

to cause the sheep to pick or bite the wool from its sides, flank, and other parts, until the fleece becomes more or less ragged and wasted. The skin becomes rough, and shows symptoms of disease. It is not contagious, but attacks sheep of all ages. It is more damaging in flocks that have been closely bred 'in and in' for many years; indeed this is the case with most diseases. As both a preventative and cure, wood and cob ashes with salt are used, with partial success."

ART. XXXIX.—Notes on Zoological Researches made on the Chicken Islands, East Coast of the North Island. By ANDREAS REISCHEK. Communicated by Professor VON HAAST, PH.D., F.R.S.

[Read before the Philosophical Institute of Canterbury, 4th August, 1881.]

IN December of last year I paid a visit to that cluster of islands called the Chickens, situated east of Wangarei Bay, on the East Coast of the North Island. There are six islands, three of which are of some size, and three are small. The first are covered with bush, with the exception of a few abandoned Maori plantations, now overgrown with flax and scrub. They are hilly and contain copious springs of excellent water. On the large western island two good boat harbours are situated on the southern and western side, and between the islands are good places for small vessels to anchor. In examining the summits of these larger islands I found remains of Maori paha with numerous cooking places and kitchen middens near them. In excavating amongst them I found only one polished stone axe, but several specimens of chipped flint, together with a quantity of mussel and other marine shells, of which the animals have evidently served as food to the former inhabitants. On the smaller islands the bare rocks show mostly, covered here and there with patches of low scrub. All the islands are uninhabited. The avifauna consisted of

Hieracidea novæ-zealandiæ, Lath. Scarce.

Circus assimilis, Gray.

Prothemadera novæ-zealandiæ, Gray.

Anthornis melanura, Sparrm.

Zosterops lateralis, Lath.

Petroica macrocephala, Gml. Scarce.

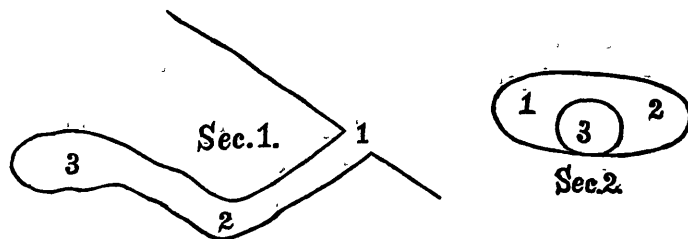
Gerygone flaviventris, Lath.

Rhipidura flabellifera, Gml.

Platycercus novæ-zealandiæ, Sparrm.

- Nestor meridionalis*, Gml. Scarce.
Chrysococcyx lucidus, Gml. Scarce.
Carpophaga novæ-zealandiæ, Gml. Scarce.
Larus dominicanus, Licht. Scarce.
Procellaria lessoni, Garnot. Scarce.
 „ *gouldii*, Hutton.
 „ *cookii*, Gray.
Puffinus gavius, Forst.
Dysporus serrator, L.
Graculus varius, Gml.
Eudiptula minor, Forst.

It is evident from an examination of this list that the avifauna is much richer on these comparatively small islands than on the adjoining mainland, where, to give only one instance, *Anthornis melanura* has entirely disappeared, while on these islands it is still of frequent occurrence. Of the birds at least three, namely, *Procellaria gouldii* and *cookii* and *Puffinus gavius*, live sociably in the holes generally dug out by the tuatara (*Sphenodon punctatum*, Schtz.), and apparently on the best of terms with it. The tuatara excavates its hole mostly on the western slope of the islands. The entrance to the chamber is generally four to five inches in diameter, and the passage leading into the inner chamber is two to three feet long, first descending and then ascending again. The chamber itself is one foot and a-half long, by one foot wide and six inches high, and is lined with grass and leaves. The following rough sketches give (1) a section of the passage and inner chamber, and (2) a section along the greatest diameter of that strange habitation. On both sides of the entrance the two animals have their nests separately, so that they do in no way interfere with each other. On the right side lives generally the tuatara, and on the left the petrel. In one chamber I found one tuatara and one petrel with its eggs, in another one tuatara and one young petrel.



1. Entrance.
2. Passage.
3. Chamber.

1. Tuatara.
2. Petrel.
3. Entrance.

Sometimes two petrels were inhabiting one side and the tuatara the other, but I never found two tuataras living in the same chamber. I am certain that the tuataras excavate, at least in most cases, the holes they inhabit, as I have watched them doing it; and, moreover, I found several of them in holes only half finished, without having a bird with them. In another instance when my dog ran after one of these remarkable lizards it buried itself with great celerity in a sandhill. However, I have no doubt that in some instances the tuataras also inhabit holes dug out by the petrels. The difference between the habitations of the latter compared with those of the former is that the petrels excavate their holes on the mainland and the islands under the roots of trees and scrub in rather loose earth, while the tuataras dig in solid and hard earth, but the form of the passage and of the interior are in both cases nearly alike. As before observed, the petrel is usually on the left side, the tuatara on the right side of the inner chamber; only in two cases did I find the bird on the right hand side. The tuataras lie also in such a manner that their head is placed where the passage enters the chamber, so that they can defend it.

On putting one's hand or a stick into the passage the tuatara bites at them furiously. One of them bit me on the finger, and the wound healed very slowly and was rather painful. During the daytime these lizards are seldom met with outside their hole, or should this be the case, never far from its entrance. As soon as they apprehend danger they re-enter immediately, or should this not be possible, hide amongst the roots or behind a stone. In that case owing to the peculiar colour of their skin it is extremely difficult to detect them; in fact a well-trained dog is wanted for the purpose. They run very fast, and defend themselves with great pluck against dog or man, by biting and scratching. In unearthing them by digging, great care has to be taken, as they very often possess additional passages leading into the inner chamber, by which they are able to save themselves.

As soon as the sun has set the tuatara leaves its hole to seek its food, consisting of worms, beetles, wetas, etc. It also feeds on the remnants of fishes and crustaceans brought by the petrel into the chamber. During the night a peculiar croaking sound is heard emanating from these lizards, not unlike the grunting of a pig when it is tormented or frightened; this is the best time to catch them. I believe that the female of *Sphenodon* lays its eggs in February, as in January I found in one of them eight full-grown eggs. And I may here mention that I obtained about the same time a young one, eight inches long including the tail.

I also searched the Little Barrier Island for tuataras, but in vain. The large quantities of feral pigs living upon that island may easily account for their absence. There are also none on the Hen and the Guano Islands. Most frequently they were found by me on the large western Chicken Island. I believe that they are still more abundant on the smaller islands; however, although I tried repeatedly to land on them, the heavy surf would not allow me to do so.

ART. XL.—On some new and undescribed Species of New Zealand Insects, of the Orders Orthoptera and Coleoptera. By W. COLENSO, F.L.S.

[Read before the Hawke's Bay Philosophical Institute, 8th November, 1880.]

ORTHOPTERA.

Fam. MANTIDÆ. Genus *Mantis*.

Mantis novæ-zealandiæ, n. sp.

Pronotum five lines long, anterior end widest, ridged down the middle, minutely tuberculated all over in scattered dots, punctulate, punctures translucent when viewed between eye and light, side-margins rough finely sub-serrulate, edge straight sloping gradually to mesonotum. *Anterior pair of legs*: trochanter very slightly serrulate at margins; femur two rows of spines of irregular lengths, inner row small and closely set, outer four only large and distant, a large purple oval or kidney-shaped spot central within; tibia two rows of spines, regular, ending in one very long curved one at base; tarsus long; *costæ* of the *anterior wings* (elytra), one to each, run longitudinally parallel with and near the outer margin, with transverse flexuose nerves branching inwardly and diagonally from it, wholly filled up between them with fine anastomosing veinlets; *elytra* semi-transparent; *posterior wings* much smaller and very membranous; wings extending far beyond base of abdomen; *abdomen* thick smooth. *Antennæ* short, $3\frac{1}{2}$ lines long; *eyes* large, two small protuberances (? stemmata) between horns and just behind them: total length from head to posterior edge of elytra $1\frac{1}{2}$ inches: length of *nympha* $1\frac{1}{2}$ inches. *Colour* (of both states nearly alike), mostly light emerald green; underneath, about mouth and thorax, and inside of fore-legs pale lemon; outside of legs and head (above) dark orange; a dark purple reniform spot on inside of each fore femur.

Hab.—Scinde Island, Napier, on trees (*nympha* state only), 1878–1879, Mr. J. A. Rearden; *imago* state (one specimen), 1880, Mr. J. D. Ormond.

This species has pretty close affinity with the European species *M. religiosa*, but it is very much smaller, with shorter horns, and less spiny and narrower fore-legs, etc.