

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his Correspondents. No notice is taken of anonymous communications.]

The Dinornis

I OBSERVE in your interesting paper of Feb. 17th, a statement that the larger varieties of Dinornis had, in all probability, become extinct before the occupation of the Middle Island of New Zealand by the present race of natives. I have observed previous statements to the same effect, supported by the authority of gentlemen whose opinions deserve the highest consideration, and by the assertion that no tradition of the existence of such birds has been found amongst the present representatives of the native race. I have good reason to question the accuracy of the latter assertion, at any rate.

I was myself in New Zealand for nearly seven years, from 1841 to 1848, and I had unusual opportunities of becoming acquainted with the condition of the Middle Island as it then was, having been in the service of the New Zealand Company as a surveyor and explorer in the settlement of Nelson, and subsequently in the other districts now known as Canterbury, Otakou, and Southland. I can state positively that some of the natives then resident in the Motueka and Motupippi districts of the Nelson settlement, at a time when the actual existence of such birds past or present had not been suspected, told us what appeared to us to be foolish stories about large birds which their immediate ancestors had been in the habit of hunting. One of them described to us most vividly the manner in which they beset these birds with dogs, and the mode in which the birds defended themselves by kicking. He stated that the dogs were frequently killed by a single kick, and that men not unfrequently had limbs broken in the same way. Other stories there were of an extravagant character, indicating perhaps a more remote origin—about birds so very large that one of them was said to have pulled down out of a tall tree an unfortunate hunter who had endeavoured to conceal himself there, and had eaten him on the spot; and these latter stories, no doubt, induced us to treat the others with less consideration.

I never met a native chief who told me that he had himself seen such a bird alive, and I do not think that any native whom I should have been inclined to trust ever told me even that his father had seen such birds, but they did assert expressly that their fathers—by which they would mean immediate ancestors, had so hunted and killed these large birds. I was further assured, at a later period, by a native chief named Teraki, who resided near the mouth of the Taieri River in the Otakou district, that he believed such birds still existed in the interior of the country, and that if I would go with him for a month he thought that he could show them to me. The same man told me curious stories about the existence, in the interior, of a quadruped whose habits he described, and which, if it did really exist at all, must, I think, have been a description of beaver. That fact may possibly tend to discredit his evidence, but I can only say that if it had been possible for me, consistently with my duties at that time, to go with him, I should have been very glad to do so.

The country to which he referred as the interior was the country to the west of the Taieri River, towards the source of that and of the Matou, or Molyneux. It has, since that time, been fully explored, in consequence of the discovery of gold there, and it does not appear probable that he was correct in supposing that such birds still lived, though there are stories among the early explorers of having seen and heard strange things.

The rarity of these birds was attributed by Teraki and other natives of that district in which they were once abundant to over hunting, and to the fires, which, sweeping across a country covered principally with coarse grasses, had destroyed nests and eggs, and driven the birds themselves into the swamps for refuge, to meet death by suffocation from smoke and water.

Such an explanation appears to me to be probably correct, and the fact that complete skeletons have been found in the Taieri swamp, in a situation to which no existing stream of water could have carried so large a carcase, appears to lend weight to it. I have myself found on the low hills to the south of the river Matou the charred remains of egg-shells and bones of some variety of that genus, but not of the largest. I was instrumental in obtaining the first specimens of bones of such large varieties of the Dinornis as were discovered in the Middle Island. They were procured from a bed of peaty soil beneath the sands at the ancient embouchure of the Waikouaité River near

Otakou, on an occasion when extraordinary low tides followed a strong south-east wind. They were forwarded from Waikouaité to Colonel Wakefield, and sent by him to Professor Owen, but there was not among them any complete skeleton, or any complete head.

Halstead

WILLIAM DAVISON

The Earthquake at Manilla: its Theoretical Significance

THE first section of my Outline of a Theory of Earthquakes and Volcanic Eruptions,* which appeared in March 1869, concluded with the words, "At the same time we take advantage of this opportunity to refer to the catastrophe which, according to our theory, must occur on the 30th of September or the 1st of October of this year, and to call the attention of the inhabitants of those countries which are more especially exposed to earthquakes—that is to say, equatorial lands, particularly Peru, the East Indies, &c.—to the danger which threatens them." I wrote these words under the immediate impression of the results derived from my strict investigation of the earthquakes from 1848 to 1868—an investigation which awakened in me the firm conviction that the influence of the moon upon earthquakes is an incontestable fact. As these results were then known to me only, the prediction referred to must have surprised those scientific men who may consider themselves authorities on this subject. There was nothing peculiar in this. But the remarkable circumstance was that, although before the 1st of October not a single voice was raised against my theory, after that day (which passed in Peru without an earthquake) there appeared in the *Cologne Gazette* an anonymous article laden with the most vehement abuse of myself. I was able to take it quietly, because I knew I was in the right. For I had nowhere mentioned the localities to be visited by the threatened earthquake so exactly, nowhere defined the limits of it so closely, as the public thought fit to assume. In every passage I made use of the vague expression, "Equatorial countries," adding, by way of example, Peru, Mexico, Equador, the East Indies, &c.; in fact, at present, my theory does not admit of my explaining myself otherwise. People overlooked, or wished to overlook, the fact that in this case stress was laid upon the time and not the place. In the same way the earthquake in the Rhine country on the 2nd October, and the devastating outbreak of the volcano Puraie in Columbia on the 4th October, † were passed over with the most marvellous silence. I comforted myself, however, with the hope that later intelligence would afford me satisfaction, and I was not mistaken. Early in November a telegram announced that a "severe earthquake" had caused great destruction in Manilla; still no date was added, and for a few days I was only able to say that I supposed this earthquake took place on the 1st October. (See "Sirius," vol. iii. p. 7.) But the *Bulletin Hebdomadaire*, of the 9th January last, brought the following decisive intelligence of extraordinary importance for the earthquake theory:—"We learn from the *Courier* of the Philippine Islands that an earthquake took place at Manilla on the 1st October last. It was about half-past eleven in the morning when the first shocks were felt. Then followed the most frightful oscillations which lasted forty-five or fifty seconds, or, according to other observers, even over a minute. These oscillations were regular measured cadences, and violent, like the rocking of a ship in a storm. According to the indications of the pendulum, they were first in the direction S.E.—N.W., later N.E.—S.W. Many persons became sea-sick. The terror of the inhabitants during these anxious moments was fearful. They thought of the earthquake in the year 1863," &c., &c.

In accordance with the foregoing is the following information in the *Gazette* of the Eastern Seas—"Manilla, Oct. 2: The earth shook during yesterday's earthquake in the most alarming manner, like a ship in a violent storm; walls and beams cracked; all the walls in the rooms showed splits, and the ground was everywhere covered with chalk and mortar. In the garrison town of Manilla itself, the entire façade of the Augustine

* Three sections have appeared up to the present time.

† The newspapers give the following account of the catastrophe:—"Intelligence has been received of a violent eruption of the volcano Puraie in Columbia, accompanied by terrible devastation and loss of human life. Towards three o'clock on the fourth of October, the mountain began with violent eruption to throw up immense masses of ashes and lava. Two or three villages at its foot are said to have been entirely destroyed, with their inhabitants. The water of the River Canoa rose at Popayan a foot above its usual height, and the rapid current thus occasioned brought down lava and the bodies of men and animals from the devastated localities. At eleven o'clock on the morning of the same day the river was almost dried up."