

then to give its staccato call—"Pit-pit;" the Fantail performing all manner of aërial evolutions over the surface of the water while procuring its insect lunch; the long-legged Stilt trying by means of very realistic acting to lure us away from its nest or its young ones, secreted among the stones at the water's edge; the Duck, embodiment of maternal anxiety, leading her brood across some dark, willow-fringed pool—surely these things cannot fail to attract the attention and help to make for the day's pleasure. And even the old Shag, though perhaps possessed of no great ethereal beauty, is yet a very interesting feature of the landscape as he sits on some log or bough, with wings outspread, drying in the sun, or arises from the water at our approach with his body inclined at an angle, his whole appearance being much that of some fantastic creation on a Japanese screen. And year by year our bird life is decreasing—decreasing so rapidly, indeed, that before long much of it will have entirely disappeared, so that it behoves us to protect what of it we can while we may.

Observations on the Cormorants along the Coast and in the Inland Waters of Victoria.

BY C. F. COLE.

PART I.—INLAND WATERS.

SOME 12 years ago, while living in the north-east of this State, I had the opportunity of studying the habits of two species of Cormorants—viz., the Little Cormorant (*Phalacrocorax melanoleucus*, Vieill.) and Little Black Cormorant (*P. sulcirostris*, Brandt); also a most important thing now under discussion amongst naturalists and others—their diet. I, like most people, always thought that these birds lived solely upon a fish diet; but of this later on. These birds, when fishing, have to rely solely upon judgment and sight. For instance, if the fish are at a depth beyond what the impetus of the downward flight or dive makes these birds capable of diving to, they certainly escape them. Being heavy birds, they are adapted for this both in build and feather. Closely watching these birds while fishing, I always found that they seem to take the fish unawares, or else they wait for a shoal to come along, and then, diving in amongst them, nearly always succeed in catching one. If successful they rise to the surface immediately, but if not they swim some distance under water, most likely following their quarry, which nearly always escapes. Why? Because fish can swim faster than a Cormorant. I have seen one of these birds rise to the surface holding a fish close to the tail, and, owing to the fins, unable to swallow it; so, tossing the fish up into the

air, it dexterously caught it, while descending, by the head, and swallowed it with ease. My first experience of these birds eating other than a fish diet was brought about by gold-dredging near Bright, upon the Ovens River and tributaries. This dredging business caused the river water to become very muddy, but when the dredging stopped the river use to clear up in about 48 hours. While the water was dirty no Cormorants would be seen near the river, but upon all the lagoons in the vicinity. Some of the lagoons contained catfish, but others contained no fish life whatever, becoming almost dry in the summer. The house that I occupied in this locality was situated between two lagoons that contained no fish life, but were infested with yabbies (*Crustacea*), and all day long these two species of birds were to be seen perched upon a stump or log overlooking the water, and every now and then one, diving and bringing one of these *Crustacea* to the surface, would fly to a log or some convenient spot, and, putting its foot upon its prey, would pull off the tail end, and, swallowing it, resume its fishing in another spot. Upon examining these yabbies I found the head portion and the legs picked clean of all fleshy substance, this being the work of the White-fronted Heron (*Notophox novæ-hollandiæ*, Lath.) I have seen one of these birds pick a fish so clean of flesh that the skeleton would have made an osteologist envious. One thing I noticed about these Cormorants is that they nearly always fish in the shallower waters, the weeds, rushes, &c., near the margin of the bank harbouring *Crustacea*.

Along the edge of these weeds in the river shoals of small perch of different species come to feed, and the Cormorant fishing overhead suddenly dives in amongst them. When fish are scarce these birds swim along under the water and make a good meal off the well-known fresh-water shrimps that are to be obtained in quantity along the weedy banks of the Ovens River. One evening, while fishing in the Ovens River, I shot a Cormorant on its way to roost, and upon dissecting it found its stomach to contain nothing else but these shrimps, which came in very handy for fishing. An old dodge, upon catching a cod, was to dissect its stomach, if short of bait. I have seen one of these birds upon the Goulburn River dive five times and every time bring up a fish. These two species of Cormorants used to build in colonies, the trees standing in a lagoon or swamp, that always contained water, being selected for their nests. So much for our inland water Cormorants.

PART II.—OBSERVATIONS ALONG THE COAST OF WESTERN PORT BAY.

Coming now to the coast of the above bay, I find that my two feathered friends, *P. melanoleucus* and *P. sulcirostris*, are still

shallow fishers, although at times seen some distance from the shore. But this is not so much a matter of necessity in the search for food as for protection. All those acquainted with this bay know of its vast mud-flats, and at what rate the rising tide flows over them. At Tooradin a flood tide will rise 12 feet, and at low tide some miles of mud-flats are left free from water. Along the shore are several small creeks that contain a lot of Swan-grass, amongst which shrimps are to be caught in scores, while with the flowing tide shoals of fish of all varieties come to feed amongst the grass. And now the Cormorants are in their glory, the fish, being borne along with the incoming tide, falling an easy prey to these birds, who, quietly resting upon the water, find no trouble in satisfying their greed for fish. These birds are remarkably voracious, and have a very quick digestion. Their appetite is for ever craving and never satisfied. No doubt the reason for this is to a great extent caused by the vast number of thread-like worms that their stomachs and intestines contain. The worst birds that I know of for these worms are the Penguins. Upon dissecting many of these Cormorants I find that at low tide their stomachs contain nothing but shrimps, and at high tide fish. While fishing at Tooradin at Easter time I saw a Cormorant (*Phalacrocorax gouldi*) dive and bring up a bream fully half a pound in weight, and it was surprising to see the way this bird struggled to get it down. The bird still went on fishing. Anyone, upon examining these birds, will find that the nail of the second long toe upon each foot is toothed or notched like a saw, no doubt being used to assist in holding their fishy prey. This serration, as far as my knowledge goes, does not exist upon their mandibles or hook. But the Darter (*Plotus novæ-hollandiæ*, Gould), belonging to the sub-family, has this serration upon the edges of the upper and lower mandible. This bird, commonly called the Snake-Bird from the snake-like appearance and motion in using its long neck, is, in my opinion, the most powerful diver and swimmer of all the Cormorants. Upon approaching this bird while on the water, it will submerge itself, only leaving its head above, and, swimming with great rapidity, will easily outwit those not accustomed to its habits, they naturally thinking that the bird has dived under and will make its reappearance at no great distance from where first seen. Many others of our sea-birds make greater or as much havoc amongst the finny tribe, the Silver Gull (*Larus novæ-hollandiæ*) being a great nuisance to the fishermen, diving down and taking the fish out of their nets. The Gannet (*Sula serrator*, Gray) is also an expert at the game.

In conclusion, I will leave readers to form their own opinions as to whether these birds justly deserved the harsh treatment meted out to them last nesting season, when scores were shot and their young left to die of starvation.