

*Three Fossil Annelids new to New Zealand.*

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SOME specimens of Annelid tubes from the Moeraki boulders were lately brought to me by Professor Park for examination, and description should they prove new. The discovery is interesting, as hitherto these beds have yielded no fossils beyond a fragment of avian or reptilian bone. Professor Park informs me, however, that in places the outer crust of the boulders contains numbers of these Annelid tubes. All the specimens are very poor, and, as the matrix is hard, even good fragments are difficult to obtain. It is thus impossible to state either the length or amount of curvature of perfect tubes, but, so far as can be seen, the test, though irregular in its course, is fairly straight. No fragments definitely referable to the anterior or posterior end have been seen, so that it is not known whether any constriction in the tube or thinning of the walls occurs. Mr. F. Chapman, A.L.S., Palaeontologist to the National Museum, Melbourne, who also saw the specimens, informs me that the species is "more solid and apparently longer than *Ditrupa cornea* var. *wormbetiensis* McCoy, of the Janjukian of Victoria."

*Ditrupa parki* n. sp. (Fig. 1, a, b.)

Tube of moderate length, slender, and apparently slowly tapering; walls very solid, often nearly as thick as internal diameter of tube. Surface with distinct growth-lines, and 2 or 3 very indistinct, almost obsolete, broad, longitudinal ridgings. In one example is a single collar-like swelling.

Length of type (largest, but still very imperfect example), 7.5 mm. Exterior diameter of a large fragment, 1.75 mm.; interior diameter, 0.65 mm.

Type in author's collection.

The age of the locality is uncertain. Marshall (*Trans. N.Z. Inst.*, vol. 49, 1917, p. 463) in his account of the Hampden beds makes the following statement: "The fossiliferous [Hampden] beds rest directly on the strata that contain the well-known Moeraki concretions. These pass downward into the concretionary but more sandy Kartigi beds, which in turn rest on the Shag Point conglomerates that contain the coal. Above the fossil-bearing beds there are the volcanic tuffs and breccias called the Waiareka tuffs; these in turn lie below the Oamaru limestone." The Hampden beds are thus below the Waiarekan, and contain a fauna which shows that they are closely related to the Waihao greensand beds at McCullough's Bridge, which in turn are at a higher horizon than the "Island sandstone"

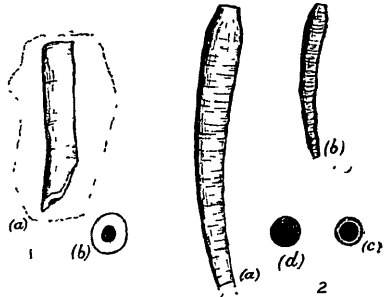


FIG. 1.—*Ditrupa parki* n. sp. a, type; b, cross-section of paratype.

FIG. 2.—*Ditrupa chapmani* n. sp. a, type; b, paratype; c, end view of aperture of type; d, cross-section through paratype.

or Bortonian beds at Black Point and Kakahu. The Shag Point beds have been doubtfully referred to the Piripauan by Thomson (*Trans. N.Z. Inst.*, vol. 52, 1920, p. 385), and the only stage at present distinguished between Bortonian and Piripauan is the Kaitangatan. The Kartigi and Moeraki beds therefore presumably represent the Kaitangatan and Bortonian stages, so that the "boulders" are probably of low Eocene age; in the absence of fossils, further speculation is useless.

*Ditrupea chapmani* n. sp. (Fig. 2, a, b, c, d.)

Tube rather long and very slender, gently tapering; perfect juvenile specimens have very much the appearance of *Cadulus delicatulus*, being of about the same proportions but slightly less curved and of different texture. The curvature is distinct but not great, more pronounced posteriorly. No swelling at the anterior end, but the test reaches greatest width a short distance from aperture and thence markedly contracts to thin and sharply-edged circular orifice. Surface appears smooth; but under the glass presents a coarse texture and minutely-corrugated appearance due to very numerous and rather regular growth-lines, forming rings that are always fine and never resemble collars. The outlines are almost always perfectly regular, but in one or two cases there are a few gentle swellings near posterior end of juvenile shells, but never, in adults, at the anterior end. Colour of shell pale brown with rings and bands of greyish. The cross-sections of broken specimens show that the internal orifice is always circular, but may be central or distinctly excentric; there is an inner narrow whitish ring, then a thick brownish crystalline layer with a radiating appearance, then finally a very narrow surface-layer.

Dimensions of type: Length, 12.5 mm.; greatest width (just behind aperture), 1.25 mm.; width of posterior (broken) end, 0.8 mm.; diameter of orifice, 0.85 mm.

Type, from Clifden, Southland (band 6c—Ototaran?), in author's collection. Most plentiful and of best preservation in this band, but occurring also in several other bands at that locality.

Of much more elegant appearance, greater tenuity, and more gradual taper than *D. cornea* var. *wormbetiensis* McCoy, typical examples of that species being considerably shorter, yet much wider than the new species. The absence of anterior nodosities separates it at once from the var. *constricta* Chapman. Named after Mr. Chapman, of the National Museum, Melbourne, who has always readily given his assistance on this and other occasions.

*Serpula ouyenensis* Chapman.

Described from the Kalimnan (?) and Janjukian of the Mallee Bores, Victoria (*Proc. Roy. Soc. Vict.*, vol. 26, n.s., p. 182, pl. 18, figs. 24, 25; pl. 19, fig. 42; 1913). Mr. Chapman identified as this species specimens of a *Serpula* from the road-cutting at Pukeuri (Awamoan); the shell is quite common at that locality, but the specimens are exceedingly fragile, and only small pieces can be obtained. Specimens that seem also referable to this species are commonly found in several of the bands at Clifden, Southland, but more especially band 6c. This horizon is considerably lower than Awamoan, and may well be Lower Miocene or even Oligocene, so that the species would seem to have an earlier occurrence in New Zealand than in Australia, and, if the Australian records are included, a considerable range. This, however, is of frequent occurrence in the Annelids.