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Three New Species of the Opisthobranch Family Aglajidae from New Zealand

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Abstract

A NEW species of the genus Chelidonura is described from New Zealand. Two new species of the genus *Aglaja* are also described. The latter two species are compared with the only species recorded from New Zealand, *Aglaja cylindrica* Cheeseman, 1881.

INTRODUCTION

ONLY one species of *Aglaja* has been described from New Zealand. Recent collecting from northern New Zealand has resulted in two new species of this genus being found. A new species of the Indopacific genus *Chelidonura* has also been found. This is the first recorded occurrence of the genus in New Zealand. Descriptions of them are now presented.

When describing the shell of these animals a terminology has been used that does not necessarily hold good for the shells of all gastropods. Because of the degenerate nature of the shell, confusion can and has arisen in their description. The shell of the genus *Aglaja* has been described as " generally composed of a minute spire with a single solute whorl " (Suter, 1913). No doubt this minute spire is what is here called the columellar region. In Suter's description of *Aglaja cylindrica* he mentions a small spoon-shaped projection. This is probably what I have called the spine.

Genus CHELIDONURA A. Adams 1850

Synonym *Hirundella* Gray 1850

This genus is distinguished from other genera of the Family Aglajidae by the peculiar sense organs, consisting of elongate spines, borne on small humps on either side of the mouth, and the long slender gill (Thiele, 1931). Type species: *C. hirundinina* (Q. & G., 1832).

Chelidonura aureopunctata n.sp. (Fig. 1 A, B, C, 2 A, B, C).

Body wide and elongate. Posterior flap of the head-shield raised into a peak in the midline. Posterior notum forming a pair of flaps that fold under and join their respective sides of the shell, " cylinder " thus being formed at the posterior end of the animal with the shell

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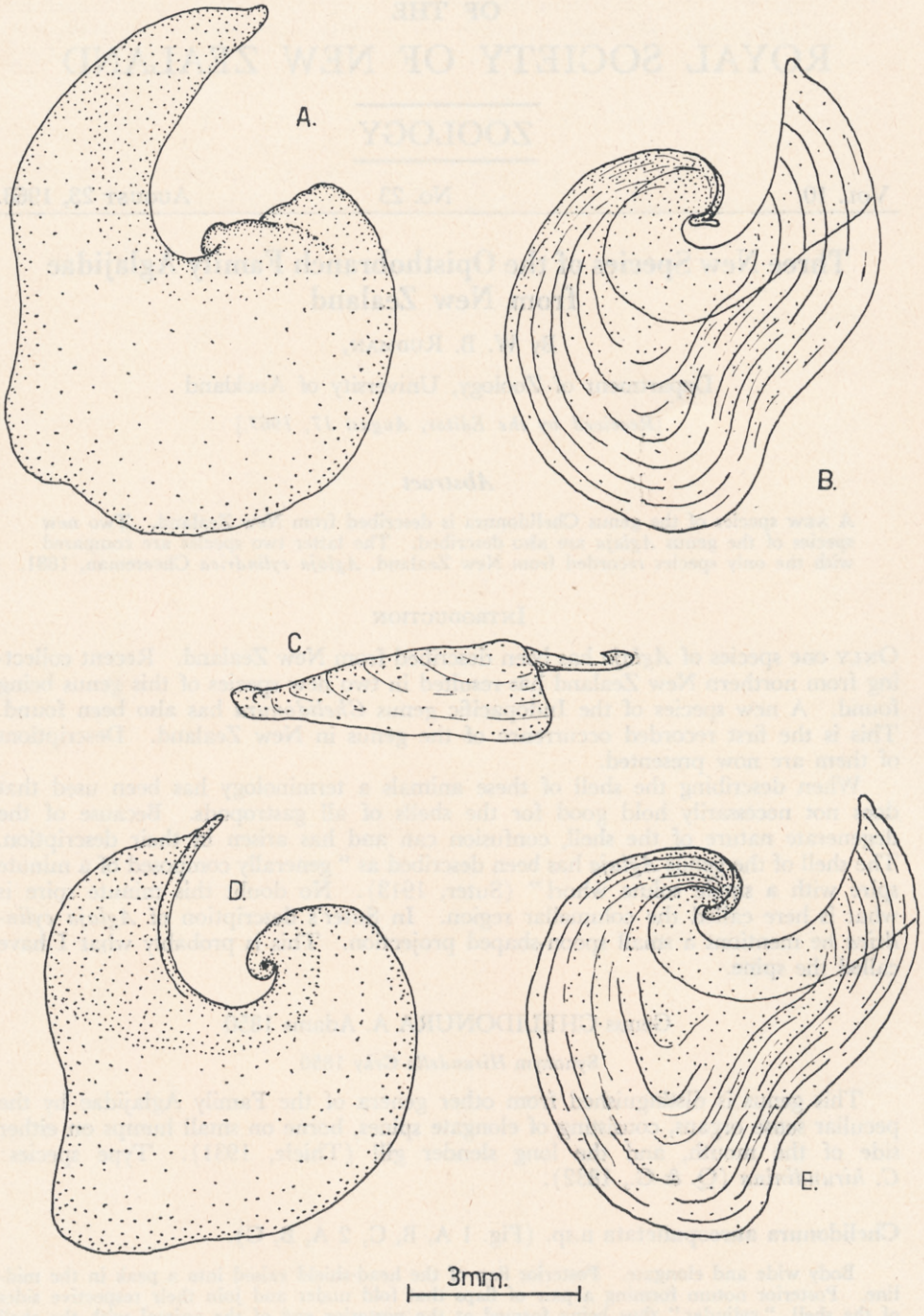

FIG. 1.—A, B, C. *Chelidonura aureopunctata* n.sp. Shell: A, dorsal view; B, ventral view; C, lateral view. D, E, *Aglaja virgo* n.sp. Shell: D, dorsal view; E, ventral view.

forming the floor of this. Parapodia joined below the cylinder. Gill normally sits in this region between the parapodia and the floor of the "cylinder". At irregular intervals, however, the gill is projected out into the previously described "cylinder" (Fig. 2 B). When the animal is buried in the sand the "cylinder" forms a sand-free water-filled cavity. Thus the positioning of the gill, like this, could be more efficient for oxygen exchange.

Colour. Dark brown to purple, forming a reticulate pattern, with intervening opaque and colourless spaces containing a number of small yellow pigment spots. Head shield with small, numerous opaque spaces. Front of the shield often bordered with yellow markings which continue up lateral edges. Median peak at posterior end of head shield often with a prominent yellow spot. Opaque spaces larger on the dorsal half of the body, behind the head shield where the brown pigment forms a thin network. Cylindrical folds at the posterior end of the body are often bordered with a broken yellow line, as also on the border of the parapodia. On ventral surface and parapodia, the opaque spots are smaller and less numerous, the brown pigment thus forming a thick network. Markings, however, inconstant and variable. The collecting records following the description include short colour notes to indicate the variation.

The Alimentary Canal. Beginning with a large buccal bulb opening into a distended oesophagus which forms a large crop. Paired salivary glands opening into the buccal bulb which has neither jaws nor radula. Gizzard wanting. Oesophagus opening into a small stomach from which two ducts lead to the digestive gland. Intestine after leaving the stomach, forming a double loop through the digestive gland and opening into the mantle cavity. This is the normal pattern found in the Family Aglajidae (Guiart, 1901; Pruvot-Fol, 1954; and personal observations).

Nervous System. Following the normal plan of the family (Guiart, 1901, etc.), but in this species buccal ganglia placed ventrally, halfway along the buccal bulb (Fig. 2 A). (In *Chelidonura evelinae* Marcus, 1955, the buccal ganglia occur at the back of the buccal bulb.) On either side of the mouth, a small protuberance bearing short retractile spines with nervous connections from the cerebral ganglia; probably sensory in function.

Reproductive System. Also typical of the family, consisting of an eversible penis to right of mouth, served by a ciliated external groove running from the genital opening two-thirds of the way down right side of body. Genital opening leading into chamber from which four ducts arise: one duct leading by a thin convoluted tube up right side of digestive gland to white bulb, the bursa copulatrix; another duct leading beneath the digestive gland to the ovotestis. This common genital duct forming a thin tube when animal not in a reproductive phase, but greatly increasing in size when in use. Ovotestis, usually creamy yellow, lying over the digestive gland. Two other ducts lead to the mucous gland and the albumen gland.

Shell. Calcareous but thin, and of one whorl, with outer lip produced into a long spine. Columellar region only slightly curved, ending in a reflexed process. Dimensions of shell of 2cm animal were 9mm × 6mm (Fig. 1 A). Maximum size of animal: 40mm × 18mm.

Assigning this animal to a genus presents some difficulties. Although it possesses sensory bristles on either side of the mouth, in external form it is reminiscent of the genus *Aglaja*. In most described species of the genus *Chelidonura* the sensory bristles are long and extend beyond the anterior edge of the notum. Two good examples are *C. africana* Pruvot-Fol, 1953, and *C. tsurugensis* Baba and Abe, 1959. Also, as the generic name implies, *Chelidonura* usually has a pair of "tails" of unequal length formed by the extension of the posterior notum. These are well developed in *C. velutina* Bergh, 1905, and *C. evelinae* Marcus, 1955.

Chelidonura aureopunctata possesses bristles that do not extend beyond the anterior notum and also the posterior notum does not extend as "tails". There are, however, some examples of the genus *Aglaja* having unequal "tails", for example, *A. membranaceum* Meckel, 1809 (Vayssiere, 1885) and *A. tricolorata* Renier, 1804 (Pruvot-Fol, 1954). Thus the sensory bristles alone must be considered the most important generic characteristic.

An animal described as *Aglaja taronga* Allan, 1933, is similar in colour to this species. Burn has described "a large pad of sensorial cilia on each side of the mouth" (Burn, 1966) on this animal but places it in the genus *Doridium*, which is a synonym of *Aglaja*. This species should be placed in the genus *Chelidonura* on this character. *Chelidonura taronga*, however, differs from *C. aureopunctata* in the

shape of the shell and the fact that Burn's specimen possessed unequal "tails" extending from the posterior dorsum. Allan also mentioned a "bluish bloom" on *C. taronga,* which was never seen in *C. aureopunctata.*

Type

The holotype is deposited in the Auckland War Memorial Museum.

Locality

The holotype was collected on sand-flats, Paua Bay, Parengarenga Harbour, December, 1966, coll. Mr K. Hipkins.

Collecting Records

Wattle Bay, Manukau Harbour, March, 1965, coll. Miss D. Brambley. Animal with numerous small colourless spots, bright yellow markings on edges of head shield, parapodia and "cylinders". Rangitoto Channel, Waitemata Harbour, dredged, October, 1967, coll. W. B. R. This animal had large white or opaque spots and bright yellow markings. Ngataringa Bay, Waitemata Harbour, coll. Dr M. C. Miller. This animal had large white or colourless spots and yellow markings on edges. (The author has also collected this species from Ngataringa Bay, July, August, September, 1967.) Wade River mouth (east coast, north of Auckland), July, 1965, coll. W. B. R. Animal with small colourless spots, but no yellow markings.

The specific name *aureopunctata* refers to the animal's colour.

Genus Aglaja *Renier* (1804) 1807

Synonym *Doridium* Meckel 1809

Members of the family Aglajidae without either rhinophores or sensory bristles. Type species: *Aglaja tricolorata,* Renier 1807.

Aglaja virgo n.sp. (Fig. 1 D, E).

Body wide and elongate. Mantle cavity as in *C. aureopunctata* n.sp. Gill large. Animal completely white.

Shell thin and calcareous, outer lip drawn out into spine. Columella curved. Shell differing from *C. aureopunctata* in having shorter spine and more curved columellar region. Distance between columella and spine twice that of *C. aureopunctata.* Shell from animal of 20mm measured 8.5mm × 6mm.

Anatomy of this species similar to that of other members of genus (Guiart, 1901, etc.). Buccal ganglia behind buccal bulb as in *A. cylindrica* (personal observations).

Type

The holotype is deposited in the Dominion Museum.

Locality

The type was dredged off the seaward side of the Cavalli Is. in 49 fathoms. Coll. Mr W. Ponder. (Unfortunately, a number of animals, most probably of this species, were found but not preserved.)

The specific name *virgo* refers to the animal's pure white colour.

Aglaja lorrainae n.sp. (Fig. 2 D, E, F).

Animal completely white. Anatomy unknown as no specimens available for dissection. Shell is solid and strongly calcified, having one and a half whorls, thus appearing more bulloid than that of any other described New Zealand species. Spine on lip not greatly developed. Shell can reach 8.5mm × 6mm.

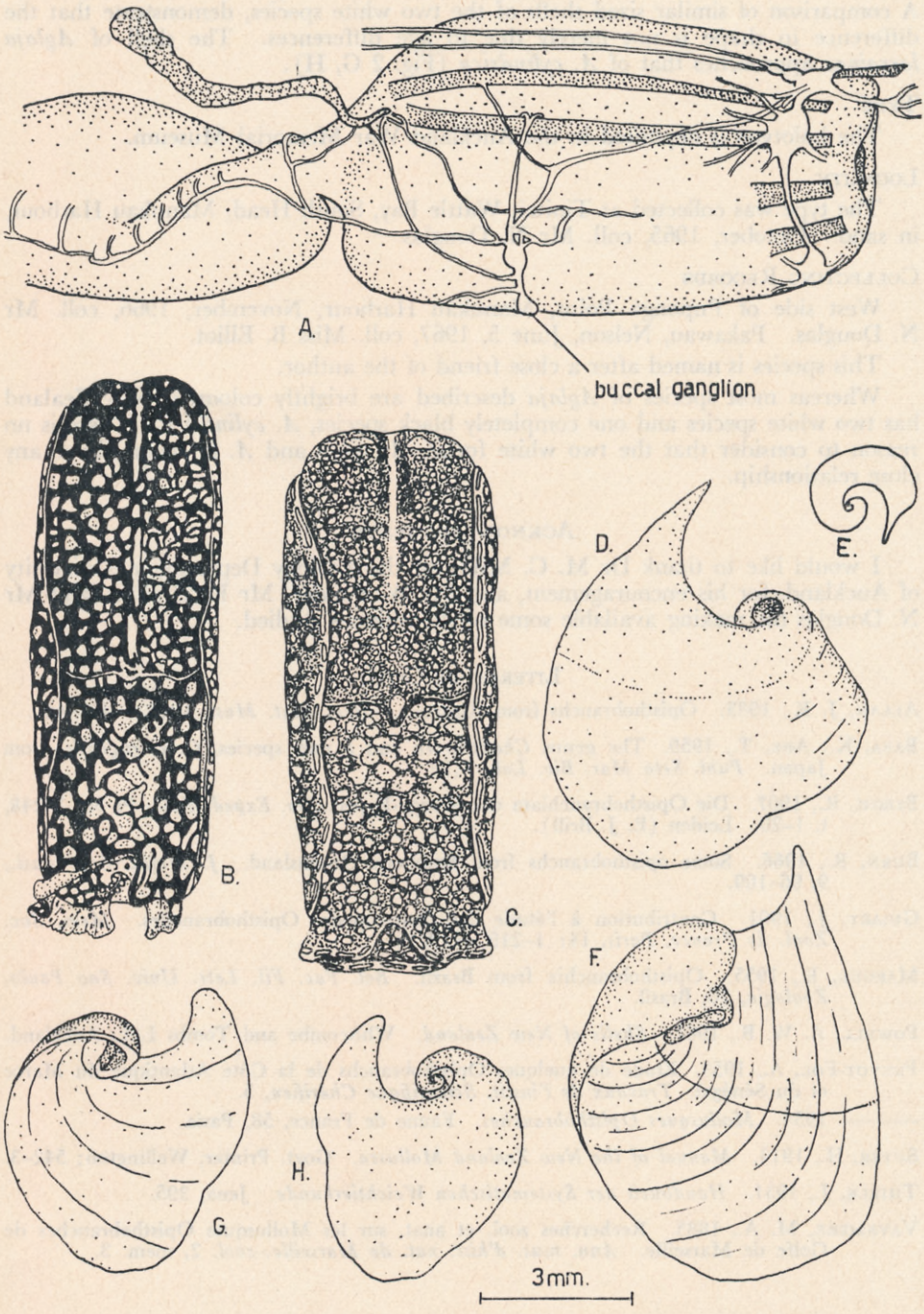

FIG. 2.—A, B, C. *Chelidonura aureopunctata* n.sp. A, buccal bulb, showing buccal ganglia. B, one colour form with gill partly extended. C, colour form from Ngataringa Bay. D, E, F, *Aglaja lorrainae* n.sp. Shell: D, dorsal view, E, lateral view. F, ventral view. G, H, *Aglaja cylindrica* Cheeseman. Shell: G, ventral view. H, dorsal view.

The shape of the shell immediately distinguishes this species from *A. virgo* n.sp. A comparison of similar sized shells of the two white species, demonstrate that the difference in shape is not merely due to age differences. The shell of *Aglaja lorrainae* approaches that of *A. cylindrica* (Fig. 2 G, H).

Type

The holotype is deposited in the Auckland War Memorial Museum.

Locality

The type was collected at Tipitai, Wattle Bay, South Head, Manukau Harbour, in sand. October, 1965, coll. Mr N. Douglas.

Collecting Records

West side of Puponga Point, Manukau Harbour, November, 1966, coll. Mr N. Douglas. Pakawau, Nelson, June 5, 1967, coll. Miss B. Elliot.

This species is named after a close friend of the author.

Whereas most species of *Aglaja* described are brightly coloured, New Zealand has two white species and one completely black species, *A. cylindrica*. There is no reason to consider that the two white forms, *A. virgo* and *A. lorrainae*, have any close relationship.

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