

## New and poorly known Actiniaria from the NW Pacific

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Based on new material from Kamchatka and Northern Kurile Islands, *Neohalcampa sheikoi* gen. et sp. n. and *Eltaninactis psammophorum* sp. n. are described and the poorly known *Charisea saxicola* Torrey, 1902 is redescribed.

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The specimens mentioned in this paper are kept in the Kamchatka Institute of Ecology and Environment, Petropavlovsk-Kamchatsky (KIE).

Family HALCAMPIDAE Andres, 1883

*Neohalcampa* gen. n.

Type species *Neohalcampa sheikoi* sp. n.

*Diagnosis.* Body divisible into physa, scapus and scapulus. Single small mesogloeaal sphincter extending into the bases of tentacles. Longitudinal muscles of tentacles and radial muscles of oral disc ectodermal. Six pairs of macrocnemes with strong retractors. Two pairs of directives. More mesenteries at the margin than at the base, especially in older specimens. Cnidome: spirocysts, basitrichs, p-mastigophores.

*Neohalcampa sheikoi* sp. n.

(Figs 1-4)

*Holotype.* (KIE 1/171), Vessel "Gefest", Kamchatka, collector B.A. Sheiko, longline 100, Karaginskiy Bay, 58°56.1'N, 164°56.1'E – 58°54.4'N, 164°52.5'E, 240-580 m, 10.VII.1994.

*Paratypes.* (KIE 2/172), same data as holotype, 4 specimens; (KIE 3/173), same vessel and collector, longline 9, Avacha Bay, 52°42'N, 158°44'E, 300-500 m, 25.V.1994, 1 specimen.

*Other specimens.* Vessel "Tomy-Maru", Northern Kurile Islands, collector A.M. Tokranov: (KIE 5/181) trawl 82, 49°12'N, 155°42'E – 49°02'N, 155°28'E, 430-504 m, 7.XII.1998, 2 specimens; (KIE 4/180), trawl 98, 47°56'N, 154°30'E – 47°55'N, 154°31'E, 426-445 m, 11.XII.1998, 1 specimen.

*Description.* All examined specimens strongly contracted, with quite constant conical body shape (Fig. 1). Body up to 33 mm in height and up to 40 mm in greatest diameter;

holotype 18 mm in height and 21 mm in diameter. Column divided into physa, scapus and scapulus. Basal portion of column flattened and wider than its upper part, but there is no distinct limbus. Physa is a thin-walled adherent disc about half of diameter of basal portion of column. Scapus without tenaculi. Thin, easily deciduous cuticle covers scapus and physa. Surface of the cuticle free from sand grains and other foreign particles, with exception of few branches of bryozoa occurring on some specimens. Scapulus totally involuted in all specimens, without cuticle and with six longitudinal scapular ridges with thick mesogloea, which are subdivided by transverse furrows into tubercles. Body wall with shallow, transverse, more or less deep, regularly distributed longitudinal furrows, six of which are especially conspicuous and correspond to primary endocoels (Fig. 1). There are up to 42 tentacles, but only 24 in small (6 mm in diameter) specimens. In the preserved specimens, they are covered with the upper part of column and not visible externally. Tentacles conical, short and thick, with blunt perforated apices, longitudinally folded and hexamerously arranged. Inner tentacles longer than the outer.

Mesogloea of column thick, up to 1.5 mm in scapus and up to 2.5 mm in scapulus. Single very small mesogloeaal sphincter situated in most distal part of scapulus, just close to base of tentacles, where mesogloea rapidly narrows (Figs 2A, 2B). Circular endodermal muscles well developed, especially in scapulus and upper part of scapus (Fig. 2A). Longitudinal muscles of tentacles and radial muscles of oral disc ectodermal (Fig. 3A). Short, longitudinally-folded actinopharynx with two indistinct siphonoglyphs.

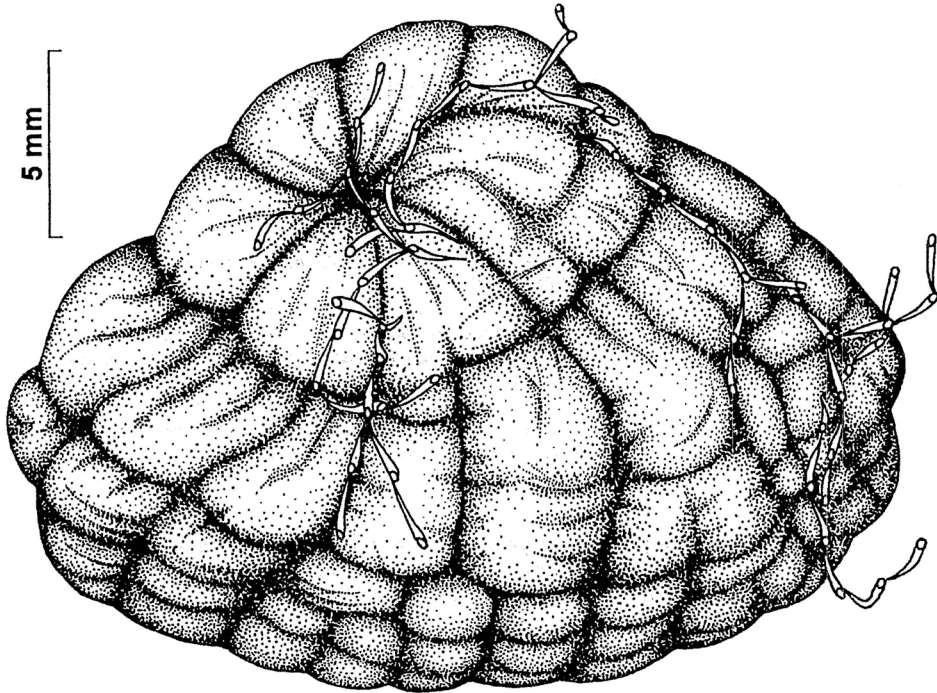


Fig. 1. *Neohalcampa sheikoi* gen. et sp. n., external appearance.

All examined specimens with 12 pairs (two cycles) of mesenteries in the most part of column. Six pairs are macrocnemes, of which two pairs are directives, and the others are microcnemes. Additional small (up to 2 mm long) microcnemes belonging to a third incomplete cycle appear only just below margin. All microcnemes imperfect and devoid of gonads, filaments and retractors. Macrocnemes, including the directives, perfect and fertile. Retractors of macrocnemes very strong, situated close to actinopharynx and connected with the thickened parietal part of mesentery by thin lamella. Holotype has strongly restricted reniform retractors with numerous branched mesogloea lamellae of about equal length on actinopharynx level (Fig. 3B). Toward the base, below actinopharynx, the number of lamellae decreases, and retractors become almost circumscribed. Some specimens have strong circumscribed palmate or pinnate retractors, which are especially strong in one specimen from Northern Kurile Islands (Fig. 3C). Parietal muscles of macrocnemes form a short fold on the side opposite to retractor, which becomes slightly longer toward the base. Mesenteries of second cycle resemble parietal part of macrocnemes, but are longer.

Basilar muscles absent. Acontia absent.

The sexes are separated.

Cnidome (letters in brackets refer to Fig. 4, all measurements in  $\mu\text{m}$ ):

Tentacles	Spirocysts (a)	15-37 $\times$ 2.5-4
	Basitrichs (b)	15-24 $\times$ 2-3
Scapus	Basitrichs (a)	17 $\times$ 3 (rare)
	Scapulus	Spirocysts (a)
Actinopharynx	Basitrichs (b)	13-20 $\times$ 2.5-3
	Basitrichs (a)	17-21 $\times$ 2.5-3
	p-Mastigophores (b)	16-22 $\times$ 4-5 (rare)
Filaments	Basitrichs (a)	15-19 $\times$ 3

Living specimens yellow-brown, preserved specimens paler. Actinopharynx of preserved specimens red-brown.

*Etymology.* The species is named after the collector, Boris A. Sheiko.

*Collecting method.* Specimens from East Kamchatka were collected from the depth 200-800 m on rocky bottom, where traditional collecting methods, such as dredging or trawling, are usually not possible. Invertebrate animals, usually in good condition, were found clinging to hooks of fishery longline (used for catching benthic fishes). Specimens from Northern Kurile Islands were collected by trawling.

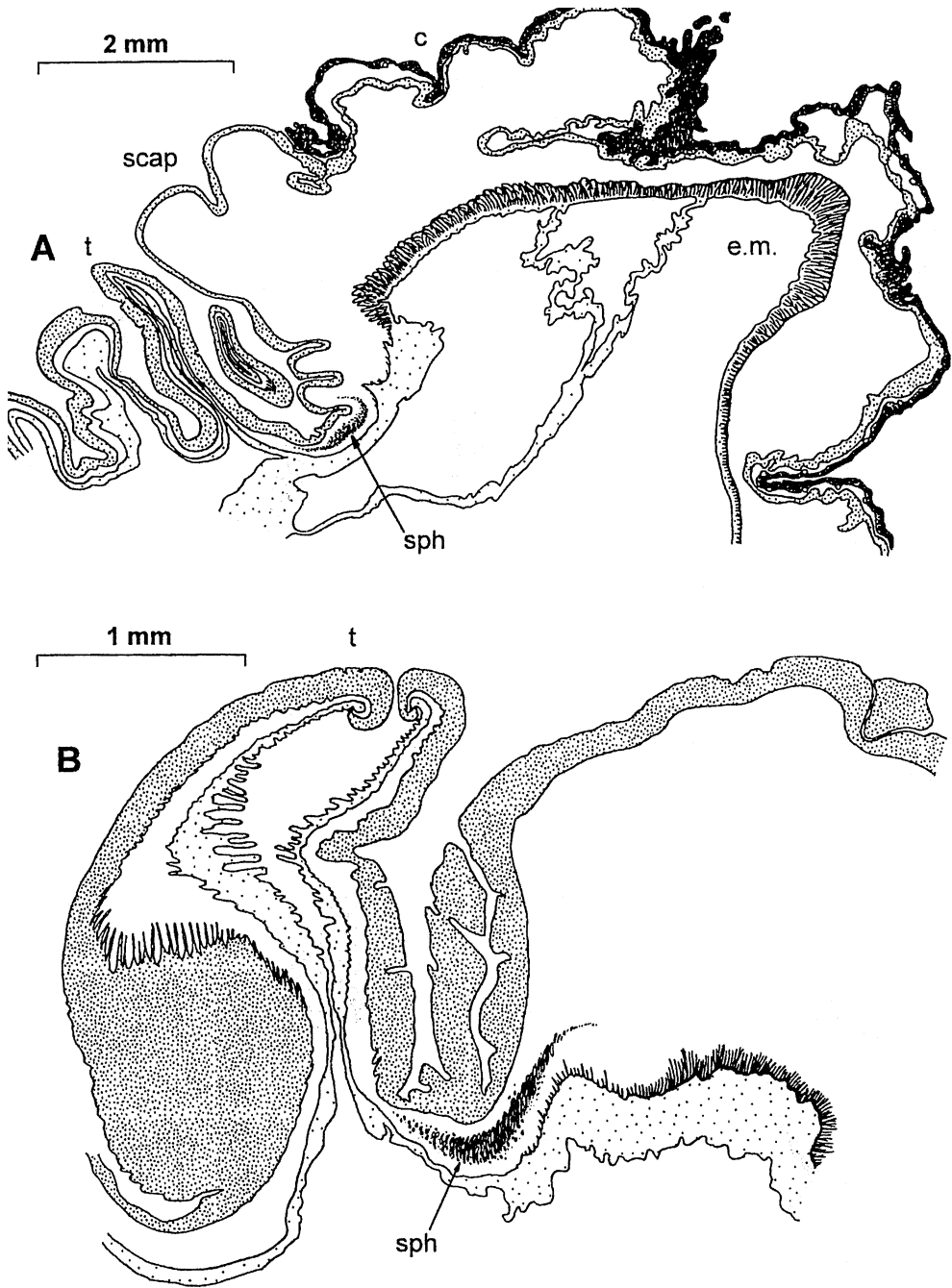


Fig. 2. *Neohalcampa sheikoi* gen. et sp. n., longitudinal section of upper column: A, holotype; B, specimen KIE 4/180 (c, cuticle; e.m., endodermal circular muscles; scap, scapulus; sph, sphincter; t, tentacles).

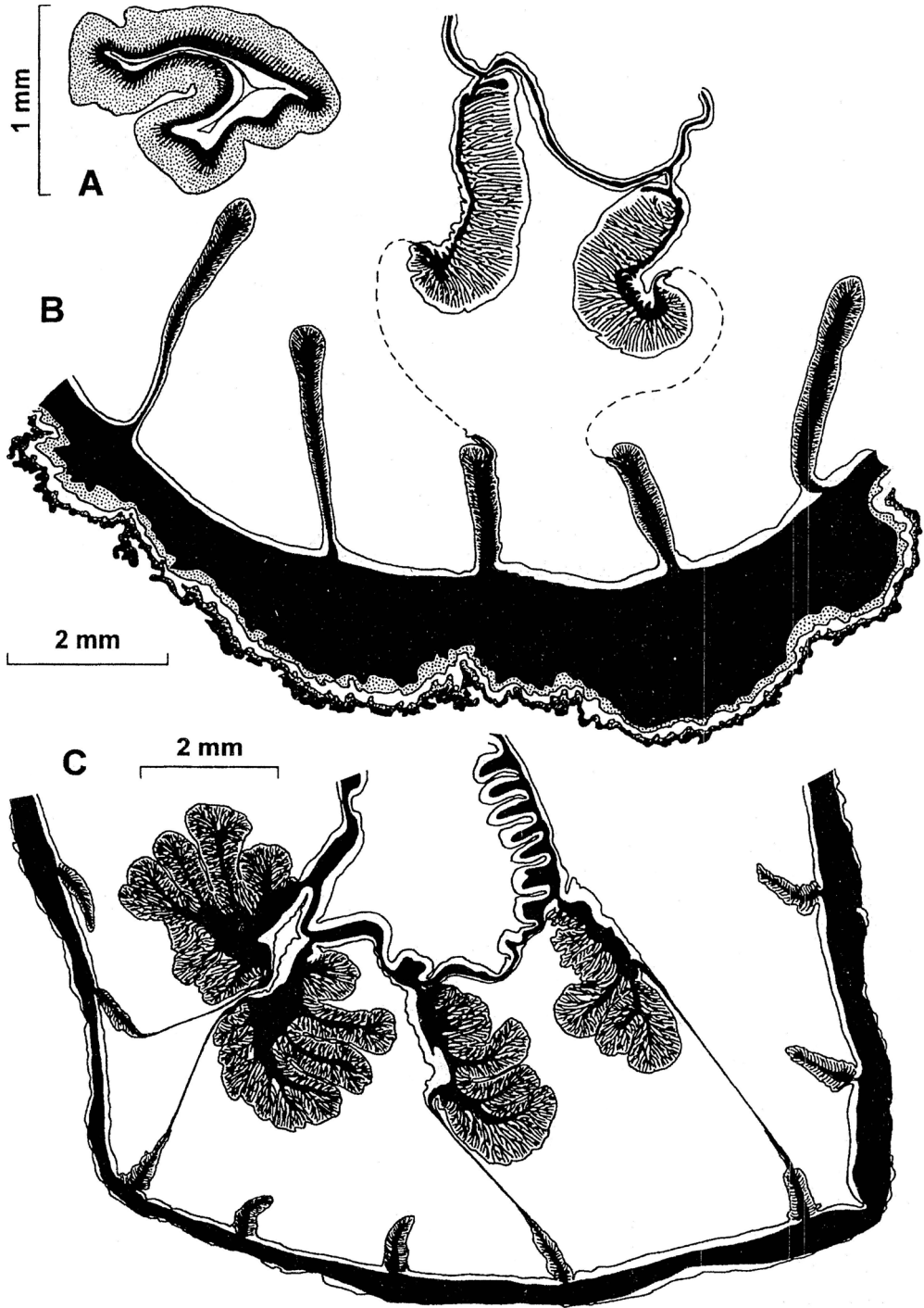


Fig. 3. *Neohalcampa sheikoi* gen. et sp. n.: A, transverse section of tentacle, holotype; B, C, transverse section on the level of actinopharynx: B, holotype; C, specimen KIE 5/181.

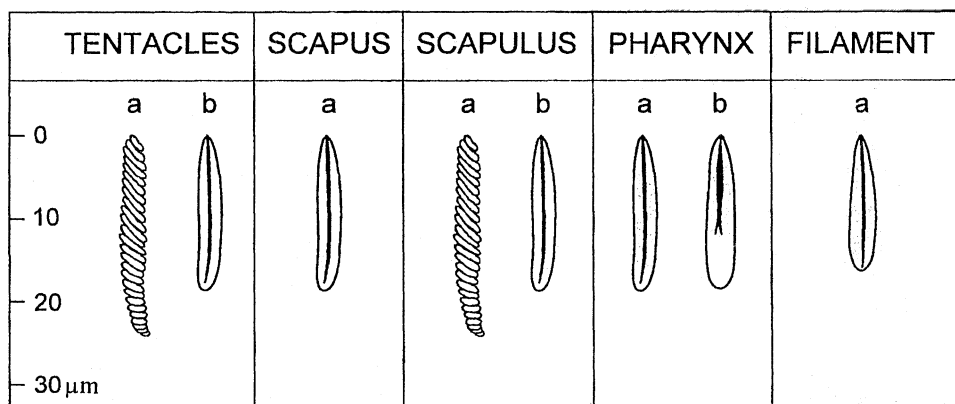


Fig. 4. *Neohalcampa sheikoi* gen. et sp. n., cnidome.

**Remarks.** The mesogloea sphincter of *N. sheikoi* is very small, especially in comparison with the thick scapulus, and may be easily overlooked. On the other hand, particular concentration of endodermal circular muscles in the scapulus looks like diffuse endodermal sphincter, and at first glance the species may be treated as belonging to Condylanthidae (although the basilar muscles are absent). However, the presence of a mesogloea sphincter revealed in all examined specimens, which is situated close to base of tentacles, in combination with the presence of macro- and microcnemes and absence of basilar muscles and acontia clearly places this species in the family Halcampidae. None of the six genera in the family can accommodate this species. The present species cannot be assigned to *Parahalcampa* Carlgren, 1927 and *Halcampaster* Carlgren, 1938 in which the column is not divisible into scapus and scapulus or to *Mena* Stephenson, 1920 and *Halianthella* Kwietniewski, 1896 which have two sphincters. It seems to be more closely related to *Halcampa* Gosse, 1858 and *Cactosoma* Danielssen, 1890. *N. sheikoi* differs from these genera in the presence of more mesenteries at the margin than at the base, in absence of tenaculi and in presence of the scapulus with scapular ridges.

Family **ISANTHIDAE** Carlgren, 1938

**Eltaninaectis psammophorum** sp. n.

(Figs 5-7)

**Holotype.** (KIE 1/182), Vessel "Tomy-Maru", Northern Kurile Islands, collector A.M. Tokranov, trawl 138, 48°27'N, 155°10'E - 48°08'N, 154°49'E, 439-509 m, 31.XII.1998.

**Description.** Single spindle-shaped and somewhat contracted specimen (Fig. 5) 33 mm in height and 20 mm in greatest diameter; diameter of proximal and distal ends about 7 mm. Column divided into scapus and scapulus. Scapus furnished with tenaculi and cuticle which is heavily incrustated by sand; where cuticle and ectoderm are abraded, body appears whitish and mesenterial insertions visible through body wall as light lines. Scapus without any folds or wrinkles. Scapulus without cuticle and with six longitudinal scapular ridges with thick mesogloea, which are visible externally. There are 16 or 17 short, conical, laterally flattened tentacles 1.5 mm long and with basal width 2 mm. They are covered with upper part of column and not visible externally.

There is a distinct limbus. Pedal disc small and slightly concave.

Single small and compact mesogloea sphincter situated close to base of tentacles (Fig. 6A). Circular endodermal muscles strong, especially in middle part of column where they are almost as thick as mesogloea (Fig. 6B), and become thinner toward the base and margin. Longitudinal muscles of tentacles and radial muscles of oral disc mesoectodermal. Longitudinally-folded actinopharynx about half length of column. Siphonoglyphs not distinguishable.

Only two cycles (12 pairs) of mesenteries. Six pairs are macrocnemes, of which two pairs are directives, and six pairs are microcnemes. All microcnemes imperfect and devoid of gonads, filaments and retractors. Macrocnemes, including the directives, perfect and fertile. Retractors of macrocnemes strongly restricted, reniform, with numerous heavily branched mesogloea lamellae. Well-developed parietal muscles of macrocnemes form very short fold

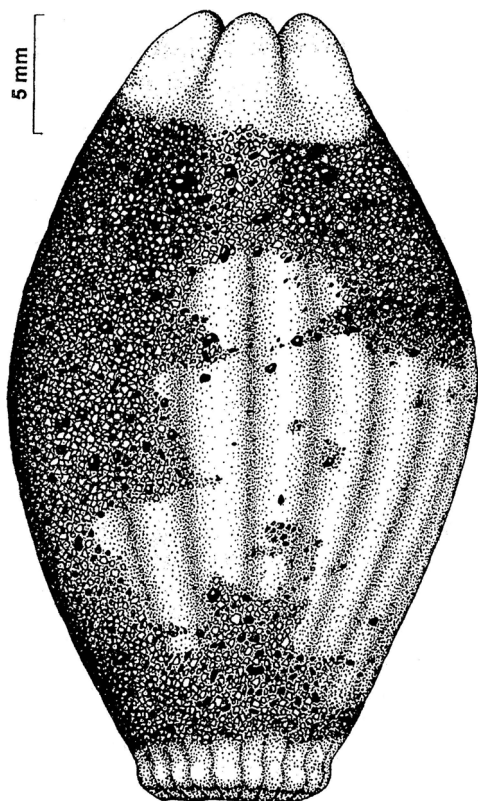


Fig. 5. *Eltaninactis psammophorum* sp. n., external appearance.

on the side opposite to retractor. Musculature of microcnemes strong and resembling parietal part of macrocnemes.

Basilar muscles distinct. Acontia absent.

Cnidome (letters in brackets refer to Fig. 7, all measurements in  $\mu\text{m}$ ):

Tentacles	Spirocysts (a)	24-38 × 3-4
	Basitrichs (b)	17-25 × 2.5-3
Scapus	Basitrichs (a)	11-15 × 2-3
Scapulus	Basitrichs (a)	20-26 × 3-3.5
Actinopharynx	Basitrichs (a)	16-19 × 2.5
	p-Mastigophores (b)	23-25 × 5
Filaments	Basitrichs (a)	17-21 × 1.5-2

*Remarks.* The present new species has distinct and well-visible basilar muscles and should be assigned to the family Isanthidae. In most features it agrees with the definition of the genus *Eltaninactis*, although its type species *E. infundibulum* Dunn, 1983 has a broad non-adherent base, its sphincter is extremely

weak and unclear, and the new species is assigned to *Eltaninactis* only provisionally. However, the present species cannot be assigned to other genera of the family Isanthidae, of which only *Isanthus* Carlgren, 1938 and *Paraisanthus* Sanamyan & Sanamyan, 1998 have six pairs of macrocnemes, but column of these genera is not divisible into regions. It has certain characters resembling some genera without basilar muscles belonging to the family Halcampidae. Namely, the shape and position of the sphincter, arrangement and structure of the mesenteries, presence of tenaculi resemble *Halcampa* and *Cactosoma*, presence of scapulus and some other features resemble *Halianthella* and the above described *Neohalcampa*. *Halianthella*, however, has two sphincters and *Neohalcampa* has more mesenteries at the margin than at the base and lacks tenaculi.

The taxonomic position of the genus *Eltaninactis* seems to be somewhat uncertain. It may be related with *Cactosoma* (Halcampidae), but the latter genus has a capitulum, rather than scapulus and it lacks basilar muscles. However, the presence or absence of basilar muscles is a character which is sometimes difficult to observe, and there are many cases when the author was uncertain are the basilar muscles really present or not (see Carlgren, 1921: 127, *Cactosoma abyssorum*). Thus, the taxonomic importance of basilar muscles, especially in such species as *E. infundibulum*, in which they are weak or probably absent in some specimens, seems to be not very high. Further, in *E. infundibulum* "mesogleal sphincter very weak or perhaps absent in some individuals" (Dunn, 1983) and in her Fig. 68 showing "weak mesogleal sphincter" the sphincter is hard to recognize, adding to the uncertainty about its affiliation to the family.

#### Family CONDYLANTHIDAE Stephenson, 1922

The family Condylanthidae was proposed by Stephenson (1922) for *Condylanthus magellanicus* Carlgren, 1899. According to Carlgren (1949), this family comprises five genera which are characterized by the presence of the basilar muscles, absence of acontia, the mesenteries divisible into macro- and microcnemes and the absence of the sphincter muscle or with the endodermal sphincter. *Segonzactis* Riemann-Zurneck, 1979 lacks basilar muscles, has *Edwardsia*-like configuration of macrocnemes and its assignment to this family is dubious.

*Condylanthus* comprises two species: *C. magellanicus* and *C. auclandicus* Carlgren,

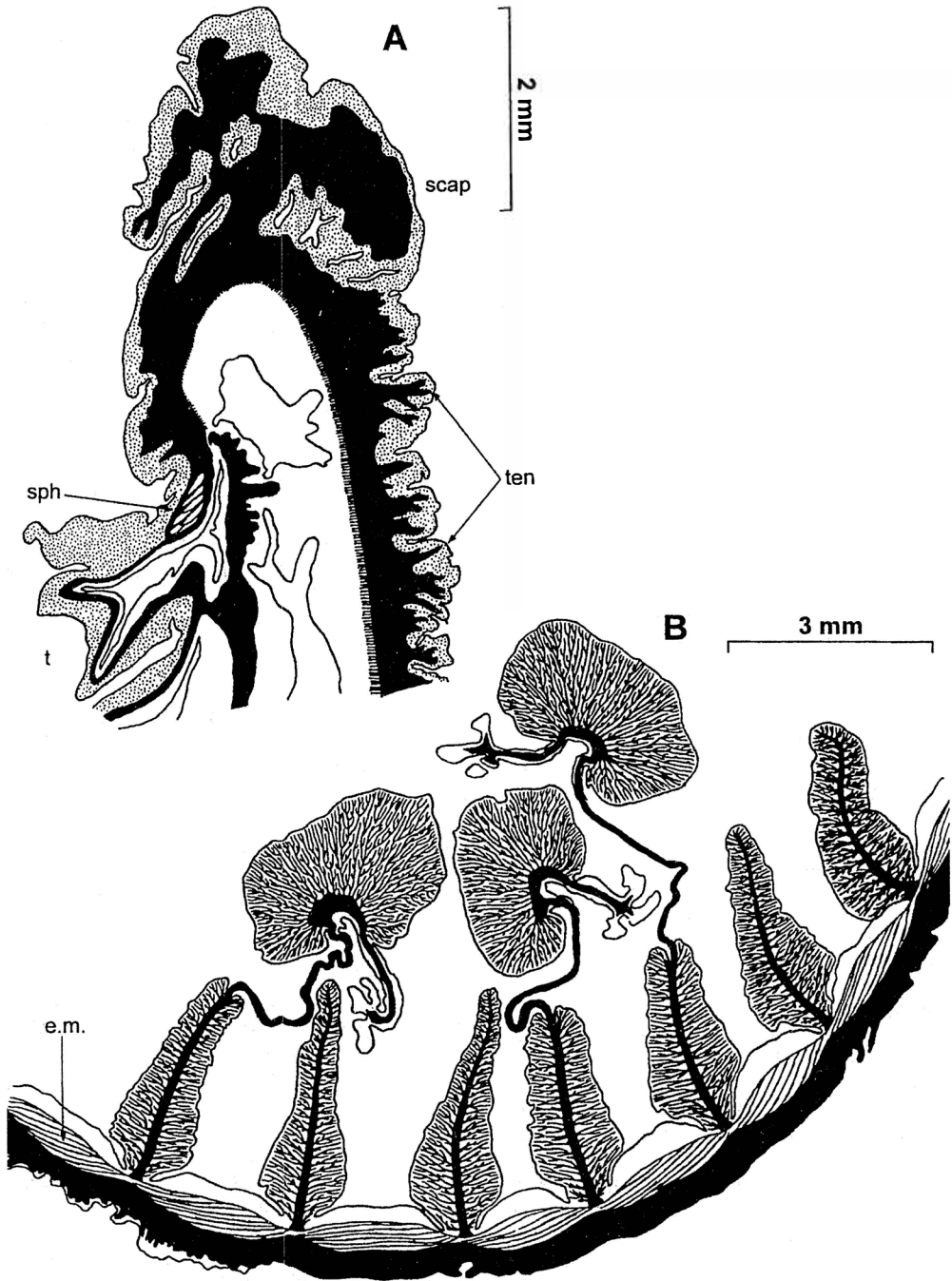


Fig. 6. *Ectaninactis psammophorum* sp. n.: A, longitudinal section of upper column; B, transverse section below actinopharynx (e.m., endodermal circular muscles; scap, scapulus; sph, sphincter; t, tentacle; ten, tenaculi).

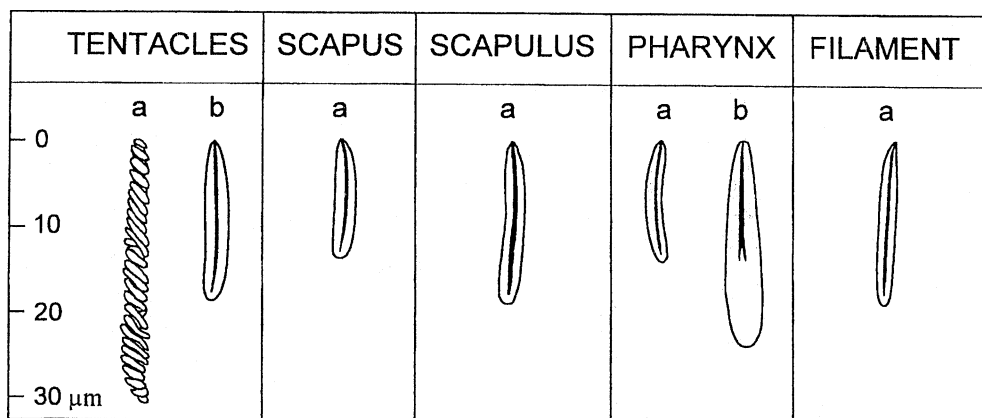


Fig. 7. *Eltaninactis psammophorum* sp. n., cnidome.

1924, the latter was considered by Grebelny (1975) to be possibly conspecific with the former. However, three specimens from western Antarctica described by Grebelny (1975) as *C. magellanicus* seem to be distinct from this species. They have small papilla-like tentacles, very strong circumscribed pinnate sphincter with a long central lamella, 37 or 38 pairs of macrocnemes and may belong to the genus *Capnea* Forbes, 1841, rather than to *Condylanthus*. All other genera of the family are monotypic and all the species have rarely been reported, most of them are known from original descriptions only.

***Charisea saxicola* Torrey, 1902**  
(Figs 8, 9)

*Charisea saxicola* Torrey, 1902: 388.  
? *Charisea saxicola*: Carlgren, 1934: 348.

*Material examined.* Kamchatka, Avacha Bay, Starichkov Island, intertidal, 24.VI.1998, 8 specimens, KIE 1/176, collector N.P. Sanamyan.

*Description.* Body of largest observed living specimen 3 cm long and 0.5 cm in diameter; contracted preserved specimens are smaller. Smooth column not divisible into regions. Distinct adherent pedal disc equals in diameter to column. Forty tentacles were counted in largest specimen (Fig. 8B).

There is a distinct layer of circular endodermal muscles, but no marginal sphincter. Radial muscles of oral disc and longitudinal muscles of tentacles ectodermal. Actinopharynx with longitudinal folds and two shallow siphonoglyphs supported by two pairs of directives. Three cycles of mesenteries present, the third

one incomplete. Six pairs are macrocnemes and other mesenteries are microcnemes. All macrocnemes, including directives, perfect, fertile and provided with strongly restricted reniform retractors and weak parietobasilar muscles. Microcnemes imperfect, devoid of retractors and gonads, some microcnemes of the second cycle provided with filaments. Basilar muscles distinct.

Other features correspond closely to the original description of the species.

Cnidome (letters in brackets refer to Fig. 9, all measurements in  $\mu\text{m}$ ):

Tentacles	Spirocysts (a)	10-21 $\times$ 2-3
	Basitrichs (b)	12-25 $\times$ 2-3
	p-Mastigophores (c)	16-19 $\times$ 3-4
Column	Basitrichs (a)	14-20 $\times$ 2.5-3.5
	p-Mastigophores (b)	13-20 $\times$ 4
Actinopharynx	Basitrichs (a)	14-24 $\times$ 2-3
	p-Mastigophores (b)	13-23 $\times$ 4
	p-Mastigophores (c)	25-30 $\times$ 4.5-5
Filaments	Basitrichs (a)	13-15 $\times$ 2
	p-Mastigophores (b)	14-22 $\times$ 4-4.5

*Habitat.* The specimens were collected in the intertidal pools with sandy bottom and with the base attached to stones few centimetres beneath the surface. The oral disc extends to the surface.

*Remarks.* Torrey (1902) compared this species with *Macroactyla* Haddon 1898 and *Con-*



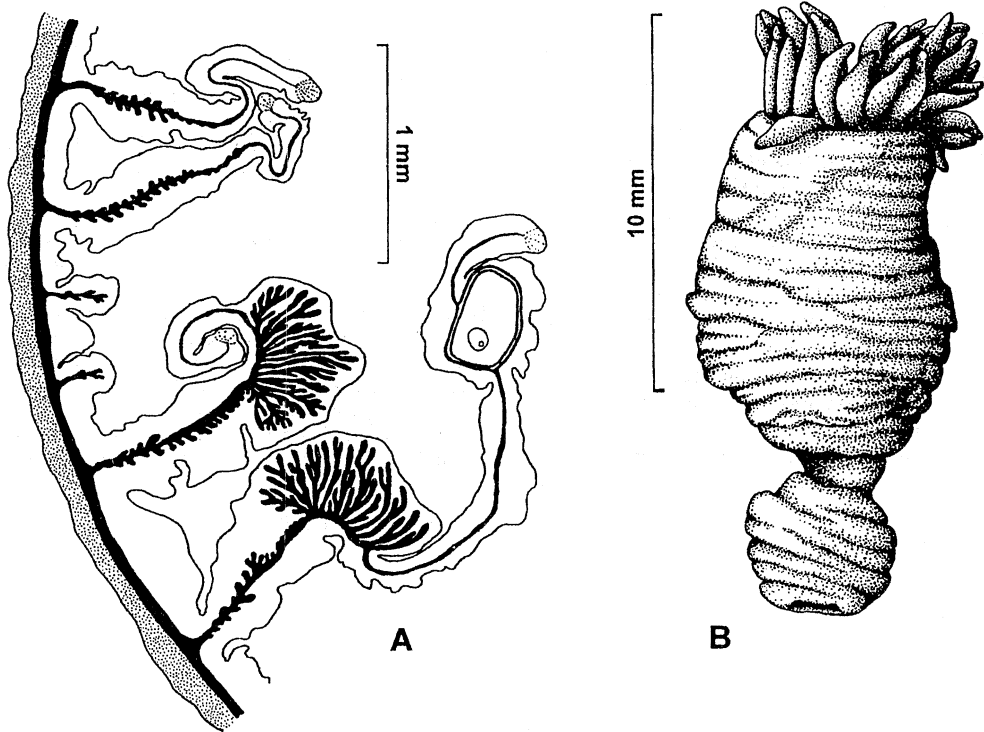


Fig. 8. *Charisea saxicola* Torrey, 1902: A, transverse section. B, external appearance.

*dylactis* Duchassaing & Michelotti, 1866 and placed it in the family Actiniidae. Carlgren (1921) stated that “the body shape of *Charisea* namely indicates that the genus has no distinct pedal disc” and suggested that *Charisea* is a junior synonym of *Achelmis* Lutken, 1875 (Halcampoididae). Stephenson (1922) regarded *Charisea* as a possible synonym of *Condylan-*

*thus*, the type genus of the family Condylanthidae.

Carlgren (1934) found rather distinct basilar muscles in three small specimens from Aleutian Islands, which he identified as *Charisea saxicola*, and stated that it “appears to be a Condylanthid”, although not congeneric with *Condylanthus*. His specimens show certain dif-

	TENTACLES			COLUMN		PHARYNX			FILAMENT	
	a	b	c	a	b	a	b	c	a	b
0										
10										
20										
30 μm										

Fig. 9. *Charisea saxicola* Torrey, 1902, cnidome.

ferences from the original description, they have about 22 tentacles (44-50 in the original description), a few more mesenteries than the tentacles and a weak diffuse sphincter, and possibly belong to a different species (see Carlgren, 1949). Thus, although Carlgren (1949) placed the genus in the Condylanthidae, the real position of the genus was uncertain.

The present specimens conform well to the original description and figures given by Torrey (1902) in all features, including absence of the sphincter muscle and equal number of the mesenteries and tentacles. The presence of a distinct pedal disc observed in living specimens and presence of basilar muscles confirms the systematic position of the genus in the Condylanthidae.

This intertidal species was recorded from Aleutian Islands (Sitka and Unalaska) and Kamchatka.

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