McKenzie mistook a bird for a man. I see "Far Famed Fiordland," page 83], and it is thought it might have been a Moa standing between five and six feet. There is a current idea that a few of a small species may still survive in Fiordland, but the possibilities are against this expectation.

THREE NORTH ISLAND MODERNISTS

Writing in the" Dominion" in 1908, Mr. R. C. Bruce says: " Mr. Mair, engineer to the Rangitikei County Council, recently told me of a Moa chick that was captured near Moawhango in 1865. I have recently spoken to a halfcaste, now an old man, who was brought up largely by his grandfather, an old Taupo chief, and when a little boy greedily drank in the traditions of the past which his aged relative loved to dwell upon round the fire at night. The old chief spoke much of the Moa, and the halfcaste, a very intelligent man, appears to believe that there were most certainly Moas in existence in the early part of last century. He himself picked up a Moa's egg lying on the surface of

the ground in the forest. 'Why, I asked him, if the Moas comparatively recently existed in flocks, did they disappear so suddenly?' 'Why I cannot tell, was his reply. But in reference to this question my friend, Mr. Field, suggests a most probable solution of the problem, and that is that in all probability the wild pigs were largely responsible for their disappearance, as they would eat the eggs lying in perfectly unprotected nests upon the ground."

Mr. H. C. Field wrote: "You are quite right as to my having said I had met Maoris who had seen and hunted the Moa. Soon after I came to Wanganui in 1858 I found that persons like the Rev. R. Taylor and Mr. H. Churton were of opinion that the bird had only recently become extinct, if some possibly were not still surviving, and thus I took the opportunity of asking questions on the subject from old Maoris. Thus I got information from Te Marae, Kawana Paipai, Tamati Pa na and Pehi Turoa of Wanganui, and from Aperahama Raniera Ngarangi, Hare Tipuna, Irai Koraka and Hone Tope of Waitotara, all of whom had hunted the bird, and seemed to know its habits well.

Thus I came to the conclusion that the birds existed in this part of New Zealand certainly up to 1820 or 1830. Broken pieces of egg shell used to be plentiful among the sandhills, and were comparatively fresh during my early years in the colony; though afterwards they so far perished that they would hardly bear handling. There is a small skeleton in our Wanganui Museum in which not only the bones are perfect, but the horny trachal rings of the windpipe still exist, and this could not have belonged to a bird that had been very long dead. I myself once found, between Nukumaru Station and the river crossing of the Waitotara River, the bones of a Moa, which had only just been exposed by a gale, and these had evidently been cut to pieces, and had the flesh cut off them by a sharp weapon of the tomahawk or hill-hook type. The examination of the bones proved that the cuts had been made while the bones were quite fresh, directly after the bird was killed. I sent the bones to the Wellington Museum, and they were exhibited and discussed at a meeting of the Philosophical Society.

I think I mentioned to you the roar of the Moa having been heard by the late Mr. Alexander Murray at Day's Bay, Wellington, in the early forties, and by the late Major Lockett near Collingwood some years later, as well as a boy having been frightened by such a bird at Mangatipoua, in the Wangaehu Valley, soon after Beard took up the run there."

Rev. R. Taylor, in "Te Ika a Maui" five times refers to the Moa. He says they "have evidently had a very recent existence, some of their remains having still feathers attached to them; indeed, it is by no means sure that living specimens are not yet to be found."

WAS SOUTHLAND THE LAST HOME OF THE MOA?

An article under the headings, "A Historic Bird. Last Home of the Moa. Was it Southland? appeared in the "Southland Times" on July 3, 1931, and herewith follow the sentences that particularly interested me: "Recent research in Native history points to the fact that the Moa was contemporaneous with the Maoris, and that the Natives used to hunt the bird for food and ornamental purposes.

Natives say there is a possibility that a few Moas may still be living in the wilderness of Southland's unexplored Fiordland. Moa eggshells have been found in various parts of Southland, and the abundance of them found in the Maori ovens indicate that the eggs must have been prized as a food, and that their consumption has contributed In a large measure to the early extinction of the birds. The fact that many of the bones have been discovered in a broken or split condition has led many authorities to the conclusion that the Maoris used the marrow of the bones for food for themselves or for their dogs. The remains found in Southland show that the bird inhabited places varying in height from the tops of the mountains down to the to the sea level.

Skeletons found recently at Limehills and Kawhakaputa could indicate that the larger species of Moa inhabited these parts in great numbers. " In regard to the Maori statement that the Moa's last home was round Big Bay we cannot expect to find evidence of it, as skeletons there decay and disappear with great rapidity.

C. E. BORNE'S CONTRIBUTION

The “Southern Cross" (Invercargill), published. in two long instalments In July, 1932, a paper by Mr. Chas. E. Borne entitled "The Mystery of the Moa". After recapitulating the customary data about the bird and the noteworthy fact that a bird that could neither fly nor swim was found on North, South and Stewart Islands, the writer proceeds to record Items of Interest in my present quest. He refers to the finding in 1878 at Queenstown of a Moa's skeleton in a remarkably perfect state. The two legs and feet were complete with skin and feathers, the head was complete, skin unbroken, and even the tongue preserved. They would probably be the remains of a bird alive in 1820 or 1830. In the northern part of the North Island it probably completely disappeared from 300 to 250 years ago. In the southern portion its practical destruction was completed by man probably -200 years ago, although individual birds, members of the smaller species continued to live on till the latter end of the 18th century, and would probably be the ones remembered by the older Maoris.

If we are to accept Native tradition, the South Island has not been populated for more than 500 years. Investigators believe the extinction of the Moa was accomplished solely by the Waitaha people, in which case It was accomplished before 1570; but there is no reason why the other two tribes (Ngati Mamoe and Ngai Tahu) should be excluded from a share in the work, so if we broaden the period it means that the extinction of the Moa in the south was commenced and virtually completed during the 300 years between the coming of the Waitaha peoples in 1470 and the permanent establishment of the Ngai Tahu, about 1770, or relatively 160 years ago. This refers broadly to the main attacks made upon the birds by the Moa hunters, but doe not imply that a remnant of the race did not continue to live on in favoured spots, particularly in Central Otago, until the early part of the 19th century. "

This last sentence seems to me to be sound reasoning.

NORTH OTAGO EVIDENCE

In an issue of the " New Zealand Free Lance" dated November 25, 1936, I noticed an article on the Moa's existence in recent times. Extracts run: The publicity given recently to the subject has induced an Oamaru resident to make available for examination a collection of fragments of Moa eggshells and bones, and to express the opinion that the evidence afforded through the collection of these relics of the extinct bird indicated that Maori and Moa enjoyed a contemporaneous existence in these islands until shortly before the coming of the white man. The story disclosed is very interesting

and lends colour to the opinion expressed that the Moa existed in comparatively recent times. East from the Duntroon-Kurow road were found Maori ovens and middens (heaps of ash or other refuse), and an examination of one oven and the ash-heap adjacent disclosed quite a collection or Moa remains. The bones found in the oven itself consisted of a complete foot of a Moa that must have been of a fairly large species. The toe-bones are complete, and one shows a distinct burn through contact with fire. A few feet away in the midden were found scores of pieces of Moa eggshells, smaller toe-bones, and flints for scraping flax.

Here also was unearthed a small but splendid specimen of Maori weaving which is greatly treasured, and is now with other Maori relics in a museum. Important discoveries relating to the Moa lay in the unearthing of a number of trachea rings, the trachea being a section of the windpipe-a gristly substance, but not so hard as bone. These trachea rings-and they represented several different birds, as they are of various sizes-are in an excellent state of preservation, and though fragile, bear every appearance of being of comparatively modern times; if they were not it seems almost certain that they would have decayed and crumbled as they were lying quite close to the surface, in, the black soil of the Hat. , . The opinion is advanced that the Moa egg-shells, bones, and trachea rings of different birds could not have been found in the oven and midden unless the Maori had had something to do with their presence there. The evidence of so many different birds and eggs all crowded in a space of three feet by 18 inches could not have been the result of a mere coincidence. Further it is thought that the finding of so many eggshells and smaller bones in the oven and midden is strong evidence that the Maori caused the dying-out of the Moa, by his destruction of young birds and eggs.

JAMES COWAN REFERS TO THE MOA

From a long account written in 1938 I extract a few items as follows: "Evidence of the birds hunting and eating was unearthed at the mouth of the Waingongora River in Taranaki. This discovery in 1843 and the later examination of the place in 1866, proved that the Moa survived to comparatively recent times But the greatest interest of investigators is displayed in the South Island, where so much attention has been given to the huge deposits of bones in various parts of Canterbury and Otago. The, Moa was almost certainly extinct in the North Island long before It disappeared in the South Island. In the course of his account Mr. Cowan quotes Maori information from various sources, and I was particularly interested in the facts that the feathers were used in the making of garments that the common colour of the birds was grey, and that the cry of the bird was a sound between the screech of a kaka parrot and the boom of a bittern and could be heard at a great distance. I have something to say on all the points from my own inquiries among the southernmost Maoris.

W. M. CAMPBELL'S ACCOUNT

W. Mortimer Campbell, under the heading: "Is the Moa Extinct? Great Wilderness Area Still Unexplored," writing in the"Auckland Weekly” on February 9, 1949, says there are over 30 species of Moa, and some were over 14 feet in height. In some newly-found caves piles of bones had been discovered, and also the world's largest spider, spanning 14 ins. He quotes the aphorism “absence of evidence is not evidence of absence” In 1878 goldseekers found a dead Moa in full feather and partially fleshed. Moa skeletons have been found well lover 5000 ft above sea level. Authorities know from ample evidence that the Maoris had killed and eaten Moas after the coming of the white man. Early settlers in Southland saw Maori chiefs wearing mats Moa skin , with, feathers adhering.

From whence have come those strange bird cries often reported by mountaineers in that lone land? There is still a hope that explorers may find living Moas in the unknown south-west.

A CHANGE OF OPINION

I have already recorded that my opinion gradually changed as both tradition and evidence accumulated showing a more recent extinction for the Moa than I had formerly thought. The opinions of others must have changed also,or proof of which I quote two newspaper clippings.

The first runs: It is a great pity that, in that valuable work of his on the Moa, dated 1941, Dr. Archey draws the conclusion that the Moa was extinct before the arrival of the main fleet of Maoris about the year 1350. Careful evidence collected over many years by capable men does not support this theory." The other clipping dated April 1951, proceeds: "Dr. Archey said the complete history of the Moa was still not known, and some of it might never be known. The largest Moas inhabited the South Island, and it was known that they once roamed the country in large numbers. There were no definite answers to the question of whether the Moa ever possessed the power of flight. Opinion seemed to lean toward the conclusion that the Moa had never been able to fly. Speculation that smaller types of the Moa might still exist was not without justification. At least there was good reason to believe that the Moa had existed at the time of the coming of the white man and might even have lived till 70 years ago. "Mantell first considered the Moa was exterminated soon after man came to New Zealand, but later he expressed a belief that some might still survive in the back country.

SECTION VII-MOAS SEEN BY WHITE MEN

In this section we come to the crux of the whole question. If no white man ever saw a Moa the question is still up in the air, or subject to the caprice of every individual interpreter of Maori traditions. If any white man saw the bird then its extinction must be modern. In this section I am including, with accounts of seeing the bird itself, reports of seeing recent footprints.

LIVE SPECIMEN SEEN

About the year 1860 a man named James Cameron, who had just arrived from Scotland, went to take up a position as a shepherd on the Manapouri Run. In the course of his duties one day he came to the eastern side of the Waiau River between the Manapouri and Te Anau Lakes. To his great surprise he saw a huge bird emerge from the scrub on the opposite side of the river, walk along the sandy river bank and finally disappear. At the time he had not heard or the Moa, but in a state of considerable excitement he burst into the homestead exclaiming about the size of the birds in New Zealand. He was asked to describe the bird which had amazed him, and from the full description he gave of it he was told it must have been a Moa. From this occurrence he was ever afterwards, in the district, called "Jimmy the Moa"

The Manapouri Run was a good place to observe the remains of Moas. Along the edge of the bush there were one or two every few chains, and these gave every indication of belonging to birds which had not been dead many years. In a few cases the outline of the fallen bird was clearly marked by the vegetation around it having a distinctive appearance. In the 'seventies a theory sprang up that

the abundance of Moas showed that they had died from some disease. probably introduced by migratory birds.

FIVE OLD TIME REPORTS

The "Otago Daily Times" in its issue dated March 14, 1863, says: "A short time since we gave publicity to a report that a large bird, supposed to be of the Moa species, had been seen by some men out prospecting to the north of the Arrow River, and that they had on the following morning found the prints of a bird's feet, with toes 1 foot long. It would seem that a bird of the same kind exists in the Nelson Province. The Nelson 'Examiner' of February 12, says: 'A party of men who have lately been out on an exploring trip over the Mount Arthur range, from Wangapeka, report having seen the foot-prints of a large bird corresponding to the description of that seen by Mr. Brunner, about two years ago, on the Takaka range, and which, in their great size, are supposed to be the footprints of a Moa".

On July 23, 1863, the Dunstan correspondent of the "Otago Daily Times" reported that the Moa had again been seen, this time by a party of seven men who spent 14 weeks on a trip from the Shotover to the West Coast and back. They claimed they saw a Moa about nine ft high, which had been attracted by the camp fire. The dogs gave chase and they heard It for some time making its way through the bush.

The impression left by Its foot was almost eight inches in length and about four In width, and where the soil was soft and spongy its feet had sunk in some six inches. The correspondent concludes: "Although you may consider this story rather romantic and improbable, it is nevertheless true." The party also described native pigeons kakapo kiwi and other birds.

Also in 1863 a new chum saw a Moa in the Nelson province and was able to give a sensible description of it.

A whaler named George Pauley claimed to have seen a live Moa and gave quite a feasible description of it, but I have not the particulars.

A LIVE MOA

Mrs. John Mackenzie has forwarded me a newspaper clipping about two prospectors, in the early digging days in Central Otago, who saw a live Moa They were camped under a terrace and had just finished their evening meal and were sitting by the camp fire when a Moa came and stood on the top of the terrace looking down on the camp for a short period. It then turned and leisurely walked away. The two men hastened to the top of the terrace, but as it was getting dark they could not get another sight of their unusual visitor. Next morning they renewed the search and found the tracks of the bird and the prints of its feet in the muddy bank of a creek where it had evidently taken a drink, but of the bird itself they saw no further trace.

The live Moa in question is evidently the one seen in 1862 in the wild north of Queenstown by James Quinn and his mate. They describe It as about 8ft 6in or 9ft high, and from the knee downwards its legs were black. The feathers were a lightish grey colour and the head was extremely mobile. The bird went off with immense strides and where It had been standing they found a pile of its dirt. Quinn stood over 6ft and was powerfully made; he put his large hand in the footmark but could not span within 3ins of it, measuring from the thumb to the middle finger tip. From the depth of the footprints in soft ground the bird must have been a good weight. Coming to a small flat the men noticed that the hearts of several cabbage trees had been pulled out and partly eaten, and this they considered was done by the Moa. They decided to leave this uncanny region, and ill about a week were back in Queenstown. Their story was much doubted, but to his dying day Quinn stoutly maintained its truth. Several times he tried to get Canterbury Maoris to go with him in a quest for the Moa, and it was a Maori who directed my attention to the matter. A fairly full account of the incident is to be found in "Stories of Banks Peninsula" under the heading of "Jimmy Walker."

MOA FOOTPRINTS

Mr. Gordon Griffiths recently wrote to me: " I enclose two interesting paragraphs regarding the survival of the Moa. To me they are very interesting, and the only ones out of the very many I have read and heard about that have a ring of truth about them. In Dr. Ferdinand von Hochstetter's 'New Zealand, printed in 1867, the following footnote appears at the bottom of page 191 :-' What the" Nelson Examiner" of January 12th, 1861, relates of enormous tracks in the mountains on Blind Hay, appears to my judgment a joke, rather than a serious assertion. In June, while Messrs. Brunner and Maling of the Survey Office, were surveying in the ranges between Riwaka and Takaka, they observed one morning the footprints of what appeared to be a very large bird, whose track, however, was lost among the scrub and rocks.

The footprints were 14in in length, with a spread of 11in at the points of the three toes. Similar footprints were seen on a subsequent morning, and as the country is full of limestone caves, it is thought that a solitary Moa may yet be in existence. But no other trace of this Raraavis has as yet been discovered.

Note-Brunner was a fluent Maori linguist and a most keen observer. He, to my knowledge of him, would not make a mistake. -G. G."

This discovery is referred to in an earlier paragraph. My thanks are due to Mr. Griffiths for sending in this and the succeeding paragraph.--H. B.

In respect to Moa footprints, some big ones were found in a blue papa formation alongside the Manawatu River in 1912, each one measuring 18ins across; from the tip of the middle toe to the rear of the foot was 12 ins, and the length of the stride was 30ins.

MOA SURVIVAL

Under this title, the following appeared In the "Star-Sun" in 1950, written by I. W. T. Munro:- "

“... the old West Coaster who wrote to me from Wellington five years ago an account of a boyhood experience need no longer fear, as he previously did, to be ridiculed for his story.

BRUNNER DISASTER

It was an idle day at the Blackball coal mine in March 1896, when a mounted messenger brought news that the Brunner mine had exploded,' he wrote in 1945. 'Rescue teams left immediately, and following them went a party of 10 or 12 boys, ranging in age from 12 to 16 years, with myself, a lad of 14, among them.

At the Brunner we were neither needed nor even welcome and about 5 o'clock in the afternoon, we were told to take ourselves back home. Along the single file track through the virgin bush, there was one small habitation, about four miles out from Brunner, where a Chinese gardener and digger lived, and no other until Kinsella's Hotel another four or five miles further, at the Blackball end of the track.

Most of the going was rough, but there was one flat where the track ran clear and straight for close on a mile and it was here that with sudden commotion, a big bird hurled itself across the track breaking the file of boys into two groups

As the rearrnost of the file, I" was able to see all the reactions the front section tur.ning about with amazed and startled faces, and' the rear group stopptng short while the Moa-it could have been nothing else-crossed the track between them in three strides.

It was a small Moa as Moas go, but too large to be any other New Zealand bird. Its body was as big as a full-grown sheep badly in need of the shears, while Its powerful-looking legs, ash-grey and covered with scales, would be between 20in and 24in from the knee to the ground.

At. the time, excitement over the Brunner disaster eclipsed all interest in the Moa; It was pushed Into the background of our minds. When we boys separated, and if I felt impelled at times to mention the incident, fear of ridicule has always kept me quiet

MY OWN OPINION

As already stated, I once held the idea the Moa became extinct prior to the arrival of the last lot of Maoris in New Zealand (1350 AD. approxlmately). So firmly was the idea embedded in my mind that In one of my earlier field notebooks under a Maori account giving a much later date for Its extinction I have pencilled, "I still believe the Moa was exterminated before 1350 A.D." I was hard to convince but as the evidence continued to accumulate I gradually accepted the opinion that in Otago extinction came at least 300 years later than I had previously imagined.

The Maoris have a rough and-ready way of defining the period of extinction as being identical with the Kai-tahu advent in Otago (1725 A.D. approximately). This probably means that the main body of the birds in the settled coastal districts vanished, but that a limited number of survivors retreated into Otago Central and the wilder and more inaccessible western districts, with perhaps an odd one elsewhere. Remembrances of the' reputed last ones killed in four districts. were related to me, but these deaths may not have been synchronistic, and may even have been a generation or two apart, and even into the nineteenth century.

The soil and air of Otago Central may have a certain preservative quality as claimed by Vincent Pyke, but I cannot see it preserving Moa remains for millenniums. Rather do I believe the plain, matter-of-

fact evidence of observers who traversed that region before settlement had altered the face of the country.

It has been said that the generation of Maoris contemporary with the first white settlers knew nothing about the Moas, but their sons. knew more, and their grandsons more still. This cynicism was not true in my experience, as my informants named the aged persons from whom they derived their knowledge. There is no doubt the third generation would relate what they knew more intelligently than their grandparents.

There are some unfortunate controversialists who appear to believe that everyone who holds an opinion contrary to their own is either a knave or a fool. This is not, and never has been, my position.

I hold that every man is entitled to his own opinion and to a fair bearing. If, through brevity, my summary of each man's views has misrepresented anyone I herewith tender my apologies. The whole question is highly arguable, but it is not worth quarrelling over.

If it be true that a species cannot be held to be extinct while a member is still living, then there is reasonable evidence for the assumption "that some kinds of Moa persisted until after white men came to Otago, and it seems likely that the story of Mr. Meurant assisting the Maoris to eat a Moa at Port Molyneux in 1823 may be true. Who knows!

I have found this quest for facts on the extinction of the Moa to be intensely interesting, and I still endeavour to preserve an attentive ear and an open mind.

SUMMARY AND ANALYSIS

Having collected and presented some r100 opinions on the vexed Moa question, it now remains to summarise the same and point a moral (if any).

Of the 40 beliefs obtained from the Maoris I note that six held that the big bird was exterminated by the Moriori, the branch of the Polynesian race here before the Big Migration of 1350 A.D. (approximately). Of the other ideas 24 are to the effect the Moa was extinct (or practically so) when the Kai-tahu tribe came to Otago about 1725- 50 A.D. The remaining 10 considered the Moa was to be found in Otago until just before the Pakeha came.

Of the 60 Pakeha views collected by me and printed in this work, 39 were expressed by observers of Moa relics, and of these three affirm the Moa was extinct before the advent of man to New Zealand, and that no human eye ever saw the living bird; four consider the people here before the last lot of Maoris came (1350 A.D. approximately y) killed the bird out, while r6 estimate the bird became extinct between 1350 and (say) 1750. Of the remaining 16 opinions 10 reckon the bird died out about the year 1800, while six think the last of the Moas survived until after white men were living on the coast.

Of the remaining 21 persons who refer to the bird, 16 claim to have seen living specimens between 1840 and 1896. In addition five other white men in the South Island saw recent footprints of the Moa, although they were not fortunate enough to see the bird itself. Of course we have Doubting Thomases who will believe nothing they do not see with their own eyes. I am extremely sceptical of much that purports to be New Zealand history, but I see no reason to doubt the testimony of 21 eye-witnesses in this matter. I remember that Charles Port told Robert McNab and Dr. Young he had seen five takahea (notornis) together, and they did not credit his word. Years later he told me, and having proved his reliability I published the fact that he had seen five living takahea, and this was published at a time when only four dead specimens of that species were known. As a general rule it does not do to doubt or ridicule the statements of reliable men.

Summarising the whole 100 references, we find this result:

Very Ancient: Extinction before Man came here - 3

Moriori: Before the present Maoris came 10

Historic: During Maori occupation, 1350-1799 A.D. 40

Recent: Last of Moas died between 1800 and 1900 -47

This tabulation shows what is the commonest belief. While I have never believed there was any truth in the Roman phrase, Vox populi, vox Dei, we can turn to Holy Writ and read, "In the multitude of counsellors there is safety."

APPENDIX

Since writing "The Moa," I have come across some more references to the subject, and these can be briefly recorded here.

In the "Otago Witness" October 2, 1858, under the heading "A Living Moa" we read that some men in Nelson returning to their camp one evening saw an immense bird about 14ft high, and chased It into an extensive cavern between the Slate and Boulder Rivers. Next morning they returned to the cave with guns and candles, but failed to find the bird. What they did find was a young bird with a long neck and covered with yellow down, and this they exhibited at one shilling per head.

The Dunedin papers of January 1863, in recording the seeing of a Moa by Jas Walker and Joseph Smith, quote Taylor's remarks about the kiwi-papa-whenua, and say people are still living who saw this 7ft bird.

The "Daily Telegraph" of May 11 1863, quotes the "Dunstan News" that between the source of the Shotover and head of Wanaka a miner saw the footprints of a Moa in the snow and tracked them four miles before darkness compelled his return to camp. He stated the imprint measured 18ins between the two extremes and made a deep impression in the snow.

A long article, "What We Owe to the Moas" appeared in the Canterbury "Press" about July, 1863, and the writer refers to the fact that New Zealand had no cattle and sheep to tramp, manure and better the land and grass, the only substitute being the Moa. He considered the Moa averaged a great many to the acre over the years, and that they exercised a considerable influence upon the grass by their dung, their weight and their dead bodies supplying the soil with lime.

In the year 1867 a prospector reported seeing a Moa in the mountains of North Otago.

In 1862, for the information of diggers coming from Australia, S. Wekey wrote "Otago As It Is." In it he says the Maoris burnt forests to destroy "a formidable and dangerous bird that often attacked and killed them, and of which they were much afraid." He alludes to the Moa.

"The Otago Witness," May 20, 1871, says: "Recently the neck of a Moa was found at Clyde in an excellent state of preservation, and forwarded to the Colonial Museum at Wellington, where it has been dissected. Owing to this valuable discovery our scientific men will now be able, no doubt, to depict the Dinornis in his proper plumage."

Speaking in September 1871, Mr. W. D, Murison attached little importance to the argument that if the Moa existed recently Captain Cook would have seen it. The absence of Maori tradition might be valid in the North Island, but could not affect Central Otago, concerning which the" Maories " have no traditions. He concluded, "I am strongly of opinion that each fresh discovery will tend to show that the Dinornis lived in comparatively recent times, and was hunted by the forefathers of the present aboriginals."

From a newspaper report of a meeting of the Otago Institute on October 12, 1874, I note that Mr. B. S. Booth believed the Moa had been extinct several thousand years. The chairman claimed the Maori had no tradition or knowledge of the Moa, and voices protested, "No, No”. At the same time he believed they would not find half-a-dozen old residents of Otago who thought the Moa had not existed recently.

At the same meeting it was stated the Maoris had told the first settlers of two caves, one at Moeraki and one at Saddle Hill, containing a great quantity of Moa bones, and that the settlers had taken most of the largest bones away.

The "Evening Star" of June 16, 1950, reports Dr. Orbell as saying there was no doubt the Moa still existed at the beginning of the century, but he did not think that any were left in the Murchison Range (Te Anau).

Before closing I must thank all friends who helped me in this quest, and also express my appreciation of the courtesy extended to me by the staffs of the Turnbull, Hocken, McNab and Otago Early Settlers' libraries.