Zoology Part XXVI: Report on the NUDIBRANCHIATA. By Dr. Rudolph Bergh. Bound in Volume 10,1884.

at its extremity by a minute circular orifice (fig. 17); the evagination was the anterior end of that portion of the tube provided with hooks. This *hook-bearing part* of the seminal duct was ·2 mm. in length, its diameter in front being ·3 mm., and further back ·16 mm.; the hooks were arranged as usual in longitudinal quincuncial series (Pl. VII. fig. 4); the number in the rows was twenty to twenty-five hooks (twenty in the anterior row, twenty-two to twenty-five in the posterior). The colour of these *hooks* was a faint yellow, they were usually strongly bent; in the anterior part their length was ·04 mm. The papillæ upon which these hooks are formed are conical, broader at the base, and running into a point above, upright or bent. They are made up of small nucleated cells. I observed a very similar structure in the hooks of *Triboniophorus;*[1] Semper[2] also in *Onchidium.* But I do not understand why Semper speaks of this structure as "cartilaginous," and of the hooks as "cartilaginous teeth." There is no trace here of any real cartilaginous structure. The penis, as already mentioned, opens laterally into the large sac of the dart-gland. The *dart-gland* (Pl. VI. fig. 12, *h*) is long and thick-walled, and with its many coils covers a large portion of the ampulla developed at its end (fig. 12, *ii*). The whole *gland* can be easily unravelled, and then attains a length of 45 cm.; its diameter is about ·75 mm., the windings of the gland are connected by connective tissue. This connective tissue appears to start from a low irregular frill, which winds itself spirally round the ampulla and fuses with it. The gland has a roundish, rather wide lumen, lined with a thick epithelium, and its wall has nearly the same macroscopic and microscopic structure as the ampulla. The gland suddenly becomes wider at the *ampulla;* this last is sausage-shaped, somewhat arched, and at each end rather more slender, dirty yellow coloured; when extended it measures 2·8 cm. by 5·5 mm. in diameter. In transverse section the lumen of the ampulla appears triradiate (Pl. V. fig. 25), lined by the above-mentioned epithelium. Sections coloured with picric acid showed the parts nearest the lumen and to the periphery most coloured; the crenate triradiate lumen is embraced by a thick circular layer, which was interwoven and surrounded outside by a more or less continuous longitudinal layer of fibres; between the central and peripheral coloured layers are delicate rings and arches of tissue, composed of circular fibres imbedded in connective tissue; here and there, especially in the peripheral layers, were spaces for blood-vessels. In similarly prepared sections of the gland itself, the structure was precisely similar, only the thin middle layer was more strongly developed, and the lumina of vessels more abundant. The duct of the dart-gland, which takes its origin from the anterior part of the ampulla (Pl. VI. fig. 12, *k*), is about as thick as the gland, or a trifle thicker, and is half as long again as the ampulla, which it resembles in structure; in front it opens (fig. 12, *l*, 14, *ab*) into a sac-like somewhat flattened organ about 6 mm. long. At the

[1] R. Bergh, Anat. Untersuch. d. Triboniophorus schütteii, K., *Verhandl. d. k. k. zool.-bot. Gesellsch. Wien*, Bd. xx., 1870, p. 853, Taf. xiii., figs. 7–9.

[2] Semper, *loc. cit.*, Landmollusken, Heft v., 1880, p. 253, &c., Taf. xxii. figs. 4, 12, 16, Taf. xxiii. figs. 3, 5, 6, &c.

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