pha and without ventilation males still occurred in September. Female germ-cells were first seen in August; segmentation was observed in eggs artificially released in September. The normal oviposition of *Saccocirrus* was not yet described (HEMPELMANN 1912, p. 259).

Diatoms (Fig. 9) and pieces of *Enteromorpha* as long as about 12 segments of a worm were seen in the gut of animals living in our dishes. Like other inhabitants of shelly sand, f. ex. *Protodrilus rubropharyngeus* (JÄGERSTEN 1940, p. 7), the worms attach themselves to the pebbles or shells with their caudal appendages (Fig. 4) and sticky skin. A certain amount of shell fragments or coarse sand is indispensable for their maintaining. Various specimens had the cephalic or caudal region evidently regenerated.

To favour the records of zoological bibliography I called *Saccocirrus* an Archiannelid in the title of this note, but therewith I do not wish to express an opinion upon the taxonomic value of the Archiannelida. Natural relations between the Saccocirridae and the Protodrilidae certainly exist (GOODRICH 1901, 1912; PIERANTONI 1908; HEIDER 1922; and others). Whether these two units ought to be considered as simplified Spionidae (LAMEERE 1931, p. 74) can be established only by further embryological studies (PIERANTONI 1906), since the origin of the imaginal coelom is very peculiar in the Spionidae (IWANOFF 1928; see REISINGER 1931, Fig. 20b and HEMPELMANN 1931, pp. 112-113).

SACCOCIRRUS GABRIELLAE, sp. n.

The worms attain a length up to 30 mm. [*papillocercus* up to 30 mm.; *major* up to 80 mm.] and a diameter of 0,4 mm. [*pa* 0,4 mm.; *ma* 1,0 mm.] Worms with gonads are not thicker. The number of segments is 70-160 [*pa* 100-150 PIERANTONI 1907, 40 GUSJEWA 1929; *ma* 150-200]. The intersegmental septa are not muscular [*pa* not muscular; *ma* muscular]. The colour is yellowish-white to orange, often with a greenish gut tinted by the colour of the wall and the green food. The number of the adhesive papillae on each of the caudal appendages (Fig. 4) varies from 7-15 [*pa* 5-6; *ma* 10-14].

There are up to 9 setae [*pa* 9-12; *ma* 10] of three types in a bundle (Fig. 3). The longest (1) are 1-2 fine flexible hair-setae (length 0,27 mm., diameter ca. 1 μ) with a symmetrical bifid tip (5 μ long). These setae have two asymmetrical prongs in *palillocercus* and are club-shaped and notched in *major*. Two to four thick (2) setae (length 0,22 mm. diameter 4 μ) end with a flat broadened tip (8 μ) that has a deeper median and two smaller lateral notches.

In *papillocercus* these setae are terminally provided with stronger borders that flank an indented depression; in *major* they end with 3 teeth. The third type (3) of setae (0 - 3) is 0,15 mm. long and ca. 2,5 μ thick and bears two short teeth (1 μ) on the slightly broadened end. These setae are described as very feebly notched in *papillocercus* and as filiform with an idented tip in *major*. PIERANTONI (1907, p. 5) compared the number of caudal segments without setae in males and females of *papillocercus* and *major*. In *S. gabrielliae* the size of the budding zone varies so much even in mature worms, that I did not succeed to establish the exact number of non - setigerous segments.

The prostomial tentacles are 1 mm. in lenght, and if they are bent backwards, they reach the 9th. setigerous segment. The contraction of the ampullae by which fluid is driven into the tentacular canals, as was supposed by GOODRICH and others (1901, p. 417), can be observed in living worms, because the fluid contains cellular elements. The ampullae (Fig. 6, a) of the tentacles (1) are partially filled with a loose lamellar tissue of the character of a supporting tissue (MARCUS 1943, pp. 120, 170). Their remaining small medial cavity contains a fluid with some free cellular elements. The cavity is continued into the canals which run up the tentacles and also contain much lamellar tissue. Contraction of the annelar muscles of the ampullar wall diminishes the cavity and drives the liquid into the tentacles, thus straightening them. The curled tentacles of GOODRICH's figure (1901, t. 27: fig. 1), that has been reproduced in many text - books, represent the phase in which most of the fluid is accumulated in the extended ampulla. Our healthy specimens bear the tentacles nearly straight (Fig. 1), and only such that are in decline curl them.

Beside the eyes (Fig. 1, e) accessory eye - spots are frequent. A pair of ciliated pits (Fig. 2, c) lies on the limit between the prostomium and the buccal segment (peristomium). A tuft of sensory cilia that move actively occurs in front of each bundle of setae (Fig. 2). The stomatogastric nerves unite in the third setigerous segment [*pa* second; *ma* fourth]. The adhesive skin - glands (Fig. 1, drawn only in the inder part) are arranged in segmental belts [*pa* belts; *ma* 6 oval areas per segment]. As in many other Annelids two types of skin - glands occur in *S. gabriellae*, viz. such with peg - shaped basophil secretion and others with acidophil granules.

The alimentary canal begins with the mouth (Fig. 2, m), a slit occupying the whole length of the post - cephalic segment. The oral slit is bordered by two ciliated lips. The pharyngeal sac (p) lies in the second and third setigerous segment [*pa* first and second;

no indication found for *ma*]. In adult males the sac extends from the second to the fourth setigerous segment. The following part, the ciliated oesophagus or glandular region of the gut (Fig. 1, g), attains the 9 - 14th. setigerous segment [*pa* 12 - 13th.; *ma* 18 - 19th.]. The erythrophil gland - cells lie between the ciliated cells in the wall of the oesophagus. The absorptive region of the intestine (h) has ciliated vacuolized cells and no erythrophilous glands (Fig. 9). Ventrally the intestinal cells are higher, have denser cilia, and flank a median furrow. In the growing zone the height the vacuoles with alimentary inclusions decrease gradually. The cilia continue to the anus that lies between and slightly dorsal to the caudal appendages; the anal opening is bordered by a small ciliated area PIERANTONI (1907, pp. 8 - 9) distinguished the shape of the gut in *papillocercus* and *major;* in the first it is nearly tubular, in the latter widely dilated in every segment. The form of the gut of *S. gabriellae* depends on the degree of contraction of the worm. In strongly contracted animals it is moniliform, in stretched ones almost smooth.

In colour and diameter there is no difference between males and females in *S. gabriellae,* only ripe eggs show distinctly [*pa* males smaller; *ma* males shorter, finer, and yellowish, females greyish-white]. The position of the genital organs is not correlated with extension of the oesophagus as in *papillocercus* and *major* (HEMPELMANN 1912, p. 256; BUCHNER 1914, p. 403). In the examined worms the testes as well as the ovaries begin in the 29 - 35th. setigerous segment [*pa* 15; *ma* 20]. In *papillocercus* they end in the 6th. or 7th. pre - anal segment, in *major* in the 3rd. or 4th. In *S. gabriellae* a greater number of hinder segments (ca. 30) including the proliferation zone do not contain gonads. Each ovary may produce 15 - 20 full - grown ovocytes (Fig. 8, o) at a time; these measure 0,065 - 0,08 mm. in diameter. In *papillocercus* few ovocytes (0,09 mm.) ripen simultaneously, in *major* very many eggs (0,075 - 0,08 mm.) are developed. In contrast with the previously known species only the right or the left side of an animal bears gonads and the corresponding male and female reservatories (Fig. 7, 8). A less pronounced asymmetry is known from the ovisacs of *Nerilla antennata* (GOODRICH 1912, p. 414). In *S. gabriellae* the nephridia of the sterile side of the fertile segment are well developed, opening to the exterior dorso - laterally (Fig. 9, n) as in the asexual segments of *S. major* (HEMPELMANN 1912, f. 7a, 7c on p. 277). In females of *papillocercus* the nephridia open ventro - laterally also in the sterile (oesophageal) segments.

The gonoducts of *S. gabriellae* show differences from those of the two other species. From the seminal vesicle (Fig. 7, v) or spermsac (GOODRICH) the ductus ejaculatorius (u), a short ciliated duct,

leads into a very long (0,1 mm.) non-ciliated penial tube (y) that ends with a small conical tip. This penis can be extruded (x), it does not possess any of the cuticular rods known from *papillocercus* and *major*. While the copulatory organ of these species is twice as long as broad, it is five times longer in the present species.

The spermatheca (Fig. 8, s) or receptaculum seminis (HEMPELMANN) of *S. gabriellae* is banana-shaped and not as wide as that of the two other species, where it is pear-shaped. Corresponding to the great length of the penis the spermathecal duct (d) is long and curled, not short and straight as in *papillocercus* and *major*. Cilia were seen only around the external opening (x) of the spermathecal duct and a short way into the canal, till to the orifice of the ciliated nephroduct (n). In the previously described species the cilia of the spermathecal duct reach the spermatheca. As in the other species of *Saccocirrus* each longitudinal ventral muscle is separated by an oblique (transversal) one into a lateral and a medial portion (LANGERHANS 1880, t. 4: f. 17; PIERANTONI 1907, t. 8: f. 20). In transverse sections (Fig. 9) the spermathecal duct (d) of *papillocercus* and *major* divides the ventro-lateral muscle (w) into equal halves, in *gabriellae* it runs more medially separating a small ventral part from a much broader lateral one.

While BUCHNER (1914, p. 404) recorded all spermathecae crowded with sperms (species not indicated; material from Naples), our worms showed some empty or only partially filled ones. The precocious entry of the spermatozoon into the unripe oocyte studied by HEMPELMANN (1912; also reports the earlier researches), BUCHNER (1914), BAEHR (1920, pp. 399-402), GATENBY (1922), and others occurs also in *S. gabriellae* (Fig. 8, 9, o). The larva (Fig. 5) of the present species is yellow and measures about 0,08 mm.; it has one brick-coloured eye-spot (e) on the right side of the back.

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PLATES I - II

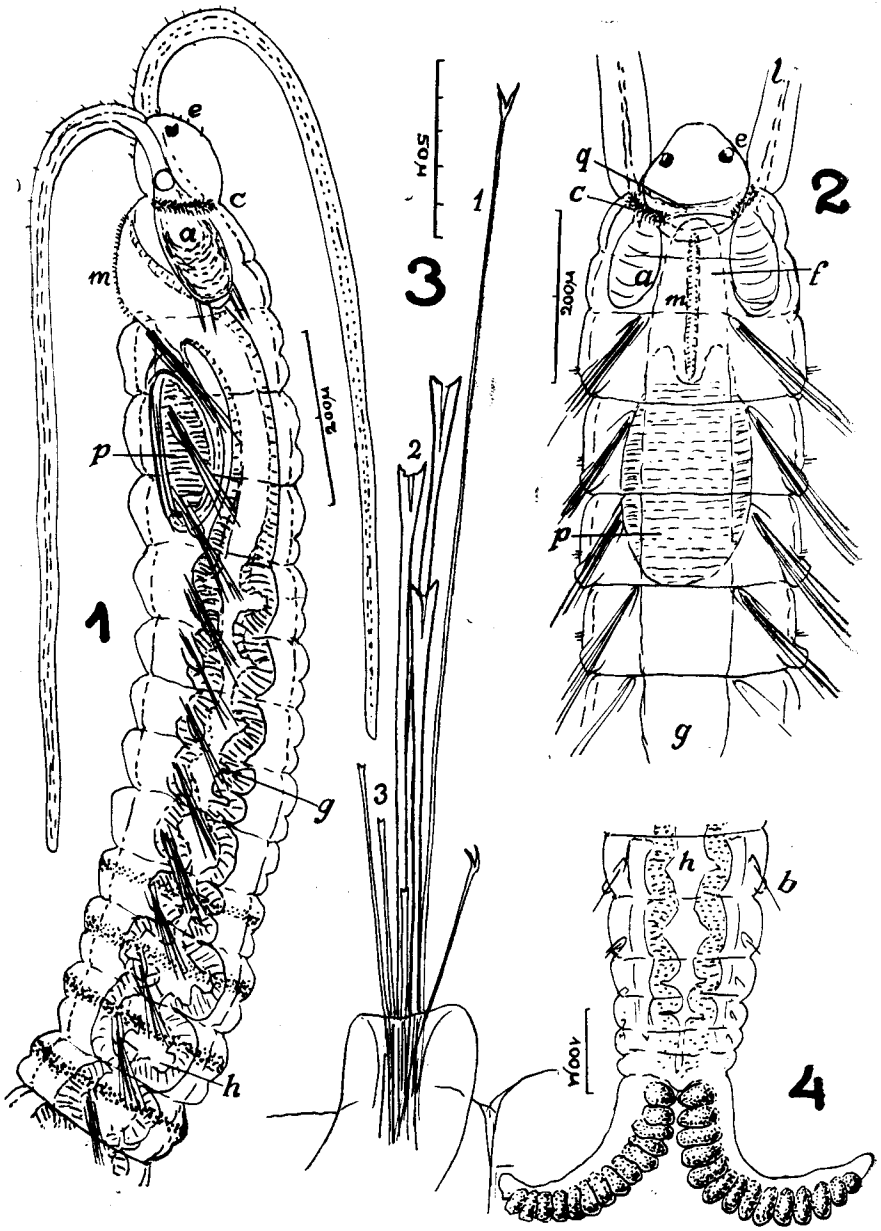
Explanation of plate I

Saccocirrus gabriellae, sp. n.

1. Anterior region of the living worm, in lateral view.
2. Dorsal view of the anterior region of a worm stained and mounted in balsam.
3. Bundle of setae (parapodium).
4. Caudal end in ventral view.

Significance of the lettering

a, ampulla. b, bundle of setae. c, ciliated pit. d, spermathecal duct. e, eye. f, pre-pharyngeal gut. g. glandular gut. h, absorptive gut. i, ventral vessel. k, dorsal vessel. l, tentacle. m, mouth. n. nephridium. o, ovocyte with the head of a spermatozoon. p, pharyngeal sac. q, communication between the two ampullae. r, ventral nerve. s, spermatheca. t, male germ-cells. u, ejaculatory duct. v, seminal vesicle. w, ventro-lateral muscle. x, externa genital opening. y, penis. z, granular tissue around the spermatheca.
1, long seta. 2, thick seta. 3, short seta.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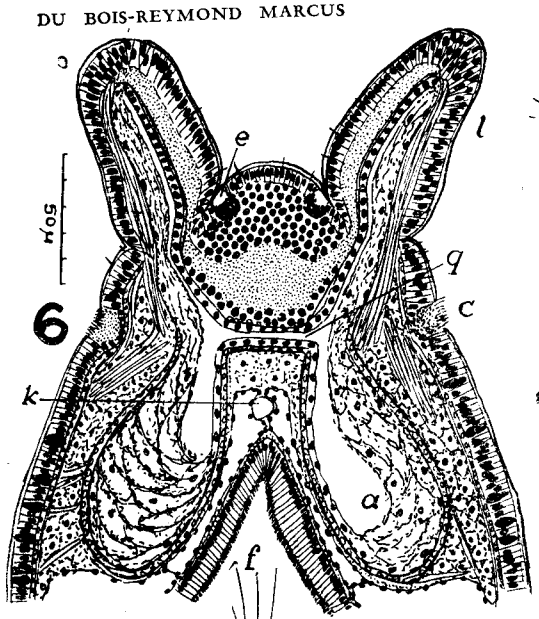
Explanation of plate II

Saccocirrus gabriellae, sp. n.

5. Larva 3 days old in frontal view.
6. Horizontal section through the prostomial and peristomial region [combined].
7. Fertile segment of a male seen from the left (fertile) side.
8. Fertile segment of a female seen from the left (fertile) side.
9. Transverse section through a fertile segment of a female [combined].

List of reference letters see Plate I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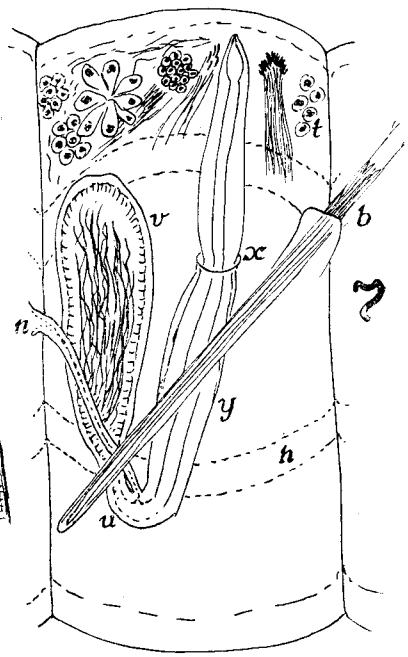
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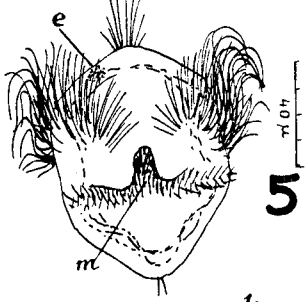
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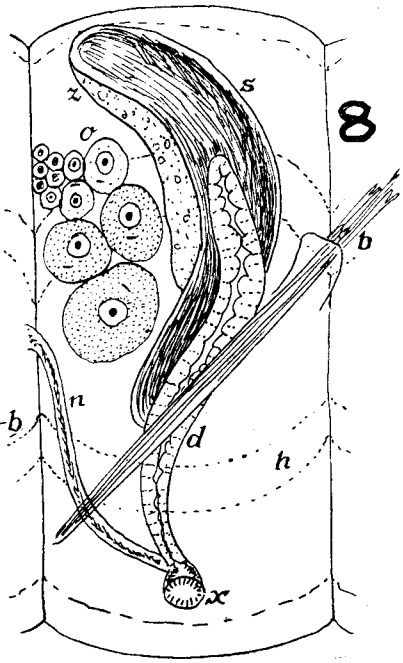
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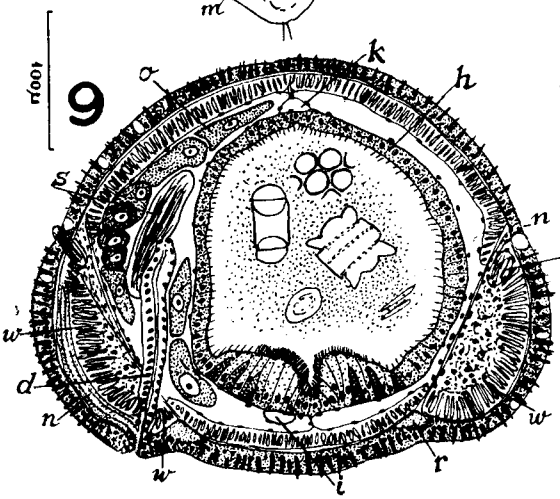
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