

tions projecting beyond the membrane. At the commencement of the dorsal on the top of the forehead was a stout curved spine or horn pointing forwards. Caudal fin small, but quite distinct. Ventrals were not noticed. Pectorals were not pointing upwards; they were described as being similar in shape to those of the Tamure. Anal fin placed very far back, in front of anal orifice; it was described as covering same when bent back. Gill-openings wide; eyes very large; mouth with short blunt teeth according to Mr. Saxton, without teeth according to the other describers, and was noted as being very small and tubular, "as if the fish lived by suction." In this Mr. Saxton's description differed from the others, he stating the mouth, though small, was *not* prominent, rather the reverse. This may be explained by its having been made to protrude after his seeing it. He was quite certain as to the existence of the blunt teeth; and, with regard to the dorsal spine, he estimates its height as much less than the others.

Skin very smooth and silky; scaleless. Colour purple-grey on back and upper sides, in places running down on to sides, making whitish patches. Rest of sides rose-coloured; belly golden. Flesh was described as very solid and white.

Length, about 4ft. 6in. to 4ft. 8in. Extreme depth at head, 1ft.; minimum depth at root of tail, about $1\frac{1}{2}$ in.; extreme thickness, about $1\frac{3}{4}$ in.

I append an outline sketch (Plate XVI.) compiled from those supplied me; also one of *Lophotes siculus*, of Swainson, enlarged from one as figured by him, which was copied from a water-colour drawing prepared for the King of Sicily in 1815.*

ART. XVIII.—Notes on certain Species of New Zealand Ducks.

By W. W. SMITH, F.E.S.

[Read before the Philosophical Institute of Canterbury, 1st July, 1896.]

Anas superciliosa, Gm. (Grey Duck.)

At the present time, when so much interest is evinced by ornithologists in the abnormal coloration of birds, it may be opportune to offer to this Institute some notes upon varied forms of the grey duck. Although the species is comparatively free from aberrations in plumage, several specimens exhibiting partial albinism and other forms of aberrant colour-

* Since writing, I have seen vol. xxvi. of the Transactions, where I find, at p. 223, that a *Lophotes* was found in Otago (December, 1893). It seems to have been about the same length as the one now referred to.

ing have been collected and recorded by New Zealand ornithologists. The only papers on the subject that I am acquainted with are by Sir Walter Buller,* Mr. T. W. Kirk,† and myself.‡ Sir Walter has recently described§ several varieties, together with hybrids between the grey and the imported domestic duck. I have now to record several more varied forms which have for several years frequented the lakes in the public Domain at Ashburton. When the shooting-season opens in April large flocks of grey and other species of native ducks assemble on the lakes in the Domain and remain during the winter. As there is not sufficient food for them in the Domain, they repair in the evening to the river-bed and adjacent swamps to feed during the night, and return in the early morning to spend the day unmolested under the willow-trees growing on the islands in the lakes. For several years I have observed their arrival in April, and have noted the occurrence of any individuals exhibiting colours diverging from the normal type. In July, 1892, a fine individual inhabited the lower lake, having its head, throat, and pectus pale-buff. The scapulars were beautifully mottled with white feathers, which made the bird conspicuous among the large flock of ducks resting on the lake. During the winter of 1894 a partial albino inhabited the Domain waters. The back, breast, and scapular region were of a faded white, while portions of the neck were lightly studded with pale-white feathers. The bird remained very timid throughout the winter, and never came to the banks of the lake with the others to feed on the oats or wheat we scattered there for them every morning. In the same year we observed a bird with the whole plumage tending to melanism. When swimming leisurely about on the lake, or when resting on the bank in the sunshine, the plumage appeared to be of a lustrous black. I have frequently watched the bird preening its feathers, and while thus engaged the under-parts appeared to be much paler than in normally-coloured birds. Last winter a fine individual with the primary wing-feathers pure white remained on the lakes from April until the 8th June, when they became frozen over and compelled many of the birds to seek food and shelter elsewhere. At the present time a remarkably-coloured form inhabits the lower lake—the head, breast, back, and tail pale-white; other parts normally coloured. The bird is extremely timid and watchful, and readily takes wing at the slightest disturbance. It is well known to ornithologists that albinos and white varieties, and other conspicuously-aberrant forms, are more wary than

* *Trans. N.Z. Inst.*, vol. vi.

† *Trans. N.Z. Inst.*, vol. xiii., p. 235.

‡ *The Field*, June, 1891.

§ "*Birds of New Zealand*," 2nd edition, p. 251.

typically-coloured birds. They appear instinctively to know that their peculiar and striking colours render them more conspicuous to their enemies. Albinism unquestionably causes greater timidity and watchfulness in many species of birds so affected.

Being anxious to glean as many facts as possible on this interesting question, I have for some time made inquiries from several gentlemen who enjoy daily opportunities of observing flocks of ducks in a semi-wild state. From Mr. E. Herring, of Alford House, Springburn, I have received some valuable notes, which I avail myself of the privilege of giving *in extenso*. He says:—

“ We protect the two hundred to three hundred grey ducks which visit our lake. I have not seen a true case of albinism, but several partial that are *not* crosses from the tame. Although I have seen several crosses at Mr. Grigg’s, I have not observed one here.

“ The ducks arrive here at break of day and leave as darkness comes on, flying generally in flocks of ten to twenty to their relative feeding-grounds east and west. During the day they rest on the banks of the lake, on stumps of trees just out of water, and occasionally on a fence, standing on the end of a stake on which a barbed wire is suspended. They take but little notice of ourselves until a different dress is worn. They apparently rest their evidence on colour. They will readily eat grain, and are fond of acorns, tramping across the lawn to the oak-trees. Except about a dozen which remain throughout the summer, the others do not come here from breeding-season to the commencement of the shooting-season.

“ This year they arrived in large flocks on a Sunday, about a week before the shooting-season *legally* opened. That was not from instinct, but a measure of safety.

“ The regular habitues of the place breed here on the islands, but never rear their young. Swans, tame ducks, and rats destroy them.”

It is generally believed that the grey duck is untamable, and Sir Walter Buller states* that all attempts to tame them have failed. We have three dozen of these birds pinioned that were reared in the Domain during the last three seasons which are perfectly tame. They follow visitors along the walks for food, and while being fed several will lie on the walks and permit themselves to be stroked with the hand on the back. Like the paradise-duck, they are undoubtedly easily tamable.

In July the wild flock become more restless and spend more time on the water. The males chase each other, and

* *l.c.*, p. 253.

fight and dive vigorously. By the middle of August they have generally all paired and disappeared to the swamps and river-banks of the plains to nest for the season. In the nesting-seasons of 1894–95 the pinioned grey ducks in the Domain reared fourteen broods, averaging six in a brood. The young are timid and wary for some time, but soon become quiet, and come skipping rapidly over the water when called to be fed.

The severe winter of last year proved disastrous to the native aquatic birds. As a proof of its severity, I may mention that many of the birds that came to the Domain waters were so weak from hunger as to be scarcely able to fly. We captured over two dozen, all in a benumbed, emaciated, and starving condition. After being well fed for several weeks they recovered, and, excepting a few which we pinioned, were again liberated. The severity of the winter also caused a much later and more prolonged breeding-season. I have one record of a brood of newly-hatched grey ducks on the 20th March, which is the latest date on which I have observed newly-hatched birds.

Dendrocygna eytoni, Gray. (Whistling Duck.)

Sir W. Buller, in the second edition of his "Birds," mentions only "two recorded instances of the recent occurrence of this species in New Zealand."* Three individuals—two males and one female—of this rare and beautiful duck have inhabited the lakes in the Ashburton Domain for three successive winters. During the earlier part of last winter, before the lakes became frozen, they fed freely with the grey and other ducks on oats and wheat scattered along the water's edge. We fed the whole flock regularly every morning after daybreak, all coming freely to feed after being hailed with a whistle. Owing to the mildness of the present winter, and the greater abundance of food obtainable everywhere, these birds are not so tame as they were last year. They are powerful fliers, while the peculiar shrill whistling sound they produce when flying distinguishes their flight from that of other ducks. These birds have hitherto left the Domain in August of each year, and returned the following April.

Rhyncaspis variegata, Finsch. (Shoveller, or Spoonbill Duck.)

Two pairs of this beautiful duck frequent the Domain lakes every winter, and consort amicably with the large flock of grey and other ducks inhabiting them. They are very tame, and are much attached to three domestic ducks which live on the lakes. For three seasons they have been among the

* *l.c.*, p. 269.

first to leave the Domain and the last to return. They are expert divers, and readily dive when molested by other ducks.

Fuligula novæ-zealandiæ, Steph. (New Zealand Scaup).

A few pairs of this sociable little duck inhabit the lakes here every winter. They associate with the mallards and domestic ducks, and when resting leisurely on the water's edge permit visitors to approach them very closely. They are gentle and slow in their habits, and at all times are beautiful objects when seen consorting peacefully with the other ducks inhabiting the lakes.

ART. XIX.—On *Virgularia gracillima* in *Lyttelton Harbour*.

By ARTHUR DENDY, D.Sc., F.L.S., Professor of Biology in the Canterbury College, University of New Zealand.

[Read before the Philosophical Institute of Canterbury, 6th May, 1896.]

ON 22nd March, 1896, when dredging in the Lyttelton Harbour from the yacht of my colleague Professor Scott, we obtained about a dozen specimens of a small *Virgularia* from a shallow bottom of very soft tenacious mud. The species proved on examination to be Koelliker's *Virgularia gracillima*,* of which a single fragment only was obtained by the "Challenger" in Queen Charlotte Sound, and which has not since been recorded.

As this is an exceptionally interesting species, and so far very imperfectly known, it may be desirable to quote Koelliker's original description before adding my own supplementary notes. The description runs as follows:—

"*Virgularia gracillima*, n. sp. (pl. iii., fig. 11).

"A fragment of a *Virgularia* may be so named provisionally, as it seems to differ from all known species.

"Pinnules very small, about 0·85mm. high, and 1·1mm. distant from each other.

"Polyps four on each pinnule, without well-marked cells.

"Rhachis small, with a breadth of 0·48 to 0·51mm. in the middle part, and of 0·62 in the region of the undeveloped pinnules.

"Zooids—(?).

"Axis round, yellow, 0·42mm., large in the lowest part of

* "Challenger: *Pennatulida*," p. 10, pl. iii., fig. 11.