

make the owners of chickens very wrathful, owing to their depredations in the poultry-run.

It may not, by the way, be out of place to devote a few lines to the native breed of domestic fowls. The male is a very pretty bird, very like a game-cock, with a long pendant on either side of the tail. A pure white variety is also bred, and is highly prized by the Papuans. Query—Where did these birds originally come from? All explanations are vague on the matter.

In the islands and several parts of the mainland Curlews, Golden Plovers, and Herons, both black and white, are free agents, and at as high an altitude as 6,000 feet on the main range the rare Orange-crested Bower-Bird (*Amblyornis subalaris*) has its playground.

Respecting the "Death-Bird" of New Guinea, too much credence should not be indulged in until confirmed. Native myths are numerous and extraordinary, even precise in details. The moon—we are impressively told by some Papuans—was originally found in the soil by one of their number, who, in attempting to carry the luminary to his village barely escaped with his life through not relinquishing the prize as it ascended heavenwards!

The School in Wild Life.

BY FRANK M. LITTLER, F.E.S., LAUNCESTON.

THE author of a paper under the above heading in *Chambers's Journal* for May, speaking of the song of both wild and cage birds, evidently does not believe that birds inherit their vocal powers from their parents, but that each and every young bird has to "learn" how to whistle or sing its range of notes. He states that breeders of cage birds often put the eggs of the Rose-Linnet into the nest of the Canary, who will hatch them out. The young Linnets do not attempt their own song, but imitate as closely as possible that of the Canary. Personally I am of opinion that many birds *do* inherit their vocal powers from their parents, and would place birds on a higher plane of intelligence than of mere automatons. Those who have kept "Jackasses" and "Magpies" must have noticed that when they are old enough they commence practising their native notes so long as they have not had "Sweet, pretty boy," &c., &c., whistled at them. In a short while they will, without ever once hearing another bird of their own species, whistle as well as any in their native state. Tame birds of the species mentioned are great imitators, and they will rather learn a "foreign" language than allow their native harmony to mature. The author of the paper under notice admits that young birds inherit the aptitude for the song of their parents, but thinks that this aptitude is equally strong in picking up the song of

any other species heard from its nest. But is he right? To transfer one of his examples from England to Australia, we get the following:—A nestful of young Jackasses with silent parents hear round them day after day the rich warbling notes of the Magpie. The young birds, as soon as they are old enough, commence practising, not their own notes, but those of the Magpie, and when they are fully fledged they will be Magpies in as far as their powers go.

What would happen if half a dozen or more species of song birds were to bring up their broods close to one another? Would the species with the loudest or most harmonious song teach the whole six broods its own song, to the exclusion of the other parents? I think not, but rather that each species would retain its own note. Suppose clutches of eggs of half a dozen species could be hatched and the young reared in an incubator, what results, as far as vocal capabilities, would we have? Each species would develop its own particular song, independent of its neighbour.

To pass on to another portion of the article, that which treats of nest-building. The author asserts that the young birds, aided by their natural sharpness, learn the art from their parents, and that while they are nestlings, they make mental notes of their cradle, inside and out. I quite reject the theory that birds are mere copyists and automatons. Birds do not "learn" how to make a nest, the gift being handed down from generation to generation. Nor do they blindly build whether environment be suitable or not. They display an intelligence oftentimes marvellous, and build nests by "instinct;" but it is their "intelligence" that tells them whether it would be safe or not to nest in a seemingly suitable situation. Birds are quick to employ new materials in the construction of their nests should they prove suitable. But how did they learn the suitability or otherwise of certain materials? How did Silver-eyes and Robins become acquainted with the suitability of cow and horse hair for their nests? Or how did other birds—several may be named—learn the use of string and wire?*

In conclusion, the author of the article deals with the evergreen, ever-mysterious subject of migration. Speaking of the habit many species of birds have of quitting the Arctic Circle on the approach of winter, and returning again in spring to nest, he says:—"There may have been a time, before the snow crept so far down, when they spent the whole year farther north, and being very much creatures of habit, they still return to the old

[* There is a subtle question as to heredity or instinct involved in Mr. Littler's notes. Some of the problems he propounds are not readily answered, and open up a field of study the width of which has not been more than half realized by the few Australasian observers who have ventured to treat it at all. The further one goes into such a problem the more involved he becomes, unless he be one of those fortunate individuals who, passing life out of doors, is not only exceptionally favoured as to matters of observation, but does not shrink from sacrificing a theory for truth.—H.K.]

home whenever the way opens. . . . What of the larger ranges—of birds which leave the edge of the eternal snows and do not stop till they sight the coast of Africa? For a solution the mind goes back to the Ice Age, when the hard conditions extended so far that a winter in Europe, except in the extreme south, was as cold as in the Arctic Circle now." He is of opinion that in no instance do young birds start without leaders; that it is often a question of luck whether they will reach their destination or perish on the way; and will not admit that the migratory instinct is inherent in the young of migratory species. This is a matter on which many ornithologists will disagree with him. To me it seems beyond doubt, so far as we can tell. If birds could speak, it is questionable if they would be able to say why they go south in the winter—and far south too, sometimes—and why they return north again to nest. They would simply answer that what their parents and great grandparents had done was good enough for them, and that they would expect their children and children's children to do the same. Much has been learnt and written on this fascinating question of migration, but still very much more requires to be known before we can say that we understand it.*

Bird Sanctuaries of New Zealand.

NEW ZEALAND has done two things thoroughly, as the following paper from *The Argus* of 23rd July, 1904, will show. One of these is to preserve those wingless birds so characteristic of the country, and which, because of their helplessness, would soon disappear as settlement increased; the other is to acclimatise the best game of other countries. Thus, in turning down Canadian moose in their mountains, they brought a Canadian forester to look after the young calves, and a Scotch game-keeper is now engaged attending to the Grouse. Resolution Island, in Dusky Sound, West Coast, discovered by Captain Cook, is named after one of the ships in which Cook made his first voyage. There is material for a charming little book on Nature in this official document, the last place where a Victorian, knowing something of the character of his own Government

[* Here again we are only on the verge of knowledge. The heredity of a migratory instinct, more particularly when one remembers that from extreme north to extreme south there was virtually a bridge of land, and that, according to some theories as to the origin of species, these began in north and passed stage by stage to south, possibly in search of food, or more possibly in search of favourable quarters for breeding. The latter theory would seem most feasible. But how, after all, account for the fact that birds desert comparatively warm and favourable regions in our south for such places as the steppes of Siberia. Most of those who do pass feed either on insects or the food which a sea-shore produces, and as tropical regions are especially favoured in this way, why should they be passed by? The theory as to following the line of an old sea-shore does not seem to fit in with every circumstance in the migration of those birds which are usually known as "Wanderers."—H. K.]