

MOREPORKS (*ATHENE*).

In the "Transactions of the New Zealand Institute," vol. xviii., page 97, a gentleman describes how he saw a morepork swooping down in the evening and remaining about the spot for some time, and on going to the place found the remains of a rat, thus implying that the bird had killed the rat, which I think is very misleading. I have had the opportunity of examining a good many moreporks, both here and in Australia, and it was always a surprise to me how light they were as compared to their appearance—mere puffs of feathers, perhaps not half the weight of a good-sized rat; whereas a hawk is just the reverse, and a heavy bird for its size. He may have mistaken a hawk for a morepork in the dusk of the evening, when the sparrow-hawks are most active; or the hawk may have eaten the rat earlier in the day, and the morepork have been there by accident.

Any one that takes the trouble to examine a morepork's weakly little claws will see at a glance that they were never designed for killing even mice, to say nothing of rats. The serrated edges of their toes imply that they are more suitable for pulling away the useless wings and legs of the things they eat. I know that they do pull the wings off the big moths and cicadas, for I found some of their crops crammed with the latter, and without one of their useless glossy wings.

Gilbert White saw the whip-poor-will (which has also serrated edges on its toes) putting its feet up to its mouth while on the wing, and he thought that it might have caught things in its claws and delivered them to its mouth; but it may have been only putting up its feet to pull away the useless wings.

I have known a rat to eat a nest of young robins, also several nests of domestic pigeons, and I was one of a party that saw a rat running away with young sparrows that were nearly able to fly. So, if the above story was correct, a morepork would be a great deal worse than a flying rat, and there would not be a little bird in the New Zealand bush. A predatory owl of that sort would be very useful now to deal with the coming sparrow nuisance.

Our laughing-owl, I think, did not enter the bush, but kept to the rocks and open country.

MOA-FARMERS.

In one of the late Professor Parker's valuable papers he showed that some fifteen or sixteen reputed species of moas lived in New Zealand about the same time. "A most unexpected result," he says, "since all other great flightless birds inhabit each its own country or district. In the whole of Australia, for instance, there are only two species of emu and one of cassowary, while no fewer than seven species of moa have been found in one and the same swamp."

But here enters the old disagreement about what constitutes a species; and when the best authorities disagree laymen may fairly assume that the question is not, and probably never will be, settled while animals continue to vary. If every man varies, and every living thing is born somewhat different from all others, and if no two leaves in the forest are exactly alike, then why need we disagree about what appears to be only a matter of degree in a universal law? Nature does not build up an animal or a plant in a day, nor always in a century, even from legitimate progenitors; then why should an experimenter expect, in what is comparatively an atom of time to mix two species that may have taken ages for divergence with millions of individuals and varieties of conditions? An able agricultural writer recently alluded to the "fixity of species" as Nature's majestic law, because some Yankee farmer in his hurry could not mix buffalo with common cattle; as if one man's lifetime was an appreciable period in the existence of such animals in America!

If Professor Owen had known as little about cattle as he did about moas he would certainly have classed those with horns and those without as different species, though that buffalo-farmer would never think of doing so. And, under like conditions, the learned professor, with a cargo of bones, would have given us at least fifty different species of dogs, when with only a cartload of bones he made us out a dozen different species of moas. There were tall greyhound-like moas, and stout massive ones, and on down to little Dandy Dinmont things not above 2 ft. high. This great variety living together suggests the interference of men, for surely without such there would not be so many different kinds of dogs and fowls as we have with us now.

We do not find many kinds of wild dogs in Australia, all being levelled up to nearly the one standard of size and colour, because they were practically without interference. On the other hand, there were as many different sizes of kangaroos as there were of moas, but directly under the influence of men and dogs as enemies, from which the moas must have been exempt for ages.

The necessities of defence and concealment in the kangaroo's case gave the various sizes great advantages in their own localities. The wallaby in the scrub, and the "old man" on the plain, had better chances there to escape and multiply, for the eagle-hawk would have seen the wallaby in the open, and the man or dog would have had a better chance to stalk or rush the "old man" in the bush. So that there was something to force their divergence and then keep them apart; while the moas either had men for masters or farmers or had their world to themselves, without an enemy that they cared for. They had an eagle, of course, but it probably had plenty to do attending to the flightless swans or geese, for it was hardly heavy enough to prey even upon moa chickens.

There were identical species of moas in both Islands, which is wonderful when we remember their aptitude for variation, and to my thinking almost proof that the old Natives farmed them as we farm sheep, and transported them with the other ground birds from one Island to the other. Stores of food and fencing would have been required according to our ideas of keeping ponies and draughts from intermingling, but these are small matters arising wholly from our habit of thinking that all the old people were fools—an error that will account for many of our difficulties in understanding such things. If it is a fact that the Maoris came and went from