

red-backed stage of plumage in this little-known species of Accipitrine.

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XXXVIII.—Notes on the Ornithology of Timor.

By ALFRED RUSSEL WALLACE.

IN pursuance of my plan of exploring the Zoology of the Malayan Archipelago, I have just completed a three-and-a-half months' residence at Delli, in the eastern part of the island of Timor, and have devoted myself principally to the Birds, every other class of animals being very poorly represented in this barren island.

Owing to ill-health, the wet season, and a rebellion of the native tribes, I was unable to extend my excursions far from the town of Delli. I resided, however, in one of the most fertile valleys, about two miles from the town, and spent two weeks on the mountains at an elevation of 2000 feet. I was accompanied on this excursion by Mr. Geach, a mining engineer, who has been engaged here for more than two years in search of minerals, during which time he has traversed the island in several places from sea to sea, and who is altogether better acquainted than any person living with the eastern half of Timor.

From this gentleman I obtained much information as to the character of the country, which seems to be very uniform, and not likely to be more productive in any other parts than in those that I have explored.

Timor seems to consist entirely of a chain of mountains, rising in the central range to 5000 and 6000 feet, and near either coast to about 3000. In only two or three places in the island are there any level plains, the rest being a succession of mountainous ridges and precipitous ravines. Nowhere in the island are there any forests comparable with those of the other parts of the Archipelago, all the lower hills being covered with an open growth of more or less scrubby *Eucalypti*, and anything like a lofty or luxuriant vegetation being confined to those places in the ravines or on the mountain spurs where a little rich soil has been accumulated. At a height of above 4000 feet even this vegetation disappears, and a scanty herbage of coarse grasses alone covers the higher ridges. Fruit-bearing trees are comparatively

scarce, and in the dry season extensive tracts of country are destitute of water, circumstances not likely to be favourable to bird-life.

Notwithstanding these disadvantages, however, I have obtained upwards of a hundred species of birds, about two-thirds or perhaps three-fourths of which number are altogether peculiar to the island of Timor, although closely allied to those of the surrounding countries. Australian forms are, as might be expected, the most numerous, and it is from that country that Timor has evidently derived the greater portion of its birds. Even where the genus is widely distributed we can often see that the particular species has been derived from Australia, as *Artamus perspicillatus* and *Aprosmictus vulneratus*, which are slight modifications of Australian species; while others, as *Amadina castanotis*, have remained altogether unchanged. On the other hand, the resemblance to the Moluccas is very slight. *Lorius*, *Eos*, and all the characteristic forms of New Guinea, are quite wanting; and there are only three birds that seem to have been derived from the Moluccan or Papuan faunas—viz. *Geoffroius jukesii*, *Ptilonopus flavicollis*, and *Ianthaenas metallica*. The relation is equally slight to Celebes, and is shown only by the *Turacæna modesta*, closely allied to the *T. manadensis*, Q. & G., of Celebes, and the *Ptilonopus cinctus*, forming, with the *P. gularis* of Celebes, the subgenus *Leucotreron*, Bp. I very much regret not having obtained the other species of this interesting group, which my friend Mr. Geach assures me are found in the interior of the island. In particular he mentioned a species resembling the *P. cinctus*, but in which the white forms a ring round the neck, and his opinion was that there existed in Timor three or four species of the same group having the colours differently distributed.

Besides the birds already mentioned, and which are all more or less characteristic of the Australian region, Timor contains an important Indian element, consisting of Javan species or their representatives. The genera *Lanius*, *Cyornis*, *Treron*, *Gallus*, and *Estrellda* occur here, but are not found in any part of the Moluccas, and only one or two of them in Celebes. About thirty species thus appear to have been derived from Java, which,

though 600 miles distant from Timor, is connected with it by a chain of islands; and between these more than twenty miles of sea nowhere intervenes, so that the passage across might have been easily effected by the progenitors of these birds, which are all capable of greater powers of flight than the circumstances would require.

The absence of *Megapodius* from Timor—a fact already noticed by the Dutch naturalists, and which all my inquiries tend to confirm—is a very singular one, because the genus exists in every other island of the Australian region, and even in the little island of Semaó, at the west end of Timor. I can only conjecture that it may have been exterminated by the Tiger-cat, said to exist in the interior. Taking into consideration the absence of such characteristic Australian birds as *Dacelo*, *Malurus*, *Cracticus*, and *Casuarius*, together with the non-existence of a single Australian genus of Mammals, I cannot believe that Timor has ever been actually connected with Australia, though the sea which separates them has probably been much narrower than at present, as is indicated by the great Sahul bank, which now extends from the shores of Northern Australia to within twenty miles of the south coast of Timor.

We may therefore, I think, fairly look upon the fauna of Timor as almost entirely derived by immigration from the surrounding countries, and subsequently modified by the reciprocal action of the species on each other and by the influence of a new vegetation. In accordance with this view we find the external relations of the genera and species of which it is composed varying in degree with the varying distances of the surrounding lands, and the probability of the reception of immigrants from them.

The Dutch naturalists who explored the interior of the west part of Timor seem to have collected a great many birds, and some French expeditions have also visited it. It thus happens that most of the species are already known, though I suppose many of them are rare in collections. I have 10 species of Pigeons; and there is still *one*, mentioned in Bonaparte's 'Conceptus' as *Ptilonopus viridissimus*, which I have not met with. *Trichoglossus euteles* was very abundant on the flowers of the *Eucalypti*; a smaller red-capped species (*T. iris*?) also occurred;

but the beautiful *T. hæmatodus* seems rare, as I never saw a specimen, and with difficulty obtained two live ones in the town. I observed it in the island of Semaio two years ago, but could not obtain an example. There are said to be one or two more *Psittaci* in the island, but I could see nothing of them. I obtained 3 Ducks, 5 or 6 Herons and Egrets, and a fine *Himantopus* (perhaps the *H. leucocephalus* of Australia), and that is all worth mentioning. I was much disappointed in not finding the beautiful *Pitta irena*, but presume it inhabits the interior only.

I have long been of opinion that there is no foundation whatever for the very prevalent idea that tropical heat and light have some direct or specific effect in producing the brilliant colours that adorn birds, or insects, or flowers. Here, in Timor, the birds are remarkably dull in colour; and I think a fair average comparison will show that even chilly England possesses more beauty among the common birds that give the character to the ornithology of the country than this tropical island. Out of the 100 species of birds I have collected here at Delli, I only find four that are at all brilliant in colour—viz. *Cinnyris solaris*, *Chalco-phaps*, sp., *Estrelida*, sp., and *Ianthænas metallica*; and I think I am correct in saying, that in any part of England we could find in the same time a larger number of species more or less adorned with brilliant colours, and at least as many which might be called pretty or ornamental.

That the larger number by far of brilliant birds do exist in the tropics cannot be disputed; but that climatal or solar influence has anything to do with the fact there is not the slightest evidence, while there is much that contradicts the supposition. And first, why does this supposed influence never act on those families and genera which are equally abundant in the temperate and tropical regions? Why are not tropical Ducks and Accipitres, Larks, Crows, Warblers, Goat-suckers, and Finches, much more brilliant on the average than those of temperate and northern regions? Again, when stragglers from purely tropical families occur in the north and south, why are they not the dullest-coloured of their group? Instead of being so, they are fully up to the average of beauty. Our Kingfisher, Roller, and Bee-eater, the northern and southern Humming-birds, the *Psittaci* of Tempe-

rate Australia, are rather above than below the average brilliancy of their tropical allies.

We must remember that the tropical fauna almost always extends *beyond* the geographical tropic, and thus comprehends the largest part of the earth habitable all the year by birds. Moreover it is one mass, while the temperate regions are divided; and most important of all, owing to the perennial presence of fruits and insects, a far greater number and variety of birds can exist there than in the colder parts of the earth. It follows, therefore, that if the proportion of bright- to obscure-coloured birds is the same everywhere, yet the tropics must produce the largest actual number, and it has yet to be shown that this proportion is greater in the tropics. Such extensive tropical families as the *Trochilidæ*, *Trogonidæ*, *Cotingidæ*, and *Tanagridæ*, consisting almost entirely of gay-coloured birds, will immediately occur to every one; but on the other side may be set the *Todidæ*, Bp., *Thamnophilidæ*, *Anabatidæ*, *Dendrocolaptidæ*, *Capitonidæ*, and others equally tropical and as remarkable for their generally obscure coloration.

Here the amount of colour would almost seem to be in inverse proportion to the amount of solar light; for while no island has more clear sky and bright sunshine than Timor, its birds are far less brilliant than those which dwell amid the gloomy forests and ever-cloudy sky of the Moluccas and New Guinea.

On the whole, therefore, I cannot but believe that a careful investigation of the facts will show that there exists no immediate connexion between tropical heat and light and brilliancy of colour in any department of nature; and I am sure that on no subject does a greater amount of misconception prevail than on the relative beauty of nature and display of colour in temperate and tropical regions.

Delli, Timor, April 20th, 1861.

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XXXIX.—*A List of Species to be added to the Ornithology of Central America.* By OSBERT SALVIN, M.A., F.Z.S.

THE following list of birds is derived partly from a collection brought over by Mr. Robert Owen from Vera Paz, partly from