

Some Tintinnodea from the Gulf of Siam.

By

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The following small contribution to the marine fauna of the Gulf of Siam has resulted from the examination of a number of collections of plankton made during the stay of the Danish Expedition in Siam in 1899—1900 round the island of Koh Chang (in 12° N., 102° 15' E). The collections were preserved in formaline. This is a list of the samples collected¹⁾.

1. ²⁵/₁₂. 1899. Strait between Koh Chang and Lem Ngob.
2. ⁹/₁. 1900. Between Koh Kahdat and Koh Kut.
3. ¹¹/₁. 1900. S. of Koh Chang.
4. ¹⁰/₁. 1900. W. of Koh Chang, N. of Koh Savan.
5. ¹⁷/₁. 1900. W. of Koh Chang, S. of Koh Savan.
6. ¹⁸/₁. 1900. S. of Koh Chang.
7. ²⁷/₁. 1900. North end of Koh Kut.
8. ²⁸/₁. 1900. S. of Koh Kut.
9. ³¹/₁. 1900. 18 miles W. of Koh Chang.
10. ²¹/₃. 1900. 1—2 miles S. of Koh Kram.

Tintinnus Schrank, Daday.

1. *T. lucus undae* Entz, Zur näheren Kenntniss d. Tintinnodeen, Mitth. aus d. Zool. Station zu Neapel, Bd. 6, p. 202, Pl. XIV, f. 12, 1885.

¹⁾ e means predominant, + means common, r means rare, rr means very rare.

2 (rr) — 6 (rr).

Area: Atlantic, Mediterranean, Red Sea, Indian Ocean.

2. *T. Fraukoi* Daday Monographie d. Familie d. Tintinnodeen, Mitth. aus d. Zool. Stat. zu Neapel, Bd. 7, p. 528, Pl. 18, f. 1, 1887.

2 (rr) — 3 (rr) — 4 (rr) — 5 (r) — 7 (rr) — 10 (rr).

Area: Atlantic, Mediterranean, Red Sea, Indian Ocean.

Leprotintinnus Jørgensen.

3. *L. Brandtii* (Nordquist) Jørgensen, Ueber die Tintinnodeen d. norwegischen Westküste, Bergens Museums Aarbog, Nr. II, p. 10, 1899; Cleve Some Atlantic Tintinnodea, Öfv. af Kgl. Sv. Vet.-Ak. Förh. Nr. 10, p. 973, fig., 1899; *Codonella Brandtii* Nordquist, Medd. af Soc. p. Fauna et Flora Fennica, 17, 1890—92, f. 1—2.

1 (rr) — 2 (r) — 3 (rr) — 5 (r) — 6 (+) — 10 (rr).

Area: Baltic, north coast of S. America in 6° 35' N., 54° 51' W.

4. *L. simplex* Schm. n. sp.

House thin-walled, cylindrical or subcylindrical, not or very little narrowed towards the inferior part; inferior aperture not widened. Wall structureless, with a few agglutinated foreign bodies.

Length 204 μ .

Breadth 41 μ .

From the species hitherto known of this genus proposed by Jørgensen l. c. p. 10, *L. simplex* differs in not being narrowed towards the inferior end and in wanting an inferior widened part.

1 (rr).

Amphorella Daday.

5. *A. acuta* Schm. n. sp.

The shape of the house is nearly the same as in *A. quadrilineata* (Clap. & Lachm.) Jørgensen l. c. p. 12, Pl. I, f. 2.



Fig. 1.
Leprotintinnus simplex Schm.
Seibert Oc. III.
Obj. II.

House thin-walled, structureless, inferior part with 3 prominent wings and an acute end.

Length 91—98 μ .

Diameter of mouth 31—32 μ .



Fig. 2. *Amphorella acuta* Schm.

a, b lateral view, c transverse section of the inferior part of the house.
Seibert Os. I, Ohl. V.

This species stands nearest to *A. quadrifincata* (Clap. & Lachm.) Jørgensen, but is easily distinguished by its acute end.

2 (rr) — 6 (r) — 10 (rr).

Tintinnopsis Stein.

6. *T. curvicauda* Daday Monographie d. Fam. d. Tintinnodeen, p. 554, Pl. XIX, f. 33., 1887.

In most of the specimens observed the curvature of the apical end is not so pronounced as in the quoted figure by Daday, and often the apex is nearly straight. For such forms I propose the name:

T. curvicauda Daday f. *subrecta*. This form is the predominant in our area, but I have also met with a few specimens not differing from the type.

1 (rr) — 2 (r) — 3 (r) — 5 (r) — 6 (r).

Area (of type): Mediterranean.

7. *T. cyathus* Daday, Monographie d. Fam. d. Tintinnodeen, p. 556, Pl. 20, f. 23, 1887.

In one sample I saw a form which I think must be referred to this species.

8. *T. Lindeni* Daday, Monographie d. Fam. d. Tintinnodeen, p. 560, Pl. 20, f. 23, 1887.

The specimens observed differed from the quoted figure by Daday in being somewhat more lengthened.

1 (rr) — 6 (rr).

9. *T. beroidea* Stein, Der Organismus d. Infusionsthier, 2 Abth. 1867, p. 154; Daday, Monographie d. Tintinnodeen, p. 547, *Codonella beroidea* Kütz, Zur näheren Kenntniss d. Tintinnodeen, Mitth. aus d. Zool. Stat. zu Neapel, Bd. 6, p. 411, 1885.

This species varies much in length and shape of its inferior end. Some of the specimens observed may be referred to the form figured by Daday l. c., Pl. 19, f. 9, being longer and more cylindrical than usually in northern specimens. Thus they approach to *T. Lobiancoi* Daday l. c., p. 553, Pl. 19, f. 27 but none of my specimens was so long as figured by Daday l. c. Pl. 19, f. 27.

2 (rr) — 6 (rr) — 10 (rr).

Area: Apparently an ubiquitous neritic form.

10. *T. Mortensenii* Schm. n. sp.

House short, globose or subglobose, covered by agglutinated foreign bodies; mouth widened, infundibuliform.

Length 41 μ .

Breadth 28 μ .

Diameter of mouth 53 μ .



Fig. 3. *Tintinnopsis Mortensenii* Schm. Selbst. Os. I, Obj. V.

This species may be compared with *T. campanula* from which it is easily distinguished by the shape and smaller size of the house. I name it in memory of my fellow-traveller, Dr. Th. Mortensen, who collected most of the plankton-samples examined.

1 (rr) — 2 (rr) — 5 (rr).

Codonella Haeckel.

10. *C. Ostenfeldii* Schm. n. sp.¹⁾

House clavate; proboscis longer than apical part, cylindrical or slightly narrowed towards the mouth, with numerous as well transversely as spirally arranged perforations; apical part obovate, with rounded or subacute end, covered by agglutinated foreign bodies which conceal its reticulated structure.

Total length: 125—204 μ .

Length of proboscis: 77—119 μ .

Breadth of proboscis: 38—41 μ .

Breadth of apical part: 53—56 μ .

Diameter of perforations: about 7 μ .

This peculiar species is related to *Codonella morchella* Cleve, from which it is easily distinguished by the perforated proboscis. The length of the proboscis is subjected to considerable variation. The mouth is often covered by foreign bodies.

10 (r).

12. *C. morchella* Cleve.

Some Atlantic Tintinnodes in Öfr. af Kgl. Sv. Vet.-Ak. Förhandl. 1899, Nr. 10, p. 969, fig.

The shape of the apical part is not always obovate as figured by Cleve; sometimes it is ovate as in *C. Ostenfeldii* or also it may be quite globose. I saw specimens, where the proboscis was covered by agglutinated foreign bodies.



Fig 4. *Codonella Ostenfeldii* Schm. Solbert Oc. I. Obj. V.

¹⁾ Owing to the perforation of the proboscis some authors should perhaps refer this species to the genus *Dictiocysta*; I prefer to restrict the extension of that genus to forms, where the proboscis has but one or a few rows of large perforations (=windows-) f. i. *D. templum* Haeck. a. o.

1 (rr) — 10 (rr).

Area: Caribbean Sea, Red Sea and Indian Ocean.

13. *C. ventricosa* (Clap. & Lachm.) Fol, Sur la famille des Tintinnodea, Recueil Zool. Suisse, Tome 1, p. 59, Pl. 5, f. 12, 1884; Entz, Ueber Infusorien des Golfes von Neapel, Mitth. aus d. Zool. Stat. zu Neapel, Bd. 5, p. 413, Pl. XXIV, f. 24, 1884; *Tintinnopsis ventricosa* Daday, Monographie d. Fam. d. Tintinnodeen, ibid. Bd. 7, p. 559, Pl. 20, f. 19—20, 1887.

The specimens observed agree very well with Entz's and v. Daday's figures.

1 (rr) — 2 (rr) — 6 (+) — 10 (r).

Area: Atlantic, North Sea, Western Baltic, White Sea, Mediterranean.

Cyttarocyllis Fol.

14. *C. reticulata* Ostenfeld & Schmidt, Plankton fra det Røde Hav og Adenbugten, Vidensk. Meddel. Naturhist. Foren. Kjøbenhavn, 1901, p. 180, f. 28.

The Siamese specimens differed from the form described and figured by Ostenfeld & Schmidt l. c. in being smaller; further the reticulation was less obvious.

2 (rr) — 10 (rr).

Area: Red Sea, Indian Ocean.

15. *C. pocolum* Ostenfeld & Schmidt l. c. p. 179, f. 27.

10 (r).

Area: Red Sea, Indian Ocean.

16. *C. spiralis* (Fol) Ostenfeld & Schmidt l. c., p. 180, f. 29; *Tintinnus spiralis* Fol, Contribution à la connaissance de la famille des Tintinnodea, Arch. d. Sci. Phys. Natur. Genève, T. III, p. 21, Pl. I, f. 4, 1881; *Undella spiralis* Daday, Monographie d. Fam. d. Tintinnodeen, p. 565, Pl. 18, f. 8, 1887.

The specimens observed were somewhat narrowed below the mouth.

2 (rr) — 3 (rr) — 4 (r) — 5 (rr) — 6 (r) — 10 (rr).

Area: Warm Atlantic, Mediterranean, Red Sea, Indian Ocean.

17. *C. Hebe* Cleve, Some Atlantic Tintinnodea, Öfv. af Kgl. Sv. Vet.-Ak. Förh. Nr. 10, p. 971, figure, 1899; Ostenfeld & Schmidt l. c., p. 179, f. 26.

In the Gulf of Siam there occurs a small, hyaline form of this species, which differs from the preceding species in wanting the big puncta between the ribs.

2 (rr) — 4 (rr) — 5 (rr) — 6 (r).

Area (of type): Tropical Atlantic (northern limit 48° N. 26°—30° W., southern limit 26° S. 45° W.), Red Sea, Indian Ocean.

18. *C. simplex* Cleve l. c. p. 972, figure.

2 (rr) — 10 (rr).

Area: Tropical Atlantic, Red Sea, Indian Ocean.

19. *C. ventricosa* Schm. n. sp.

House broadly-campanulate, ventricous, with slightly acuminate, not prolonged apical end, nearly as long as broad; mouth a little constricted, with a few transversal rings. Wall thin, with few (about 7—8) longitudinal ribs.

Length 52 μ .

Breadth 42 μ .

Diameter of mouth 34 μ .

This delicate species of which I have only seen a single specimen seems to be nearest to *Cytt. simplex* Cleve, from which it is easily distinguished by its ventricosity.

6 (rr).

20. *U. azorica* Cleve, Some Atlantic Tintinnodea, Öfv. af Kgl. Sv. Vet.-Ak. Förh., Nr. 10, p. 974, figure, 1899.

2 (r).

Area: Azores.



Fig. 5.

Cyttarocyclus ventricosa Schm.
Seibert Oc. I. Obj. V.

Undella Daday.

21. *U. campanula* Schm. n. sp.

House campanulate, nearly twice as long as broad or somewhat shorter, with pedunculate apical end; wall double, thin, structureless.

Length 336 μ .

Diameter of mouth 141 μ .

Length of apex 78 μ .

U. campanula is most closely related to *U. azorica* and might perhaps be considered a pedunculate variety of this species.

1 (r) — 3 (rr).



Fig. 6. *Undella campanula* Schm. Seibert Oc. I, Ohi. V.



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