

New species of the genus *Parasmittina* (Bryozoa: Cheilostomata: Smittinidae) from the Chukchi Sea

Новый вид рода *Parasmittina* (Bryozoa: Cheilostomata: Smittinidae) из Чукотского моря

N.V. DENISENKO

Н.В. ДЕНИСЕНКО

N.V. Denisenko, Zoological Institute, Russian Academy of Sciences, 1 Universitetskaya Emb., St Petersburg 199034, Russia. E-mail: ndenisenko@zin.ru

A new species of the genus *Parasmittina* Osburn, 19521, *P. tatianae* sp. nov., is described and illustrated. It was obtained from a surface of mollusk shells in the south-eastern part of the Chukchi Sea. The new species differs from congeners in the size of zooids, in the shapes of the primary orifice and peristome and in the morphology of the lyrula and the condyles.

Описывается и иллюстрируется новый вид рода *Parasmittina* Osburn, 1952, *P. tatianae* sp. nov., найденный на раковинах моллюсков в юго-восточной части Чукотского моря. Новый вид отличается от других представителей данного рода формой первичного отверстия и формой перистома, а также морфологией лирули и кондилей.

Key words: marine bryozoans, Chukchi Sea, taxonomy, Smittinidae, *Parasmittina*, new species

Ключевые слова: морские мшанки, Чукотское море, таксономия, Smittinidae, *Parasmittina*, новый вид

INTRODUCTION

The genus *Parasmittina* Osburn, 1952 has a Pacific origin, and its diversity is the highest in the Pacific Ocean. More than 50 species of this genus have been already described for the Northern Pacific (Bock & Gordon, 2015). In the Arctic Seas, diversity of the genus is low. The highest number of species belonging to *Parasmittina* is registered in the Chukchi Sea where four species were found (Osburn, 1952; Kluge, 1962; Soule & Soule, 2002; Denisenko, 2008; Denisenko & Kuklinsky, 2008, Gontar, 2009). Colonies of a new species described below were obtained from the south-eastern part of the Chukchi Sea in 2004 during the common Russian-American cruise carried out in frames of the international program RUSALCA. Collected specimens were preserved in 70% ethanol. Bryozoan colonies were examined under a stereomicroscope “Leica”. Selected colony was coated by pla-

tinum and was examined using a QUANTA 250 (FEI) scanning electron microscope (SEM). Measurements were made using the SEM photos. The holotype and the paratype of the new species are stored in collections of the Zoological Institute of the Russian Academy of Sciences, St Petersburg (ZIN).

DESCRIPTION OF NEW SPECIES

Class **GYMNOLAEMATA**

Order **CHEILOSTOMATA**

Family **SMITTINIDAE**

Genus *Parasmittina* Osburn, 1952

Parasmittina tatianae sp. nov.

(Fig. 1)

Holotype: no 1/50643 – ZIN, Chukchi Sea, to west of Point Hope, 71°29'20''N, 160°18'40''W, R/v “Professor Khromov”, station 17, dredge, 24.VIII.2004, depth 39 m, collectors: B.I. Sirenko and S.Yu. Gagaev.

Paratype: no 2/50644 – ZIN, the same data as for the holotype.

Description. Colonies small, roundish, 8 × 11 mm, white or cream-coloured, shining. Zooids moderate sized (Table 1), mostly of irregularly oval or square form (Fig. 1 a). Zooids boundaries clearly visible and separated each from other by thickened prominent edges. Frontal shield slightly convex, roughly granulated, very often with papillae, and with one row of large pores located in grooves at edge of zooid (Fig. 1 b, f, g). Size of marginal pores equal in zooids of central part of colony and in zooids at colony edge. Primary orifice bean-shaped or close to oval form (0.13–0.17 × 0.11–0.12 mm). Lyrula varying in size and form: with convex or straight edge (Fig. 1 c, d). It usually occupies 2/5 of proximal edge of orifice. Condyles slender, elongated, curved downward. Initially they smooth (Fig. 1 c) but in older zooids become layered and burred (Fig. 1 d). Peristome low and rounded in zooids near growing edge of colony, but in zooids, located closer to center of colony, it wide, raised, expanding toward outer edge. Turned out lateral lobes present when peristome is fully formed. Peristome surrounds primary orifice, except its distal border with 3–4 thick oral spines (Fig. 1 b, f, g). Peristomial pseudo-sinus wide and symmetrical in zooids with avicularia, but asymmetrical in case when pre-oral avicularia absent. Wide pseudo-sinus doing lyrula well visible (Fig. 1 b, f, g). One prominent knobby avicularium lying lateral to opesia. Avicularian camera lying near peristome or joins it. Avicularian cystid with several large pores near base.

Rostrum of avicularium with acute tip and directed toward proximal corner of orifice. External line of palate bent (Fig. 1 b, f). Avicularium crossbar complete. Mandible triangular (Fig. 1 e). Additional avicularia are not found. Ovicells are not found.

Etymology. The species is named in honor of my untimely dead daughter Tatiana.

Discussion. Until recent time it was possible to believe that the bryozoan fauna of the Chukchi Sea is studied well (Denisenko, 2008; Denisenko & Kuklinsky 2008; Gontar, 2009). Recently it was shown that this fauna consisting of 204 recorded species can further include nearly 60 species (Denisenko & Grebmeier, 2015). Actually, our knowledge about the bryozoan fauna of the eastern part of the Sea belonging to United States of America is still poor despite of numerous surveys carried out there by American scientists, and most of collected there bryozoan samples were not identified due to difficulties with identification of species in this taxonomic group. Therefore, records of new species in this region are predictable.

As mention above, only four species of the genus *Parasmittina* were registered in the Chukchi Sea. A strong influence of the Pacific Ocean on a fauna composition in the Chukchi Sea (Denisenko & Grebmeier, 2015) allows expect that the diversity of the genus in the Chukchi Sea can be higher, because the genus has the highest diversity in the Pacific region. Based on a zooids shape, presence of the preoral avicularium and the roundish peristome in the zooids near the growing edge of a colony, the studied specimens can be pre-identified as *Parasmittina*

Table 1. Measurements (in mm) of *Parasmittina tatianae* sp. nov. N – number of measurements; Mean – average size of character; SD – standard deviation; Min–max – minimal and maximal sizes of each characteristic.

Character	N	Mean ± SD	Min–max
Autozooids length	15	0.74 ± 0.05	0.7–0.77
Autozooids width	15	0.35 ± 0.06	0.25–0.47
Primary orifice width	10	0.14 ± 0.02	0.13–0.17
Primary orifice height without lirula	10	0.1 ± 0.01	0.11–0.12
Avicularium length	8	0.15 ± 0.02	0.14–0.17
Avicularium width	8	0.09 ± 0.01	0.09–0.1

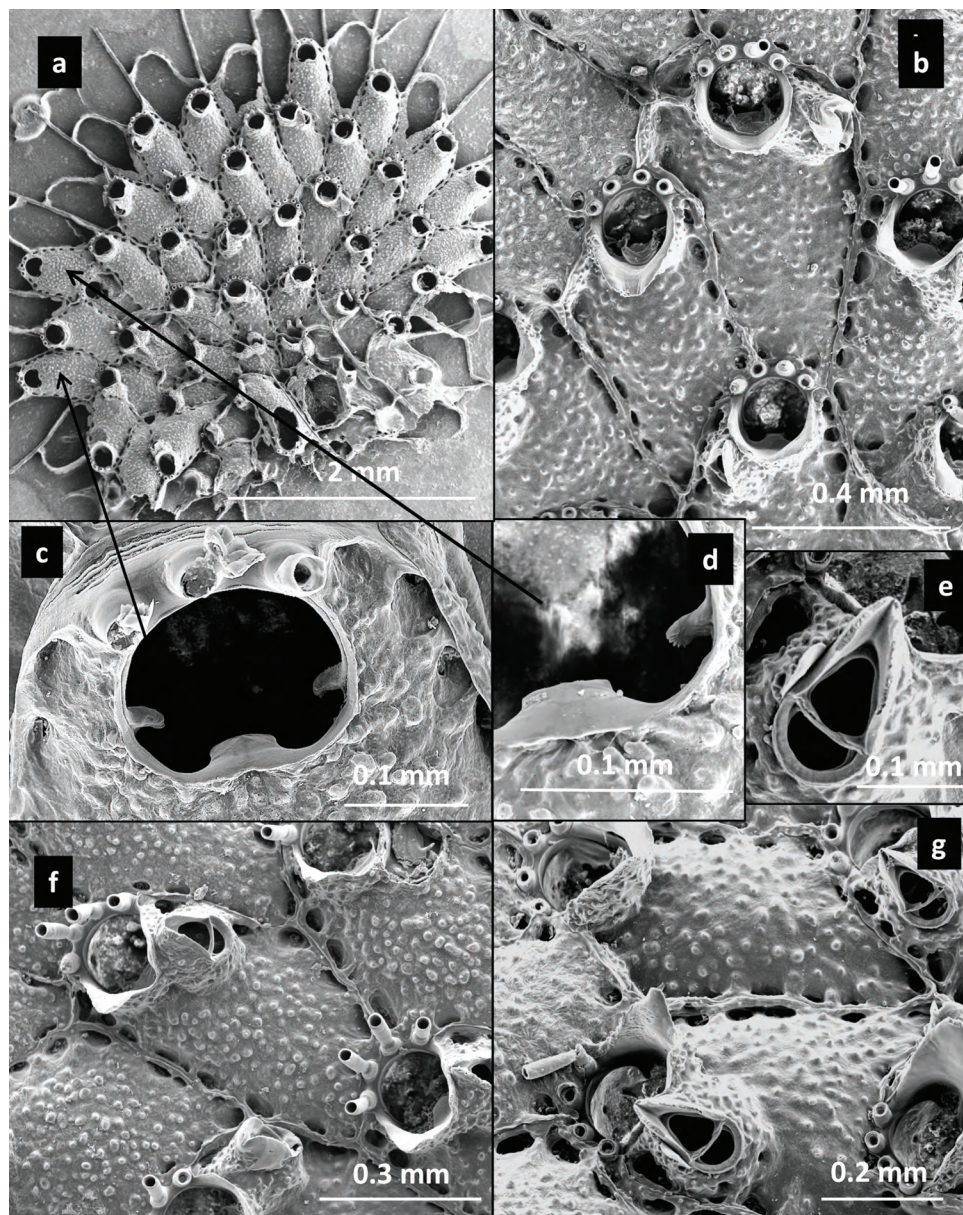


Fig. 1. *Parasmittina tatianae* sp. nov., holotype. **a**, colony, general view; **b**, group of zooids with avicularia; **c**, **d**, two primary orifices with lyrula and different condyles in zooid near colony edge; **e**, form of mandible of avicularium; **f**, **g**, shapes of peristome of secondary opening.

trispinosa (Johnston, 1825). But more detailed study with using of the SEM-technology shows that the colonies differ from the latter species and can be regarded as a new species. As shown previously (Soule & Soule, 2002), many records of *P. trispinosa* (Johnston, 1825) were based on erroneous

identifications, and subsequently six new species have been described as a result of revisions of these records with using of SEM-technology.

The new species is distinguished from the other species of the genus *Parasmittina* by following characters. The new species has

the bean-shaped or oval form of the primary orifice, while *P. trispinosa* has the roundish opesia. The new species has the elongated, layered, notched and curved proximally condyles. The condyles of *P. trispinosa* are also curved downward, but they are simple, short and smooth. The well-developed peristome with lobes and the wide pseudo-sinus of the new species also differs it from other species of the genus. *P. macginitiei* Soule et Soule, 2002 also has the wide peristome with the wide pseudo-sinus. Its presence makes this species somewhat similar to the new species but in the first species the peristome is without lobes and the encroaching thick frontal wall. In addition, *P. macginitiei* is easily distinguished from the new species by the size of zooids which are smaller in half, by the shape of the primary orifice which is wider across proximal margin narrowing distally and having two spines, by the small and smooth condyles, by the small lyrula (< 0.03 mm), and by the bulbous and large avicularia situated proximally to the aperture, with a mandible tip is directed toward the orifice.

I did not find additional avicularia in the studied specimens. The preoral location of the avicularium is registered in many species of *Parasmittina*, however the form of the avicularian camera in combination with others peculiarities of the new species make it distinct from others species of this genus. And, as has been shown earlier (Soule & Soule, 2002), the presence of additional avicularia is not an obligatory character of species belonging to this genus, e.g. they are absent in *P. crosslandy* (Hastings, 1930) and in *P. laveta* Soule et Soule, 2002.

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