

In Mr. Bethune's two specimens now exhibited the wing measures, from the flexure, exactly 11.75in.; in my intermediate example it measures 12in., and in the more matured one only 10.5in. In the two entirely dark birds the wing, as in the first-named, measures 11.75in. The dark birds have brownish-black legs and feet, whereas in all the others the tarsi are yellowish, and the toes "sandalled" with black; but this difference is no doubt due to the immaturity of the former.

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ART. IX.—*Some Curiosities of Bird-life.*

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[Read before the Wellington Philosophical Society, 19th September, 1894.]

PURSUANT to the title of my paper, I shall exhibit to you this evening some remarkable "freaks of nature," or curiosities of bird-life. One of them, as I shall presently show, is a pure albino Kiwi, of the small species known to us as *Apteryx oweni*, the ordinary plumage of which is of a speckled or dappled-grey colour. But before proceeding to the specimens I wish to say a word or two on the subject of albinism.

The inherent tendency to albinism is one of the distinguishing features of the New Zealand avifauna. Albinism in the human subject is due to the absence of the minute particles of colouring-matter in the epidermis or outer cuticle, the presence of which, in more or less abundance, gives colour to the skin. In many species of quadrupeds, birds, and reptiles, albinism, due to a precisely similar cause, often exhibits itself, the skin, hair, feathers, and also the hard tissues—even the horny sheaths and scaly coverings—presenting an abnormal whiteness. Sometimes, as in the case of white rats, mice, and rabbits, this is accompanied by an abnormal condition of the eyes, which become blood-red. The whiteness of plumage, the purity of which is regulated by the entire or only partial absence of the colouring pigment in the feathers, is thus easily accounted for; but I have been unable to discover any sufficient reason for the frequency of this condition of plumage among the birds of New Zealand. It is certainly not the result of disease, or of a low state of vitality, any more than albinism in the human subject can be taken to indicate an enfeebled condition of mind or body. May it not, then, be in some way dependent on climatal conditions? It is significant that in tropical India the tendency is in an

opposite direction, melanism, as we are informed, being of frequent occurrence there. Now, in the whole of my experience I have met with only two examples of melanism among New Zealand birds—the subjects being *Anthornis melanura* and *Miro albifrons*—and I cannot say that in either case was it very pronounced. Of albinism, however, in this country there are endless examples. In my "Birds of New Zealand" (2nd ed.) I have recorded albinos, more or less perfect, of thirty-three species (see enumeration on page xlii. of Introduction). I have since recorded six more in the pages of our "Transactions"—namely, *Myiomoira toitoi*, *Halcyon vagans*, *Puffinus griseus*, *Diomedea regia*, *Diomedea fuliginosa*, and *Apteryx haasti*; and I am informed by the Hon. Walter Rothschild that he has received a pure albino of *Thinornis novæ-zealandiæ* from the Chatham Islands.

It is, of course, the pigments in the feathers which produce the colours that we admire so much. Dr. J. S. Kingsley, in an excellent article on the subject, informs us that "a colouring matter which is called zoomelanin, and thought to be identical with coriosulphurine, seems to produce all the black and dark hues in birds, while some green colours are due to an admixture of a yellowish pigment called psittacofulvine. A really green pigment has only been found in the touracoës,—hence the name turacoverdin,—and no blue or violet pigment has yet been discovered, while red (zooerythrine) is quite common. Another red, turacin, causes the magnificent red on the wings of the *Musophagidæ*. There is no white pigment, but wherever that colour occurs it is due to the countless number of interstices between the molecules of the feather, the substance of the latter being colourless. Many tints—for example, blue, violet, and certain greens—are not due to the pigment, which is black-brown to yellow, but the blue results from a particular surface-structure of the feathers, so that it must disappear if the colour-producing parts be destroyed. Thus, if we hammer carefully the deep-blue feathers of a Macaw, the blue colour immediately disappears, and the injured part looks grey or brownish, according to the underlying pigment. Some green parrot-feathers, when treated in a similar way, become yellow, since this is the colour of their pigment." We are told that the gloss of feathers, independent of the colour itself, is the result of their surface being smooth and polished, while the metallic lustre is due to a transparent sheath which acts like a prism.

Closely connected with this subject is that of "dichromatism." Of this colour-problem the same author says, "We are accustomed to call it dichromatism, but of its true nature and its significance in the animal economy we are quite ignorant. By this term we designate the peculiarity, in certain

species of birds, that individuals present two different styles of coloration, or 'phases,' presumably more or less independent of geographical distribution, present or past, or, in fact, of any apparent cause whatsoever. The difficulty in finding a plausible theory is much increased by the circumstance that there are nearly as many kinds of dichromatism as there are dichromatic species." Among the examples put forward by him is that of the dark and white forms of *Ossifraga gigantea*. In this I think he is mistaken. I have, from time to time, recorded seven examples of the White Nelly from New Zealand waters. Of these only two were absolutely pure albinos. One of them, which I obtained at Waikanae, about forty miles up our west coast, and presented to the Colonial Museum, was of snowy whiteness, without blemish of any kind, even the legs and feet being whitish, whilst the bill was yellowish horn-colour. The other, which is almost as pure, was obtained at sea, about ten miles north of Milford Sound, and presented to me by Captain Fairchild. All the other examples are more or less marked with dark feathers, scattered irregularly over the entire body. There are certainly two phases of the dark plumage—the one uniform slaty-grey, the other paler grey with whitish cheeks and throat—but these differences are in my opinion attributable to age and sex.

In addition to "dichromatism" there is what is termed "trichromatism," where, apart from the normal form, there are two different-coloured phases, although this phenomenon appears to want confirmation, the evidence in support of it being incomplete. If the theory be true it may help to explain the formation of new species,—the original stock dying out in the struggle for existence, and the dichromatic phases becoming stereotyped into two invariable forms or species, separated geographically but still identical in structure. Dr. Kingsley mentions an example brought forward by Mr. Ridgway, that of the Scarlet and the White Ibises (*Guara rubra* and *G. alba*), of which he remarks that they are now so different in colour that probably no one would deny their specific distinction, though structurally so alike that a specimen of the white one dyed scarlet would be indistinguishable from *G. rubra*; and he concludes with this observation: "The question which finally impresses itself upon the inquirer, in view of the above facts, is this: Are not the two or three phases of dichromatic or trichromatic species 'incipient species,' the final state of which will be that of the White and the Scarlet Ibises? The subject is one of the most perplexing, and consequently most interesting, questions in modern ornithology. It shows what we know, and particularly what we do not know; it shows that ornithology means more than a mere description and naming of birds; that one of its aims is to contribute to

the solution of the great problem of the age—'the origin of species.'"

There is another point on which I should like to say a word before exhibiting the specimens. I have recorded only five perfect albinos of *Apteryx oweni* and one case of partial albinism.\* It will be seen therefore that this condition of plumage is a rarity. I do not hesitate to say, however, that in a few years' time a specimen of the Grey Kiwi in the ordinary plumage will be as rare in New Zealand as the abnormal example I am presenting to you to-night; and I will tell you why. Not many years ago this species existed in great abundance in certain parts of the South Island. It was of course to be expected that a bird incapable of flight and devoid of any means of self-defence would diminish in numbers as the country became settled, and dogs and cats, running wild, spread themselves over the interior; but a new factor has come into existence which threatens the speedy extermination of not only *Apteryx oweni* but of many other indigenous forms. I refer to the introduction, at the instance of a former Government, of polecats, stoats, and weasels. From a naturalist's point of view, I regard this act in the light of a crime. The vermin that every farmer in the Old Country was trying to extirpate as an unmitigated evil our wise Government bought up by the hundred and imported into this country, in the vain hope that these "carnivorous beasts" would change their habits and take to a rabbit diet, to the exclusion of everything else! No doubt, to abate the rabbit-nuisance, which was causing widespread loss and even ruin to our sheepfarmers in many parts of the country, was a most desirable object. But it is a question whether, in the introduction of polecats, stoats, and weasels, the Government was not establishing, even from the farmers' point of view, a still greater evil. As shipment after shipment of this vermin from over the water arrived in New Zealand, I raised my voice in protest against so insane a policy, and so did others—notably Professor Newton of Cambridge—but all to no purpose. The imported animals were turned loose north and south, and have now become firmly acclimatized in a country where the conditions of life are so favourable to their existence that no power on earth will ever dislodge them. The Wairarapa was the principal seat of the rabbit-plague in this provincial district; so the destroyers, of whom so much was expected, were liberated there. But they did not stay long with the rabbits. Swarming over the dividing-range, and crossing in summer the snow-capped ridges of the Ruahine, they descended upon the fertile lands of the west coast, where they are now fairly established,

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\* "Birds of New Zealand," 2nd ed., vol. ii., p. 328.

and where there are practically no rabbits for them to prey upon. They are making themselves felt, however, in other respects. The rabbits devastated the pastures, but they left the sheep alone. Not so with these "Government immigrants." One farmer at Kereru complains that in a single night this season he lost forty lambs, each exhibiting a small punctured wound, betraying the depredator. My sons had their hen-roost visited at night, and a brood of valuable fowls destroyed. The breeding of turkeys was at one time a profitable industry in these districts, the hen-birds forming their nests in the scrub and along the outer edges of the bush; but, with these marauders abroad, a turkey has now very little chance of bringing out a brood. Formerly, the Woodhen (*Ocydromus greyi*) was very abundant in the Horowhenua and Manawatu districts, its loud and not unmusical whistle being heard on all hands as the shades of evening deepened into the gloom of night. Now all this is changed. The responsive cries of the Woodhen are seldom heard, and there is nothing to break the stillness of the night but the call of the Morepork keeping his vigils. The diminution in numbers of our introduced game—Pheasants and Californian Quail—must, I think, be attributed to the same cause.

Mr. Jonathan Brough, writing to me from the Pelorus, says, "I have now been camped in these woods for about a month—up one of the tributaries of the Pelorus River known as Wakamarina. I am camped a long way up the creek, at a place where I used to collect birds some years ago. In those days I found this a good hunting-ground; a great number of species could be then obtained in this locality; but now all this is changed. I seldom see or hear any birds worth collecting. The stoats and weasels have done their work. For three weeks I was camped right up amongst the mountains and in the heart of the bush, and I never saw a single Woodhen, nor did I ever hear one. I heard one Kiwi calling, and I found one dead on the ground with its head and neck mutilated by the stoats. I do not now see or hear any Saddlebacks, or Pigeons, or Wrens, all of which were plentiful enough in this place a few years ago. The Blue Duck used to be fairly abundant in the creek, and they are now nearly extinct. This time I have seen only one pair. They had a brood of young ones, so I felt that I could not shoot them. They had six young ones when I first saw them. I have an opportunity of seeing them in the creek every day, and it is very interesting to watch them. But the young ones are getting fewer every week, and now there are only three left. I attribute this also to the stoats, which are very numerous about here. Collecting specimens of natural history in this

part of the country is a thing of the past, for the stoats and weasels have swept away everything."

An old settler at Wanganui, from whom I have received many specimens in the past, writes me: "Weasels have destroyed all game, and I think Wekas will share the same fate. I never see any. I have killed seventeen weasels on my place in three months; and of the many bad things introduced I think this the worst." And Mr. William Smyth, the well-known collector, writing to me from Dunedin, says, "I got only a few Wekas from Waimate last winter. They have practically disappeared from the Otago country."

Even the country babies appear to be scarcely safe, for a paragraph has appeared in one of the newspapers stating that a child playing on the open common at Palmerston North was attacked by a pack of four stoats, and narrowly escaped serious injury.\* Whether this report was true or not I cannot say, but it is just what is likely to happen when the blood-thirsty animals become numerous enough. Side by side with this wicked introduction into our fair country of animal pests we have the reckless—and, to my mind, ignorant—practice on our sheep-farms of poisoning hawks. There can be no doubt that the Harrier (*Circus gouldi*) does occasionally attack weakly lambs, tearing out their eyes and causing their death. So, for that matter, does the large Seagull (*Larus dominicanus*). But it is much easier for a hawk to attack and prey on a young rabbit than on a lamb; and, as a matter of fact, we owe to this cause that the rabbit, although it became established on the sandhills of the west coast of this province some twenty years ago, has never been able to sweep the country as it has done elsewhere. The conditions for hunting it on the open sandhills are favourable to the Harrier, and the bird has effectually kept the rabbit- nuisance under. I have always said that it is a dangerous thing to disturb the balance of nature; and I am persuaded that on our west coast at any rate the farmers who sometimes poison with strychnine twenty or more hawks in a week do themselves far more harm than good. But that is an evil of far less magnitude than the one we have been discussing—the introduction of polecats, stoats, and weasels. The Minister who, in the excess of his ignorant zeal, authorised this public expenditure will probably be remembered in the colony long after we are dead and gone.†

\* See Trans. N.Z. Inst., vol. xxiv., p. 90.

† Since the above was written it has been officially notified in the Government Gazette that ferrets, stoats, and weasels are protected by law. As a fitting commentary upon this the following paragraph appeared a few days later in the *New Zealand Times*: "Stoats are reported to be very troublesome in the Hawera district. One settler reports that sixteen eggs out of eighteen were destroyed in one nest by stoats last week." And a

It is melancholy to reflect that the New Zealand avifauna, which had already, from a variety of adverse causes, become endangered, should be thus subjected to an overwhelming influence for evil. But for this unfortunate introduction there would have been some hope of many of the species being permanently preserved. Indeed, it had become a subject of remark that such birds as the Woodhen, the Swamp-hen, and the Banded Rail were becoming more numerous in all the cultivated districts, the conditions of existence being more favourable. To show you that I am not raising an unnecessary wail over the birds that are vanishing, I will quote a passage from Professor Newton's admirable article on "Birds" (Enc. Brit., p. 742):—

"As a whole, the avifauna of New Zealand must be regarded as one of the most interesting and instructive in the world, and the inevitable doom which is awaiting its surviving members cannot but excite a lively regret in the minds of all ornithologists. This regret is quite apart from any question of sentiment; if it were otherwise, it could not be defended against that sentiment which prompts our colonial fellow-subjects indiscriminately to stock their fields and forests not only with the species of their Mother-country, but with all the fowls of heaven, whencesoever they can be procured. The regret we express arises from the thought that, just as we lament our ignorance of the species which in various lands have been extirpated by our forefathers, so our posterity will want to know much more of the present ornis of New Zealand than we can possibly record; for no one nowadays can pretend to predict the scope of investigation which will be required, and required in vain, by naturalists in that future

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correspondent of the *Evening Post*, under the *nom de plume* of "Bushman," commenting on the *Gazette* notification, writes, "I should like to know when this craze of a few faddists is going to cease, for it seems to me about time that some one entered a strong protest against the wholesale introduction of these pests into our beautiful adopted country. Any one who, like myself, has kept ferrets for years must know that the habits of the animal are entirely against its ever doing any real good as an exterminator of rabbits, for, unlike a cat, a ferret will not hunt for the sake of hunting; and, as it almost always lays up and sleeps for two or three days after a heavy meal, this must militate against its usefulness. Again, ferrets and their congenitors will hardly ever touch fur if they can obtain feathers, which is the reason that in many districts where pheasants and quail were once plentiful they are now nearly extinct. And the last but greatest evil is that ferrets are, and have been for years, killing hundreds, and I might say thousands, of lambs yearly all over the country. Now, I would ask, is it any use proclaiming such vermin as 'protected animals,' when the above facts are well known? Is it not merely inviting people to break the law? I have for years killed every ferret, stoat, or weasel that I could get a chance at; and many others that I know do the same, or we should have long since been plagued by a worse pest than the rabbits ever were."

when New Zealand may be one of the great nations of the earth."

Without further preface I shall invite your attention to the three very interesting specimens on the table, about each of which I have a few remarks to offer.

1. *Nestor meridionalis*, Gmelin. (Kaka.)

Mr. Gould, in the supplement to his superb work on "The Birds of Australia," figures and describes several species from New Zealand. Among these there is the Prince of Essling's Parrot (*Nestor esslingii*, De Souance), upon which he remarks as follows:—

"A single specimen only of this magnificent Parrot has come under my notice; and this example is perhaps the only one that has yet been sent to Europe. It formerly formed part of the collection of the Prince d'Essling of Paris, but now graces the National Museum of Great Britain. It is in a most perfect state of preservation, and is, without exception, one of the finest species not only of its genus, but of the great family of Parrots. The native country of this bird is supposed to be New Zealand; but I, as well as M. de Souance, have failed to learn anything definite on this point. In size it even exceeds the great Kaka (*Nestor meridionalis*), which it resembles in the form of the beak, while in its general colouring it closely assimilates to the *Nestor productus*; in some features of its plumage, however, it differs from both. In both those species the tail-feathers are strongly toothed on the under surface with red; and in the *N. esslingii* no such marks occur, the toothing on the inner webs of the primaries is not so clear and well defined, and the light-coloured interspaces are much freckled with brown."

Dr. Finsch, on the other hand, states in his "Monograph of Parrots" that *Nestor esslingii* is in size and general colour the same as *Nestor meridionalis*, but "has the breast ash-grey with brown terminal margins, and a broad yellowish-white transverse band straight across the belly." He quotes De Souance to the effect that the red marks on the inner vane of the quills and tail-feathers are precisely as in *Nestor meridionalis*.

As far back as 1870 I expressed my belief that this was only an accidental variety of our common *Nestor meridionalis*; and a subsequent examination of the specimen in the British Museum, on my first visit to England, confirmed this view. At this time the specimen was exhibited, mounted with others of the same genus, in a plate-glass show-case in one of the main galleries. But Dr. Bowdler Sharpe, the able Curator in charge of the collection of birds, has had them carefully unmounted and reduced to the condition of cabinet skins, as



he feared that constant exposure to the light would have a damaging effect on the bright plumage. In the "Bird-room," however, they are always accessible to students, and may be examined with more satisfaction than in hermetically-sealed show-cases.

The specimen which I have the pleasure of exhibiting to-night is, so far as I can remember, almost exactly similar to the type of *Nestor esslingii*. There is a very slight indication of the toothed markings on the under-surface of the tail-feathers; but, as I have already shown, the authorities differ as to their presence or entire absence in the original specimen. The curious part of the story, however, is that the bird now exhibited is one of three, all marked alike, recently obtained in the same locality (District of Marlborough)—all three of which I have had an opportunity of examining. One would have felt much inclined to rehabilitate *Nestor esslingii* as a species but for the fatal circumstance that one of them has the lower mandible on one side yellowish-white, betraying the latent tendency in the bird to albinism. I still feel satisfied, therefore, that this handsome bird is only a variety of *Nestor meridionalis*, the most variable of all our indigenous Parrots.

### 2. *Stringops habroptilus*, Gray. (Kakapo.)

I have described in "The Birds of New Zealand" (vol. i., pp. 177-78) several remarkable varieties of this bird, the tendency generally being towards a more or less yellow plumage. The bird exhibited this evening is no exception to that rule. It is paler-coloured than any specimen I have hitherto seen, the entire under-surface being dull lemon-yellow clouded with obscure green and brown, the upper parts much suffused with yellow, the tail-feathers clear lemon-yellow with black shafts and obscurely barred and toothed with brown, the primaries lemon-yellow and the secondaries greenish-yellow, with similar blackish-brown markings to those of the ordinary bird.

### 3. *Apteryx oweni*, Gould. (Grey Kiwi.)

This bird is the nearest approach to a perfect albino that I have yet met with among individuals of this species, there being only a tinge of yellowish-brown on the plumage of the upper surface. As already mentioned, I have recorded five albinos, all more or less stained with yellow or brown, and one partial albino, presenting only irregular patches of white. This specimen was received from Canterbury; so also were the other two birds described above.

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