The proportional size of the muscles in the anterior third of this species is normal. The cuticle is of average thickness, while the hypoderm forms well-marked dorsal and ventral layers, the latter tapering off at each side. The nerve-area is somewhat narrow, and presents (apparently in the intervals between the oblique muscles) a narrow median pedicle inferiorly. The neural canal is sometimes dilated between the ganglia.

In the posterior region of the body a great increase in the size of the alimentary canal occurs in transverse section. The dorsal longitudinal muscles are flattened and thin. The vertical muscular fibres pierce the inner part of each longitudinal ventral as well as bound each side of the nerve-area. Some of the vertical fibres seem to be attached to the wall of the alimentary canal, and thus may exercise an influence on its functions. The circular muscular coat of the body is largely developed and very vascular, and the hypoderm is thicker than in front. The nerve-area is rounded, and a mass of opaque granular cells lies beneath the neural canal, which is situated a considerable distance above the decussation of the muscular fibres and the circular coat.

In the shortness of the dorsal cirri and in the structure of the bristles this form approaches Schmarda's *Eunice macrochæta*[1] from the coral reefs off the southern coast of Jamaica. The ventral cirrus, however, diverges, for it is represented as a process twice the length of the dorsal. In regard to the branchiæ, *Eunice barvicensis* also resembles *Eunice capensis*[2] of the same author, but the latter organs do not occur anterior to the twentieth foot, and there is no ventral cirrus. The dentition, however, is closely allied.

Eunice pycnobranchiata, n. sp. (Pl. XXXIX. figs. 13–15; Pl. XXIA. figs. 4, 5).

Habitat.—Dredged at Station 162 (in Bass Strait, off the Australian coast), April 2, 1874; lat. 39 °10′ 30″ S., long. 146 °37′ E.; depth, 38 fathoms; surface temperature, 68°·2; sea-bottom, sand and shells.

Trawled at Station 163A, Twofold Bay, off the Australian coast, midway between Melbourne and Sydney, April 4, 1874; lat. 36° 59′ S., long. 150° 20′; depth, 150 fathoms; surface temperature, 71°·0; sea-bottom, green mud.

The largest specimen measures about 118 mm. in length and 8·5 mm. in diameter at its widest part.

The head (Pl. XXXIX. fig. 13) has two deeply indented anterior lobes, which are curiously wrinkled anteriorly and inferiorly. The tentacles are of moderate length and all boldly annulated. In the larger examples these are proportionally shorter—either from injury or otherwise. In the young specimens the median tentacle is evidently

[1] Neue wirbell. Thiere, I. ii. p. 128.

[2] *Op. cit.*, p. 126.