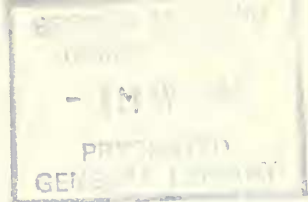


A revision of the Suctoria (Ciliophora, Kinetofragminophora)

1. *Acineta* and its morphological relatives

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Synopsis

The species of *Acineta* and 7 morphologically related genera have been revised. A new diagnosis for each genus is given with a key to its constituent species. Several genera recently erected by Jankowski (1978) have been synonymised and a new one, *Kellicotta* n. gen., is described. All species are described and figured.

Introduction

The suctoria have received less attention than some of the other ciliate groups. Most papers in the past 50 years have been particularly concerned with the description of the different budding methods found in the group and the inclusion of these data in devising new classifications for the subclass. Keys to their identification have been few and this has led to taxonomic confusion particularly at the generic level. It is apparent that we are still unclear as to what constitutes a genus as far as the suctoria are concerned and this was the first major problem to be overcome. Many difficulties were encountered with the suctoria when preparing a generic key to all freshwater ciliates (Curds, 1982), but it was decided at the time that it was not within the province of that book to include major generic revisions and acceptable published classifications were adhered to as far as possible. The present publication is the first of a series of papers that should enable the ecologist and taxonomist to identify all species of suctoria described to date. The initial approach was to create a database of published information concerning suctorian genera on a computer. An on-line identification programme made it possible to be able to quickly compare the descriptions of species with published generic descriptions, and in this way the accuracy of the original and subsequent generic identifications could be assessed. In a surprising number of cases it was found that species had been assigned to incorrect genera. So far it has been necessary to erect one new genus and several recently described genera have been synonymised. It was

strongly felt at the outset that an attempt to check on the identities of all described species of suctoria should be made before any account was written and this stage has now been more or less completed. The database was also used by another programme to automatically generate printed identification keys but these will not be published until a significant proportion of the taxonomic revisionary and descriptive work has been completed since the data are being continually revised as the more detailed aspects of the work progress. It is not intended to publish the series in any particular taxonomic order but rather to concentrate initially on some of the more common, larger and usually taxonomically more difficult genera, along with their nearest morphological relatives. Thus this first part concerns the genus *Acineta* Ehrenberg, 1833 and some closely related genera.

The relative importance of the various characters that have been used for establishing genera have changed considerably over the years. Attributes that were once used as primary characters may now be regarded as unimportant while more recently newer characters, often based on the buds and mode of budding, have been introduced. It was thought therefore that some remarks should be made concerning the characters that have been used as a basis for the revisions included here.

(a) *Method of budding.* There are several fundamentally different modes of budding in the suctoria (Batisse, 1975) and the methods have been used in the more recent schemes of classification as one of the primary characters for the diagnosis of families. All of the genera included here rely, or are assumed to rely, upon endogenous bud formation as their method of asexual reproduction. In some cases where the mode of budding has not yet been reported, the inclusion of the species in the genus should only be regarded as provisional. Should the budding method subsequently be reported to be of any other type then the genus or species will need to be transferred to a more appropriate taxon. The number of buds produced has been considered here to have no importance, thus the genus *Acineta* contains some species which produce single buds while others may undergo multiple bud formation.

(b) *Ciliation of bud.* Evidence from the literature (Guilcher, 1951) indicates that the ciliation of the bud is of diagnostic importance. For example, all species of the genus *Acineta* have 5–11 oblique ciliary rows while species of the aloricate *Tokophrya*, which have often been confused with *Acineta*, possess 4 transverse ciliary bands. Unfortunately, this information is not often available in original descriptions and more data are urgently needed about the ciliary patterns of suctorian buds.

(c) *Tentacles.* The morphology and arrangement of tentacles have been used as taxonomic characters for many years. Early workers soon recognised that different genera tended to have their tentacles arranged in specific ways. For example, some have their tentacles arranged in fascicles, that is, in discrete clumps or bundles while the tentacles of others tended to be more or less equally distributed over all or certain parts of the body. In this revision the presence of fascicles of tentacles and the number of fascicles has been used as a diagnostic character. Jankowski (1967b) has recently introduced the term 'actinophore' which Corliss (1979) defines as a 'structure bearing several or a bundle (fascicle) of suctorial tentacles; characteristic of certain suctorians'. Actinophores may be clearly defined arm-like appendages in some genera such as *Stylophrya* and *Stylostoma* where their presence is clearly of some taxonomic value. However, Jankowski (1978) also refers to the presence of actinophores in *Tokophrya quadripartita* which are not at all clearly defined structures but take the form of low conical bulges upon which the tentacles are mounted. In *Acineta* and related genera the actinophores are low lobes of the *Tokophrya* type and in some cases are apparently so reduced as to be completely absent. Thus in the species described here the use of actinophores as a generic character must be regarded as being of little significance.

(d) *General morphology.* The presence or absence of a lorica has long been used as a diagnostic character and its use is continued herein. However, while some authorities (Collin, 1912) considered that whether or not the cytoplasmic body completely filled the lorica to be of taxonomic significance here this character is not considered to be important. Lateral flattening of the lorica

and body are considered to be of significance and any species in the genus *Acineta* should exhibit lateral compression to some extent. Similarly the aperture in the lorica should also be laterally compressed so that the outline shape should be a dumb-bell slit to oval but never circular.

(e) *Attachment*. Most suctoria are attached in some way to a substratum. Attachment is often achieved by the presence of a stalk or in some cases the lorica or cytoplasm is attached directly without an intervening stalk. Two different types of stalk-like structures are recognised in this revision. True stalks are always distinct from the lorica while those which are simply extensions of the lorica (Fig. 1) are not considered to be stalks in the proper sense. The nature of the substratum is not usually considered to be of significance and is certainly not thought to be sufficient grounds alone to erect a separate species and this is also applied to situations where the substrata happen to be different animal species such as crustaceans.

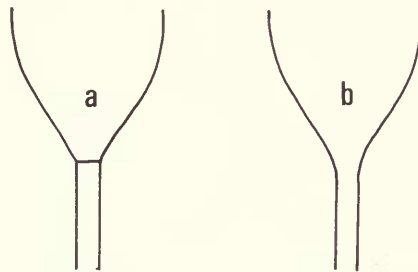


Fig. 1 Two types of attachment organelles found in the Suctoria: (a) stalk; (b) thecostyle, an extension of the lorica.

Genus *ACINETA* Ehrenberg, 1833

A large number of suctorians described to date have, at some time in their nomenclatural history, resided in the genus *Acineta*. Species have been transferred in and out of the genus, often with remarkable rapidity, causing taxonomic chaos and confusion to the biologist who simply wishes to identify a suctorian. Many of these problems arose through the lack of precision used by early taxonomists when defining a genus. However, diagnoses have been emended successively as opinions concerning taxonomically important characters have changed as a result of an increase in knowledge and understanding of the structure and biology of these organisms.

The original diagnosis of the genus was founded on the description of the species *Acineta tuberosa* Ehrenberg, 1833 and little was added over the next half century. For example, the diagnosis given by Kent (1882) stated that *Acineta* possessed a lorica to which the cytoplasm was either attached or in which it remained freely suspended, it was supported on a rigid stalk and the tentacles were suctorial, capitate and variously distributed. Few significant changes were made until the monographic work of Collin (1912) when he considerably improved precision by the addition of the following criteria: protoplasmic body almost entirely confined in a lorica without a free border, more or less strongly flattened with generally two fascicles of tentacles, reproduction always taking place by means of internal embryos. By this emendment Collin (1912) eliminated some of those species included in the 'first and second groups' of Bütschli (1899) and Sand (1900) which had already been transferred into *Paracineta* Collin, 1911 and the two genera *Periacineta* Collin, 1909 and *Thecacineta* Collin, 1909 respectively. Few changes have been made to Collin's (1912) diagnosis in the intervening years but the generic diagnosis given below adds a little more precision and takes into account some of the new genera recently erected by Jankowski (1978) and the diagnosis given by Curds (1982).

Diagnosis of *Acineta*

Freshwater or marine suctorians whose outline shape varies from oval to triangular. Lorica and

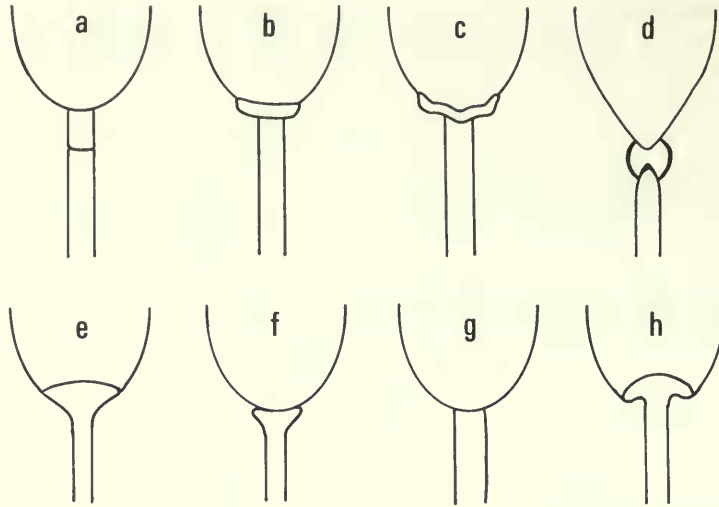


Fig. 2 Various junctions between stalk and lorica found in *Acineta*.

body always laterally compressed, borne upon a stalk and attached to aquatic animals, plants or inanimate objects. Anteriorly, two fascicles of tentacles, arranged in discrete clumps but not rows, project through an apical aperture that is usually dumb-bell shaped but may also be a simple slit or oval shape. Two low lobe-like actinophores usually present each bearing a fascicle of sutorial, capitate tentacles. Reproduction by monogemmimic or polygemmic internal budding resulting in the production of ovoid ciliated embryos whose ciliary pattern takes the form of 5-11 transverse to oblique rows.

Key to the species of *Acineta*

1	Stalk joins lorica via a distinct collar (Fig. 2a-d)	2
	Stalk joins lorica without an intervening collar	11
2	Collar about same width as rest of stalk	8
	Collar widens to at least twice stalk width	3
3	Freshwater, attached to Lake Baikal gammarids	4
	Marine	<i>A. compressa</i>
4	Collar region a narrow rectangular strip held at right angles to stalk (Fig. 2b)	5
	Collar region curved and/or inserted into posterior depression of lorica	7
5	Stalk much less than length of body whose outline shape is triangular	<i>A. pulchra</i>
	Stalk either longer or just shorter than body whose outline is oval to bell-shape	6
6	Edge of lorica scalloped with many rounded cusps, stalk is almost body length	<i>A. dentata</i>
	Lorica edge only slightly scalloped if at all, stalk longer than body	<i>A. lobata</i>
7	Collar a narrow strip in form of a series of undulating curves (Fig. 2c)	<i>A. foecunda</i>
	Collar flared, embedded in depression in lorica	<i>A. vulgata</i>
8	Body width approximately equal to body length	<i>A. compressa</i>
	Body always longer than its width	9
9	Collar region bulbous (Fig. 2d)	<i>A. papillifera</i>
	Collar region not bulbous	10
10	Freshwater	<i>A. flava</i>
	Marine	<i>A. cucullus</i>
11	Junction of stalk with lorica at least 3 times stalk width and is spatulate (Fig. 2e-h)	12
	Junction of stalk with lorica is less than 3 times stalk width and not spatulate (Fig. 2f-g)	14
12	Spatulate end of stalk embedded in posterior depression in lorica	13
	Spatulate end of stalk not embedded in posterior depression in lorica	<i>A. pumila</i>
13	Spatulate end spreads out laterally only (Fig. 2e)	<i>A. parva</i>
	Spatulate end spreads out laterally and curves back posteriorly (Fig. 2h)	<i>A. commensalis</i>

14	Junction of stalk with lorica cup-like (Fig. 2f)		15
	Stalk sides parallel at junction with lorica (Fig. 2g)		25
15	Freshwater, attached to Baikal gammarids		17
	Marine		16
16	Stalk striated longitudinally, lorica smooth	<i>A. truncata</i>	
	Stalk smooth, lorica covered with sand grains	<i>A. shulzi</i>	
17	Several contractile vacuoles present		18
	Single or no contractile vacuoles present		19
18	Tentacles and actinophores able to contract into lorica	<i>A. tubulifera</i>	
	Actinophores cannot contract into lorica	<i>A. cordiformis</i>	
19	Actinophores distinctly spherical	<i>A. sphaerifera</i>	
	Actinophores may be rounded or lobe-like but never distinctly spherical		20
20	Stalk at least 4–5 times body length	<i>A. cornuta</i>	
	Stalk less than 3 times body length and usually very much less		21
21	Body size small (30–40 µm long)	<i>A. swarczewskia</i>	
	Body size medium (at least 50 µm long)		22
22	Usually widest at equator, oval outline	<i>A. ovalis</i>	
	Always widest at apex, conical outline		23
23	Tentacles and cytoplasm confined within lorica	<i>A. baikalica</i>	
	Tentacles and cytoplasm protrude past lorica rim		24
24	Actinophores anteriorly situated, low lobes	<i>A. crypturopi</i>	
	Actinophores laterally situated, elongated lobes	<i>A. biloba</i>	
25	Lorica smooth		26
	Lorica transversely striated, folded, furrowed or ridged		43
26	Freshwater		27
	Marine		36
27	Edge of lorica distinctly scalloped	<i>A. tulipa</i>	
	Edge of lorica not scalloped		28
28	Stalk long and almost third of greatest width of lorica	<i>A. pachystylos</i>	
	Stalk usually less than sixth of greatest width of lorica if almost quarter the width then stalk is short		29
29	Lorica wider than long		30
	Lorica longer than wide		32
30	Stalk much shorter than lorica length, nucleus spherical, attached to gammarids		31
	Stalk longer than lorica length, nucleus elongate, attached to aquatic plants	<i>A. lasanicola</i>	
31	Tentacles not retractile, lorica indistinct, found in Lake Baikal	<i>A. pugmaea</i>	
	Tentacles retractile, lorica distinct, found in European freshwaters	<i>A. gammari</i>	
32	Body large (300 µm long), macronucleus curved like a sausage	<i>A. grandis</i>	
	Body medium–small (less than 100 µm long), macronucleus spherical		33
33	Attached to aquatic plants and inanimate objects		34
	Attached to gammarid crustacea	<i>A. gammari</i>	
34	Actinophores reduced, contractile vacuole off-centre	<i>A. simplex</i>	
	Actinophores prominent, contractile vacuole centrally positioned		35
35	Actinophores can retract into lorica	<i>A. fluviatilis</i>	
	Actinophores cannot retract into lorica	<i>A. tuberosa</i>	
36	Stalk distinctly longitudinally striated	<i>A. truncata</i>	
	Stalk not striated longitudinally		37
37	Stalk about same length as lorica		38
	Stalk much shorter than lorica		40
38	Body size large (300 µm long)	<i>A. calkinsi</i>	
	Body size small–medium (35–100 µm long)		39
39	Lorica oval in outline shape	<i>A. simplex</i>	
	Lorica triangular in outline shape	<i>A. tuberosa</i>	
40	Stalk wide (quarter width of body), attached to algae, apparently without tentacles	<i>A. laevis</i>	
	Stalk thin (less than eighth width of body), attached to crustacea or inanimate objects		41
41	Attached to crustacea		42
	Attached to inanimate objects	<i>A. tuberosa</i>	
42	Body confined within lorica, only tentacles protrude	<i>A. crater</i>	
	Body projects out from lorica	<i>A. corophii</i>	

43	Ectocommensal on crustacea	44
	Attached to inanimate objects	47
44	Folds or striations regular, covering most of lorica	45
	Folds or striations irregular or restricted to small areas of the lorica	46
45	Posterior end of lorica much wider than stalk	<i>A. sulcata</i>
	Posterior end of lorica narrows down to stalk width at their junction	<i>A. harpacticola</i>
46	Folds located in posterior half of lorica only, width of lorica almost equal to its length	<i>A. branchicola</i>
	Folds and striations irregular, sometimes striated down length of lorica which is longer than wide	<i>A. karamani</i>
47	Posterior end of lorica elongated to join stalk, lorica only striated in mid-region	<i>A. kahli</i>
	Posterior end of lorica broadly rounded, lorica usually striated over entire surface	<i>A. tuberosa</i>

Species descriptions

Acineta tuberosa Ehrenberg, 1833

Brachionus tuberosus Pallas, 1766

Vorticella tuberosa Müller, 1786

Volvella astoma Bory, 1825

Podophrya poculum Allman, 1875 *nomen nudum*

Acineta poculum Hertwig, 1875

Acineta foetida Maupas, 1881

Acineta aequalis Stokes, 1891

Acineta corrugata Stokes, 1894

Acineta sp. Prowasek, 1900

Acineta tuberosa var. *fraispointi* Sand, 1901

Acineta tuberosa var. *foetida* Collin, 1912

Acineta tuberosa f. *brevipes* Collin, 1912

Acineta laomededeae Precht, 1935

Tokophrya species Precht, 1935

Acineta brevicaulis Rieder, 1936

Acineta limnetis Goodrich and Jahn, 1943

Tokophrya microcerberi Delamare Deboutteville and Chappuis, 1956

Acineta tuberosa var. *bipartita* López-Ochoterena, 1963

DESCRIPTION (Figs 3, 4, 5). This the type species small to medium (25–120 µm long), freshwater, brackish or marine loricate suctorian that varies from bell to Y-shape in outline, laterally flattened. Two actinophores present, often well developed but may be reduced in some specimens, each bearing a fascicle of capitate tentacles. Apical aperture dumb-bell shape. Cytoplasm does not always completely fill the lorica which is sometimes smooth but is often transversely striated or ribbed. Stalk variable in length (5–90 µm long) joining lorica without an intervening collar or other structure, usually with basal disc. Attached to a variety of substrata including inanimate objects, aquatic plants, such as *Myriophyllum*, crustacea, such as the shrimp *Crangon*, the isopods *Idothea tricuspidata* and *Microcerberus remyi*, and the amphipod *Gammarus locusta*, also found on the freshwater turtle *Chrysemis picta*. Reproduction by endogenous budding. Oval buds with 5 oblique ciliary rows, incorrectly redrawn with only 4 rows in Kent (1882) see Fig. 3m, n. Spherical macronucleus centrally located, single contractile vacuole situated apically. Often reported from organically polluted environments.

NOTE. It will be noted from the synonymy list that this species has had a long and rich nomenclatural history. Because it is so variable in almost all of its attributes it has been given many different specific names. It is probably the most commonly reported of all the species in the genus.

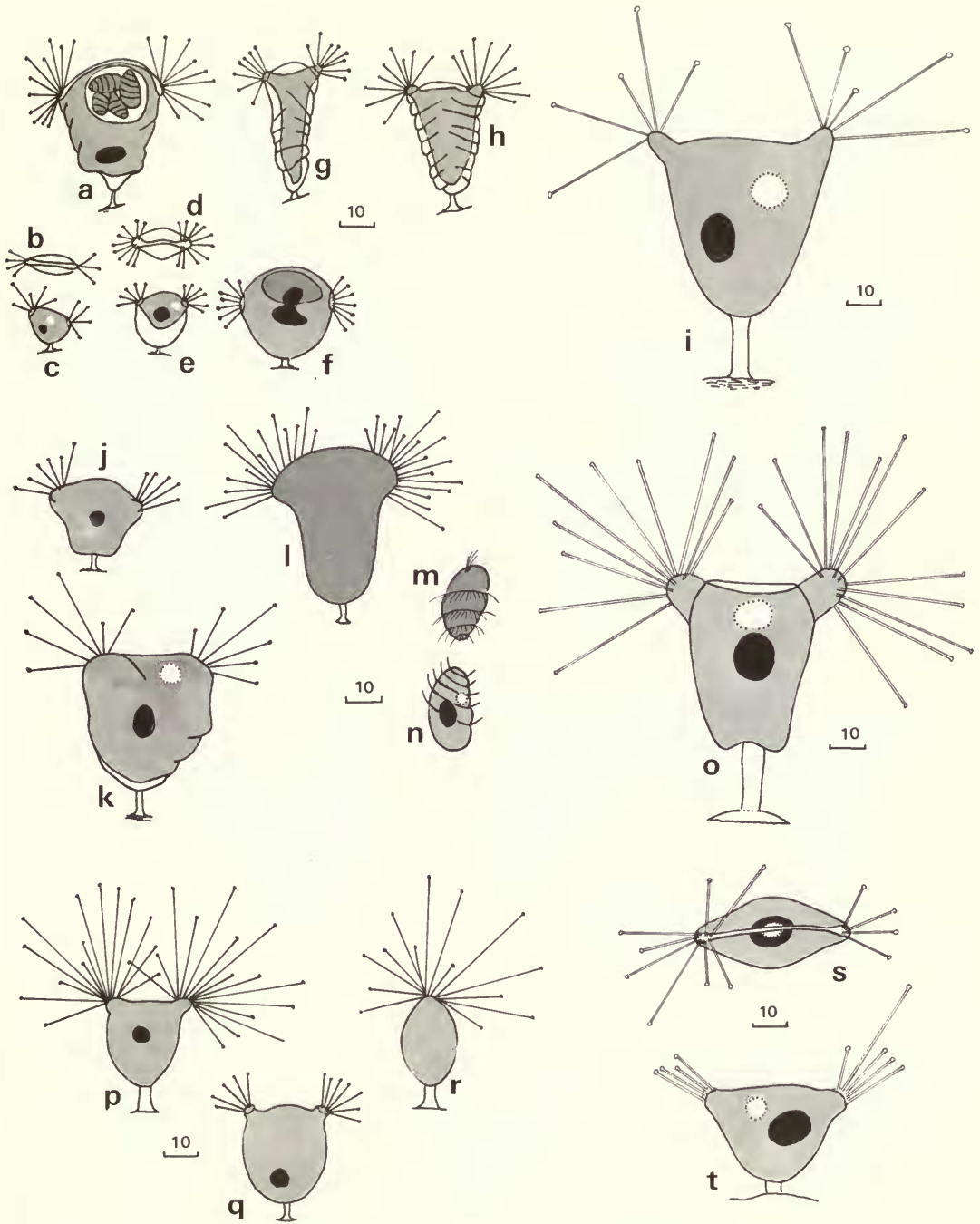
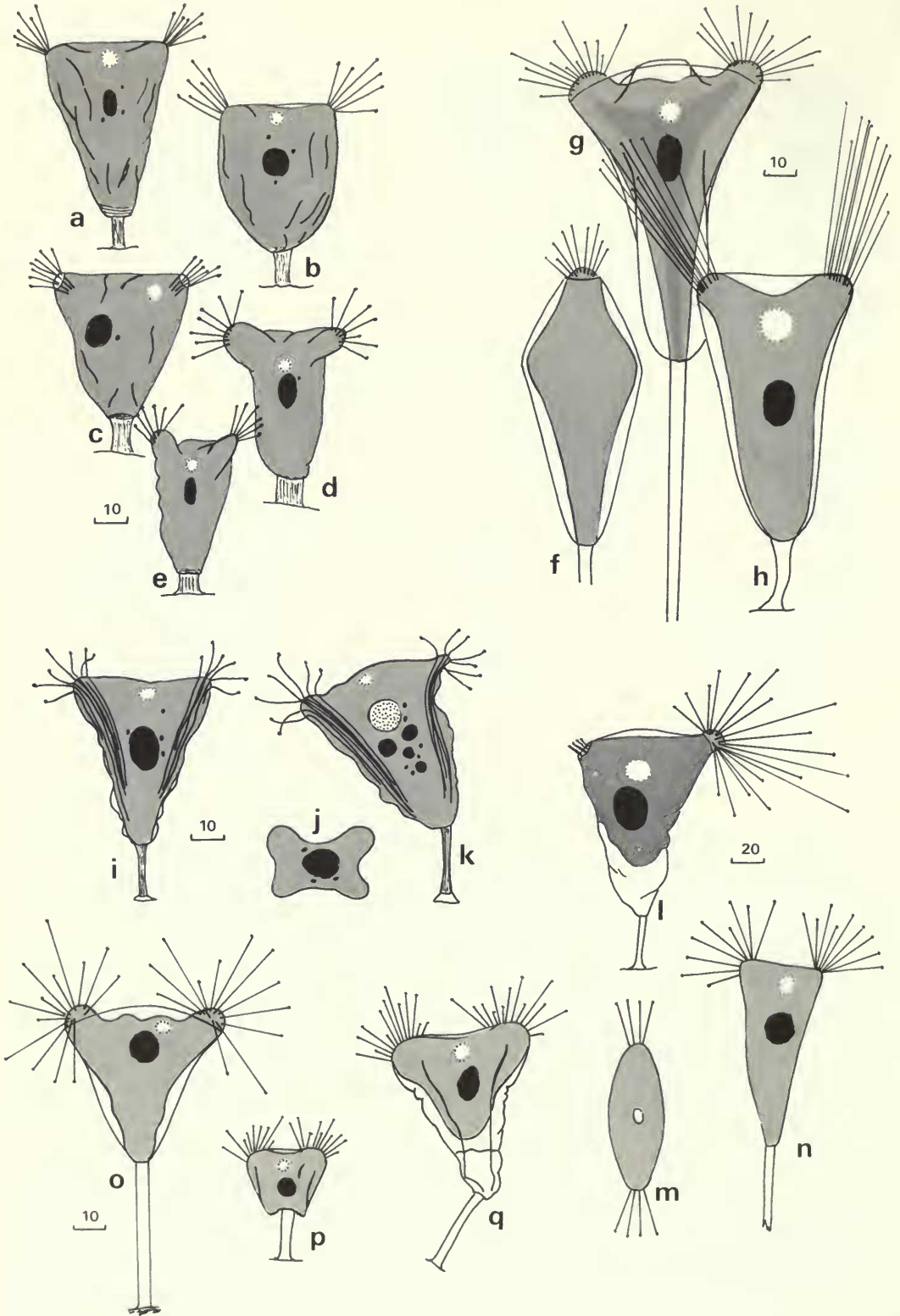


Fig. 3 *Acineta tuberosa*: (a–h) after Maupas, 1881 (called *A. foetida*); (i) after Stokes, 1891 (called *A. aequalis*); (j, l, m) after Collin, 1912 (called *A. tuberosa* var. *foetida*); (k) after Wang & Nie, 1933; (n) ciliated larval form, after Maupas, 1881; (o) after Goodrich & Jahn, 1943 (called *A. limnetis*); (p, r) after Wailes, 1943 (called *A. foetida*); (q) after Gourret & Roeser, 1886 (called *A. foetida*); (s, t) after Rieder, 1936 (called *A. brevicaulis*).



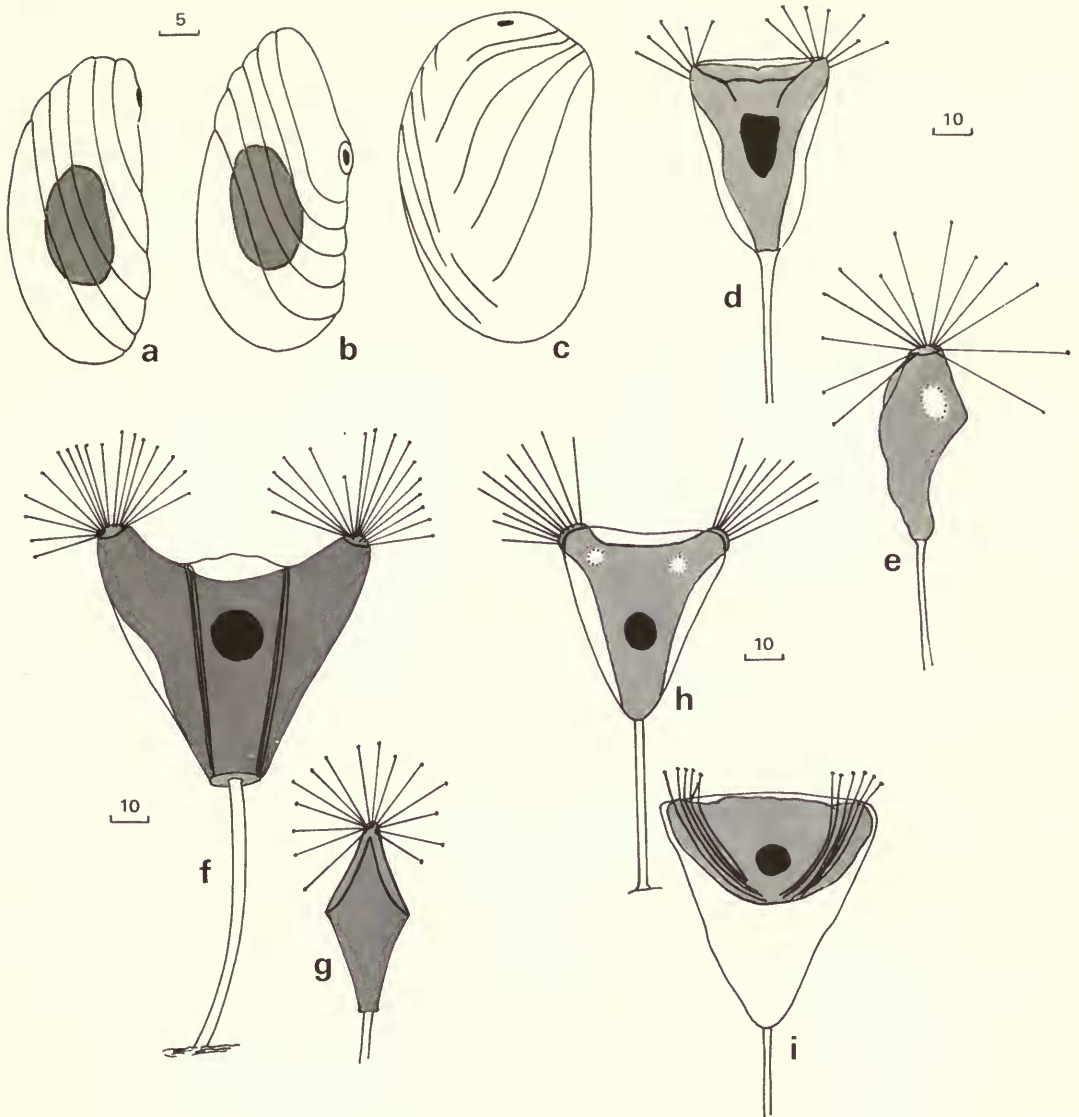


Fig. 5 *Acineta tuberosa*: (a, b) ciliated embryo after Collin, 1912 (called *A. tuberosa* var. *fraiponti*); (c) embryo after Guilcher, 1951; (d, e) after Fraiponti, 1878; (f, g) after Robin, 1879; (h) after Holm, 1925; (i) after Hertwig, 1876 (called *A. poculum*).

Fig. 4 *Acineta tuberosa*: (a–e) after López-Ochoterena, 1963 (a, b called *A. tuberosa* var. *fraiponti* forma *brevipes*; c called *A. tuberosa* var. *foetida*; d, e called *A. tuberosa* var. *bipartita*); (f, g) after Precht, 1935 (called *A. laomedaeae*); (h) after Gajewskaja, 1933; (i–k) after Collin, 1912 (called *A. tuberosa* forma *brevipes*); (l) after Collin, 1912 (called *A. tuberosa* var. *foetida*); (m, n) after Wailes, 1943; (o–q) after Precht, 1935 (p, q called *A. foetida*).

Acineta baikalica (Swarzewsky, 1928) n. comb.*Thecacineta baikalica* Swarzewsky, 1928*Thecacineta brevistyla* Swarzewsky, 1928*Canellana baikalica* Jankowski, 1967

DESCRIPTION (Fig. 6). Medium (80–100 μm long), freshwater, loricate species whose outline is an inverted bell shape, strongly compressed laterally. The apical aperture is slit to dumb-bell shaped. Actinophores reduced. Cytoplasm and tentacles confined within the lorica. Stalk short to medium, 10–40 μm , joining the lorica via cup-like expansion in the stalk. Reported from Lake

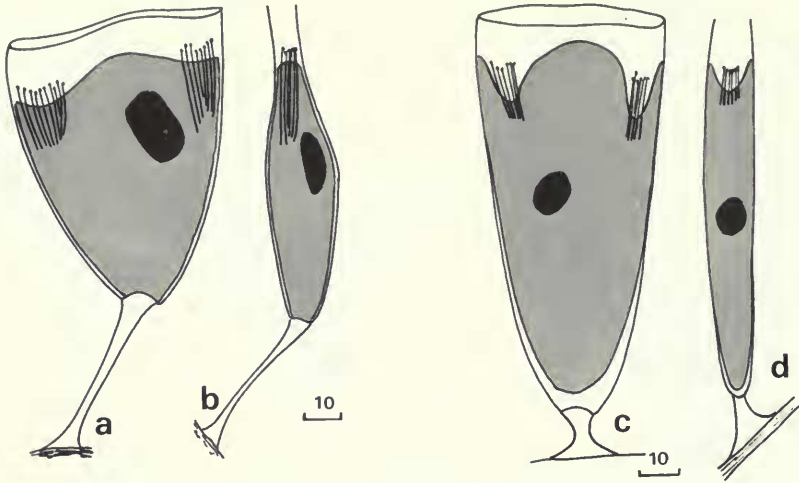


Fig. 6 *Acineta baikalica*: (a, b) after Swarzewsky, 1928 (called *Thecacineta baikalica*); (c, d) Swarzewsky, 1928 (called *Thecacineta brevistyla*).

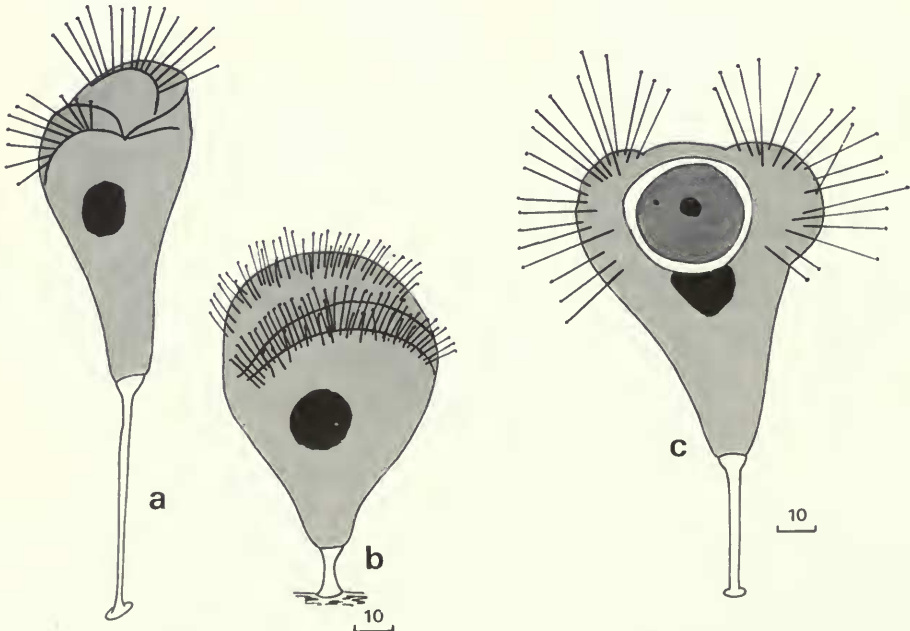


Fig. 7 *Acineta biloba*: (a–c) after Swarzewsky, 1928.

Baikal growing on gammarid crustacea such as *Axelboeckia carpenteri*, *A. rubra* and *Echinogammarus czerskii*. Reproduction by multiple endogenous budding.

NOTE. Originally two species were described by Swarczewsky (1928) as belonging to the genus *Thecacineta*, however while budding was unknown for one it was known to be endogenous in the other (incorrect for the genus *Thecacineta*). The only real differences between them was the length of the stalk which is not a stable character so they have been merged in this revision. The genus *Canellana* was erected by Jankowski (1967) to include those species with exogenous budding whose bodies were totally confined within the lorica. The latter is not regarded to be a suitable character on which to found a genus since it is known that actinophores can contract down into the lorica in certain species such as *A. fluviatilis* (Penard, 1920) and as stated earlier the budding was originally reported to be endogenous rather than exogenous.

Acineta biloba Swarczewsky, 1928

DESCRIPTION (Fig. 7). Medium (80–90 μm long), freshwater species with conical outline. Body laterally compressed but not strongly so. Two fascicles of capitate tentacles emerge through an oval aperture in the lorica and are borne upon two low but rather wide actinophores. Stalk of variable length, 15–65 μm , but always has a cup-like swelling at the junction between it and the lorica. Reported from Lake Baikal (Swarzewsky, 1928) attached to the gammarid crustacean *Poekilogammarus pictus*. Spherical macronucleus centrally located. Reproduction by multiple endogenous budding.

Acineta branchicola Precht, 1935

DESCRIPTION (Fig. 8). Medium (90–100 μm long), marine species which has an overall conical outline and is strongly laterally compressed. The lorica is distinctly ribbed in the posterior half.

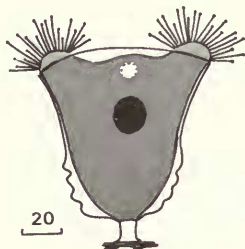


Fig. 8 *Acineta branchicola* after Precht, 1935.

Two fascicles of capitate tentacles borne upon lobe-like actinophores which protrude through an apical slit-like aperture in the lorica. Stalk short, 15–20 μm long, with parallel sides at its junction with the lorica. Attached to the gills of the shore crab *Carcinus maenas* and the shrimp *Crangon crangon*. Spherical macronucleus located centrally and there is a single apical contractile vacuole. Reproduction unrecorded.

Acineta calkinsi (Calkins, 1902) n. sp.

Acineta tuberosa Calkins, 1902

DESCRIPTION (Fig. 9). Very large (330 μm long), loricate, marine species, with an overall outline conical shape, laterally compressed. Anteriorly there are two large fascicles of distinctly capitate tentacles borne upon lobe-like actinophores which project beyond the slit-like aperture. Stalk 330 μm with parallel sides at its junction with the lorica. Attached to inanimate objects. Spherical macronucleus centrally placed and there is a single apical contractile vacuole.

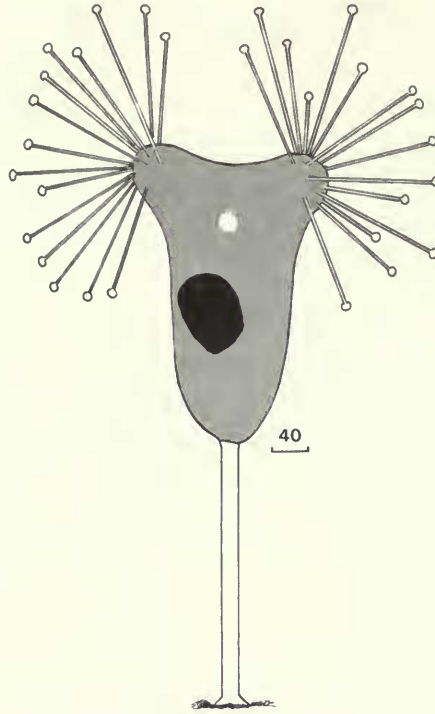


Fig. 9 *Acineta calkinsi*, after Calkins, 1902 (called *A. tuberosa*).

NOTE. Calkins (1902) identified this species as *A. tuberosa*, however the sheer size of this organism along with its possession of very large knobs on the tentacles are thought to be sufficient grounds to create a new species.

Acineta commensalis Swarczewsky, 1928

DESCRIPTION (Fig. 10). Medium (60 μm long), loricate, freshwater species with a pyriform outline. Laterally flattened but not strongly so. There are two fascicles of capitate tentacles

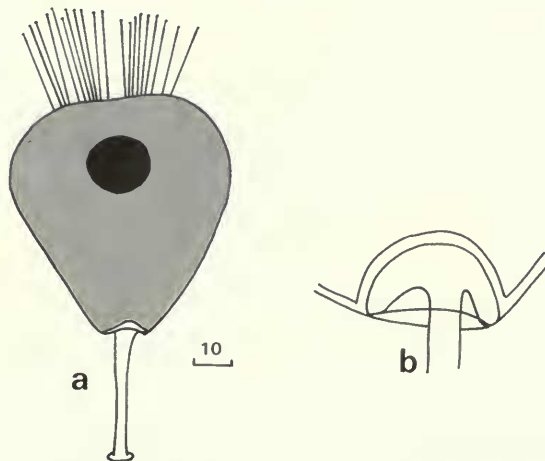


Fig. 10 *Acineta commensalis*, after Swarczewsky, 1928: (a) whole animal; (b) detail of junction between stalk and lorica.

positioned closely together on the apical face of the body. Actinophores indistinct. Stalk medium, 35 μm long, which has a curved spatulate end that is embedded into the posterior end of the lorica. Reported from Lake Baikal attached to the gammarid crustacea *Crypturopus inflatus* and *C. tuberculatus*. There is a spherical macronucleus in the anterior half of the body.

Acineta compressa Claparède and Lachmann, 1859

Cothurnia havniensis Ehrenberg, 1838

Paracineta patula Wailes, 1943

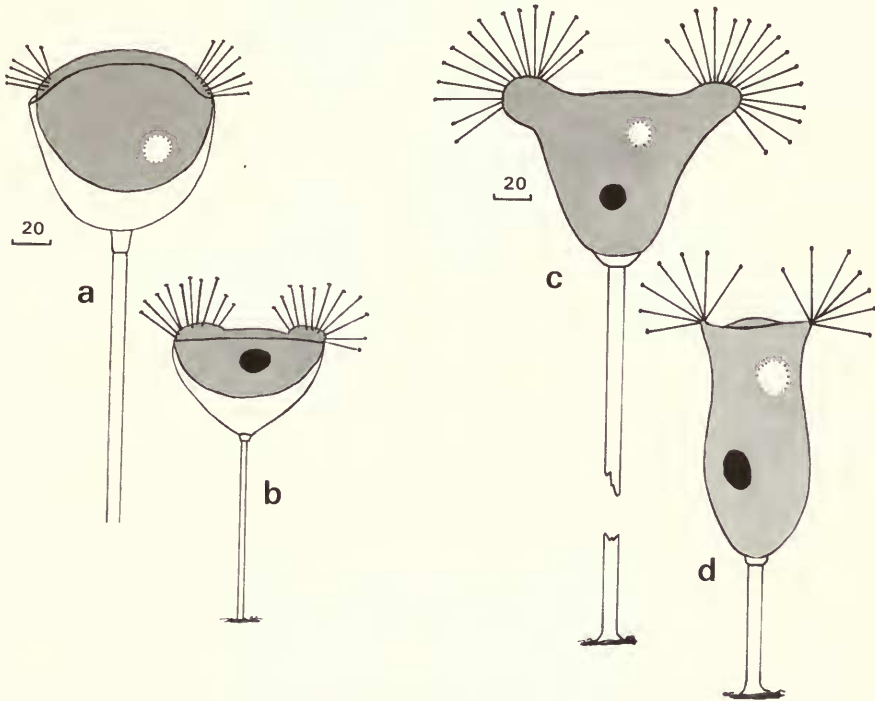


Fig. 11 *Acineta compressa*: (a) after Claparède & Lachmann, 1859; (b) after Wailes, 1943 (called *Paracineta patula*); (c, d) after Wailes, 1943 (called *A. tuberosa*).

DESCRIPTION (Fig. 11). Medium (60–130 μm long), marine, loricate species that is oval to conical in outline, usually as broad or broader than deep, strongly flattened laterally. There are two anterior-lateral actinophores each bearing a fascicle of capitate tentacles. Stalk long, 100–250 μm , which joins the lorica via a definite collar-like region. Found attached to marine algae. Spherical macronucleus and a single contractile vacuole.

NOTE. Collin (1912) considered *Acineta papillifera* Keppen, 1888 to be a synonym of this species. Kahl (1934) disagreed and reinstated *A. papillifera* whose stalk collar has a more complicated structure than *A. compressa*.

Acineta cordiformis Swarczewsky, 1928

DESCRIPTION (Fig. 12). Medium (100–120 μm long) freshwater, loricate species whose outline appearance is almost a V-shape. This unusual shape is due to the presence of two rather long rounded anterior-lateral actinophores. Laterally flattened. Actinophores project well beyond the lorica rim each bearing a fascicle of capitate tentacles. Stalk long, 200 μm , and joins the lorica via a cup-like expansion of its end. Reported from Lake Baikal attached to the gammarid crustacea *Acanthogammarus albus*, *A. maximus*, *A. godlewskii*, *Garjajewia cabanisi* and *G. zienkowiezi*.

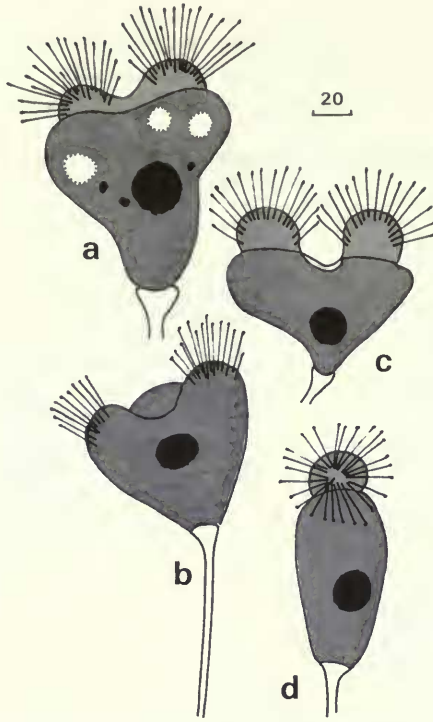


Fig. 12 *Acineta cordiformis*, after Swarczewsky, 1928.

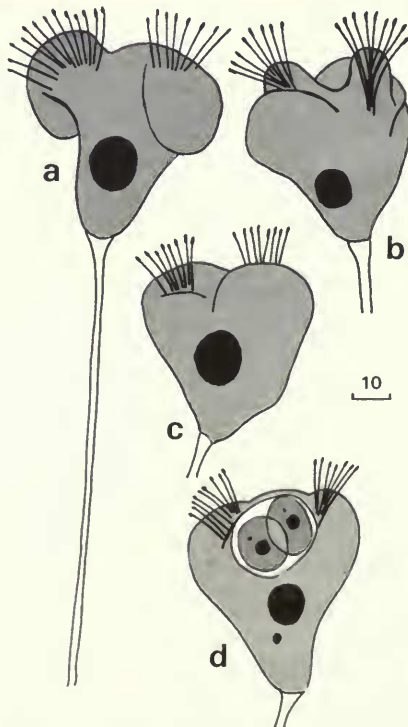


Fig. 13 *Acineta cornuta*, after Swarczewsky, 1928.

There may be several contractile vacuoles in the anterior body half and a single spherical macronucleus. Reproduction by monogemmic endogenous budding.

Acineta cornuta Swarczewsky, 1928

DESCRIPTION (Fig. 13). Medium (50–60 μm long), freshwater, loricate suctorian that is distinctly pear-shaped in outline, weakly compressed laterally. The two actinophores are well defined being rounded lobes on either side of the anterior face each bearing a fascicle of capitate tentacles. Stalk long, 120 μm , joining the base of the lorica via a cup-like expansion. Reported from Lake Baikal where it is found attached to many species of gammarid crustacea including, *Abissogammarus petersi*, *A. semenkewitschi*, *A. swarczewsky*, *A. sarmatus*, *Odonthogammarus calcaratus*, *Parapallasea borowskii*, *Ommatogammarus carneolus*, *O. albinus* and *Echinogammarus ussolzewi*. There is a single spherical macronucleus and reproduction is by multiple endogenous budding.

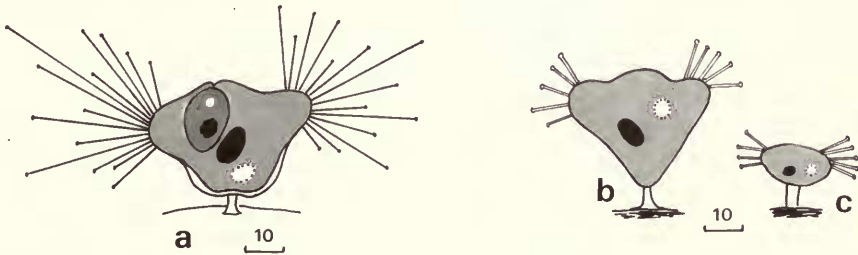


Fig. 14 *Acineta corophii*: (a) after Collin, 1912; (b, c) after Wailes, 1943 (called *A. minuta*).

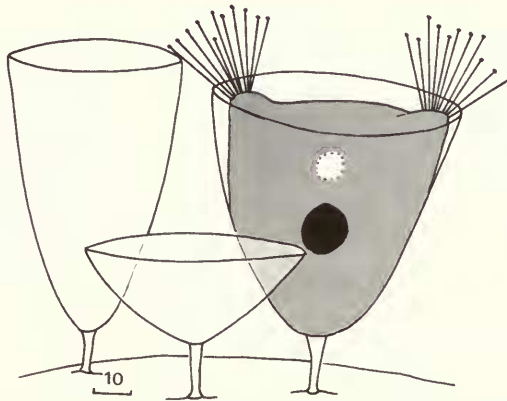


Fig. 15 *Acineta crater*, after Gajewskaja, 1933 (called *Thecacineta crater*).

Acineta corophii Collin, 1912

Acineta minuta Wailes, 1928

DESCRIPTION (Fig. 14). Small (15–30 μm long), marine, loricate suctorian, oval to triangular in outline and always wider than deep. Laterally flattened. Anteriorly the two lobe-like actinophores project well out beyond the rim of the lorica, each bearing a fascicle of capitate tentacles. Stalk short, 5–10 μm , with a basal disc, attached to crustacea such as copepods and to the branchial lamellae of *Corophium longicorne*. There is a single ovoid macronucleus and a contractile vacuole. Reproduction is by monogemmic endogenous budding.

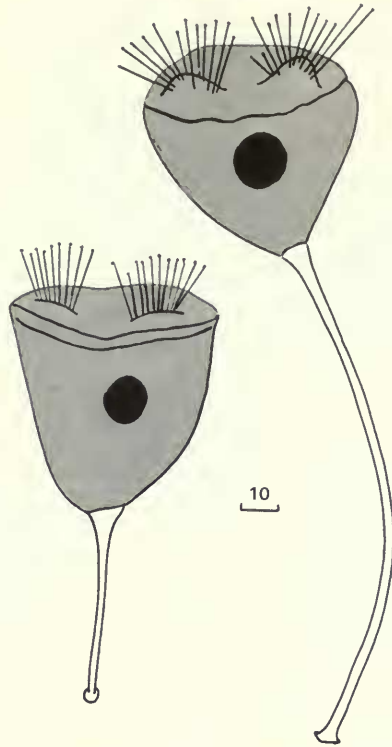


Fig. 16 *Acineta crypturopsi*, after Swarczewsky, 1928.

Acineta crater (Gajewskaja, 1933) Matthes, 1956

Thecacineta crater Gajewskaja, 1933

DESCRIPTION (Fig. 15). Medium (70–80 μm long), marine suctorian that inhabits a laterally flattened cup to wine glass shaped lorica. Actinophores present but indistinct, each bearing a fascicle of capitate tentacles that protrude through the oval aperture in the lorica. Stalk short, about 15 μm , attached to gammarid crustacea. There is a single spherical macronucleus centrally located and a contractile vacuole situated in the anterior body half. Reproduction unrecorded.

Acineta crypturopsi Swarczewsky, 1928

DESCRIPTION (Fig. 16). Medium (50–60 μm long), freshwater, loricate suctorian that has a cup or bell to pyriform outline. Lateral compression weak. The apical face of the body flattened with two low lobe-like actinophores each bearing the bunches of capitate tentacles. Aperture of lorica oval in outline. Stalk long, 50–140 μm , with a cup-like swelling at its junction with the lorica. Reported from Lake Baikal attached to the gammarid crustacea *Crypturopsus pachytus* and *C. inflatus*. There is a single, centrally located, spherical macronucleus. Reproduction unrecorded.

Acineta cucullus Claparède and Lachmann, 1859

DESCRIPTION (Fig. 17). Large (260 μm long), marine, suctorian that inhabits a weakly flattened, wine-glass shaped lorica. The lorica aperture is oval in outline but apparently there is a large semi-circular notch in one of its sides. Actinophores reduced. Two fascicles of capitate tentacles. Stalk at least length of body, joining the lorica via a distinct but simple collar-like region. Attached to the marine alga *Zostera*. Reproduction by multiple endogenous budding resulting in oval buds bearing 'many' transverse rows of cilia. Each bud contains a contractile vacuole.

NOTE. Collin (1912) considered this species to be synonymous with *Acineta tuberosa*, however later Kahl (1934) reinstated it as a species in its own right. The present author considers that the

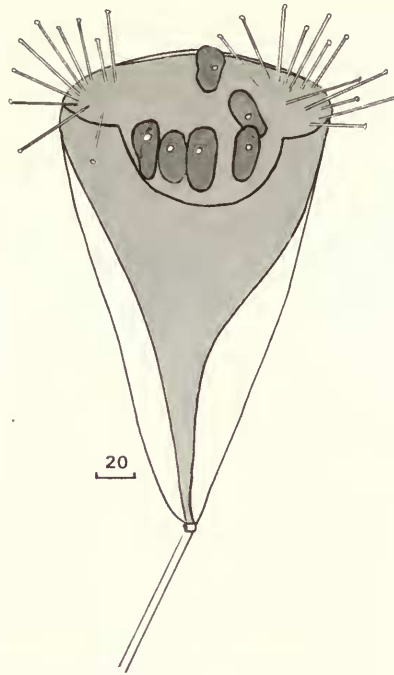


Fig. 17 *Acineta cucullus*, after Claparède & Lachmann, 1859.

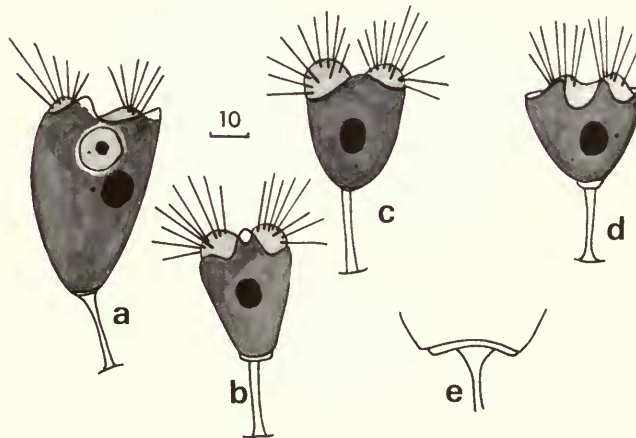


Fig. 18 *Acineta dentata*, after Swarczewsky, 1928.

presence of a collar at the junction of stalk and the deep semi-circular notch in the lorica rim are sufficient to retain this as a distinct species.

Acineta dentata (Swarzewsky, 1928) n.comb.

Thecacineta dentata Swarczewsky, 1928

DESCRIPTION (Fig. 18). Small (30–50 μm long), loricate, freshwater species that is bell-shape in outline. The edge of the apical aperture is strongly scalloped to form several prominent rounded projections. Two actinophores protrude from the lorica, each bearing a fascicle of tentacles. Stalk

less than lorica length, joining the latter via a collar-like strip that is at least twice the stalk width. Reported from Lake Baikal attached to the gammarid crustacea *Odonthogammarus improvisus* and *O. korotneffi*. Macronucleus oval, reproduction by single oval endogenous buds.

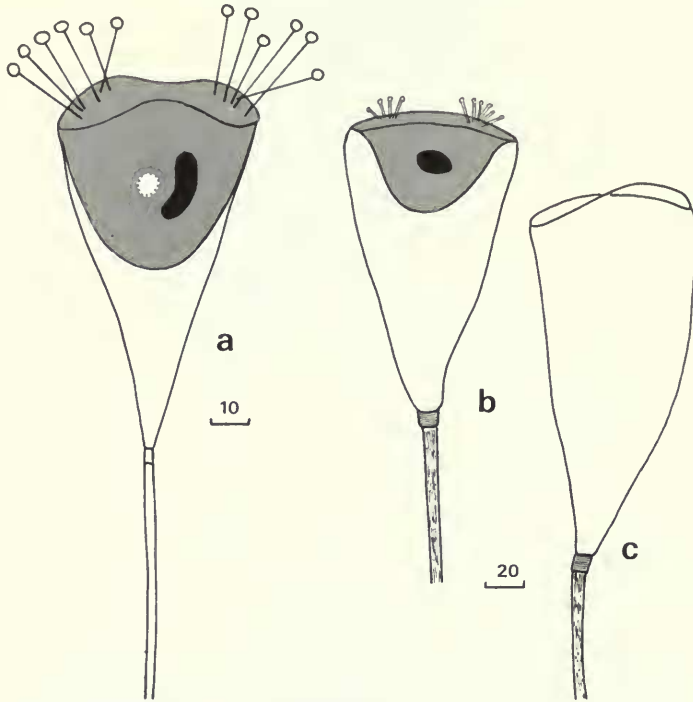


Fig. 19 *Acineta flava*, after Kellicott, 1885.

Acineta flava Kellicott, 1885

Acineta maxima Rieder, 1936

DESCRIPTION (Fig. 19). Large (100–200 μm long), freshwater, loricated species that is conical in shape with lateral compression. The body does not completely fill the lorica and occupies only the anterior half. The lorica aperture is a dumb-bell shaped slit through which the two fascicles of capitate tentacles protrude. Actinophores reduced. Stalk at least equal to the body length, with a simple collar region at its junction with the lorica. There is a basal disc, found attached to organic debris and the green alga *Cladophora glomerata*. Macronucleus spherical to ovoid, located centrally with the contractile vacuole. Reproduction unrecorded.

Acineta fluviatilis Stokes, 1885

DESCRIPTION (Fig. 20). Medium (65 μm long) sized, freshwater, loricated species that is pyriform to triangular in outline, strongly compressed laterally. The apical aperture is slit-like through which the two fascicles borne upon lobe-like actinophores protrude. Actinophores independently contractile. Stalk of variable length, 20–90 μm , joining the lorica without any collar or cup-like region. Attached to the aquatic plant *Vallisneria spiralis*. With centrally located spherical macronucleus and apical contractile vacuole. Reproduction described by Penard (1920) as monogemmie endogenous budding.

NOTE. Originally described by Stokes (1885b).

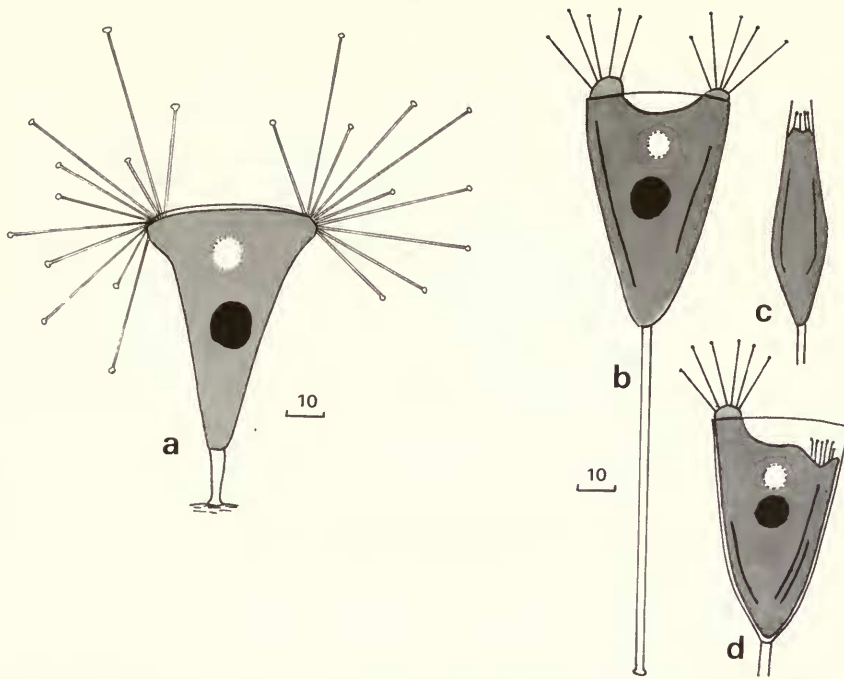


Fig. 20 *Acineta fluviatilis*: (a) after Stokes, 1885b; (b) after Penard, 1920.

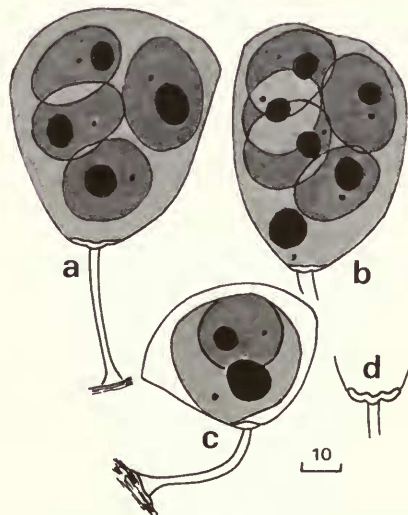


Fig. 21 *Acineta foecunda*, after Swarczewsky, 1928; (a-c) whole animals showing buds; (d) detail of junction of stalk and lorica.

Acineta foecunda Swarczewsky, 1928

DESCRIPTION (Fig. 21). Small to medium (40–65 μm long), freshwater, loricate suctorian whose outline is oval to bell shape, laterally flattened. The apical aperture is oval. Actinophores reduced to lateral flaps on which the short capitate tentacles are mounted. The stalk, which is approximately the same length as the body, joins the lorica via a curved, wave-like strip, collar

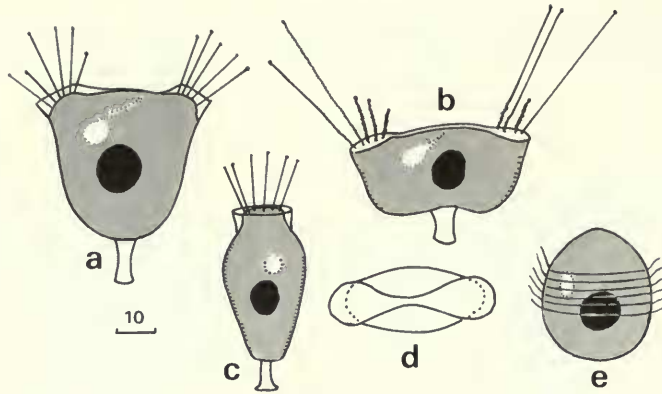


Fig. 22 *Acineta gammari*, after Penard, 1920 (called *Periacineta gammari*); (a, b) lateral view; (c, d) end and top views respectively; (e) ciliated larva.

region. Reported from Lake Baikal attached to the gammarid crustacean *Cryturopus pachytus*. Reproduction by multiple endogenous budding producing 2–5 buds at a time.

Acineta gammari (Penard, 1920) Matthes, 1954

Periacineta gammari Penard, 1920

DESCRIPTION (Fig. 22). Small (40 μm long), freshwater, loricate suctorian species whose outline is an inverted bell-shape, laterally flattened. The apical aperture is dumb-bell shaped through which the two fascicles of capitate tentacles protrude. Tentacles retractile. Actinophores reduced to small bumps confined within the limits of the lorica. The stalk is short (10 μm long) and has parallel sides for its complete length. Found on *Gammarus pulex* where it was feeding on the ciliate *Larvulina*. Reproduction by monogemmie endogenous budding producing ovoid buds with six transverse ciliary bands. Spherical macronucleus and single apical contractile vacuole with a canal.

NOTE. Although Penard (1920) realised that this species appeared to be an *Acineta* he was convinced that in reality it belonged to the genus *Periacineta*. The latter genus has now no taxonomic status since Matthes (1954) transferred the type species to another genus. The general morphology along with the ciliation of the embryo are certainly sufficient grounds to include this species in the genus *Acineta*.

Acineta grandis Kent, 1881

DESCRIPTION (Fig. 23). Large (320 μm long), freshwater, loricate suctorian whose outline is that of an inverted bell-shape, laterally flattened. The apical aperture is dumb-bell shape and the two low actinophores each bearing a fascicle of capitate tentacles just protrude beyond its rim. Cytoplasm does not always completely fill the lorica but often is confined to the anterior half. The stalk is up to 1500 μm long with parallel sides and attached to aquatic plants such as *Anacharis*, *Nitella* and *Potamogeton*. Macronucleus elongate in the form of a sausage, large central contractile vacuole.

Acineta harpacticola Precht, 1935

DESCRIPTION (Fig. 24). Medium to large (120 μm long) marine, loricate species whose lorica is almost completely covered in transverse ribs or ridges. The lorica is laterally flattened and there is a dumb-bell shaped apical aperture through which the two lobe-like actinophores bearing

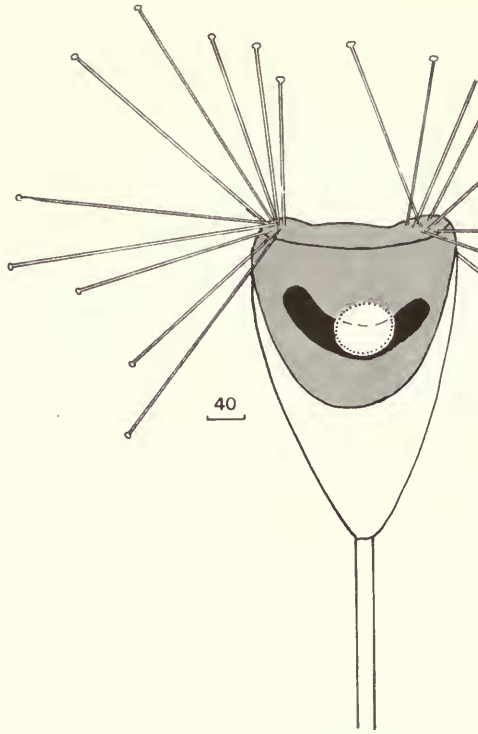


Fig. 23 *Acineta grandis*, after Kent, 1881.

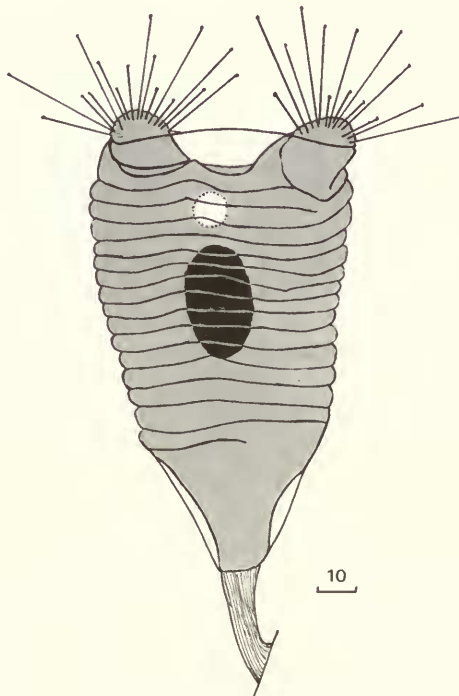


Fig. 24 *Acineta harpacticola*, after Precht, 1935.

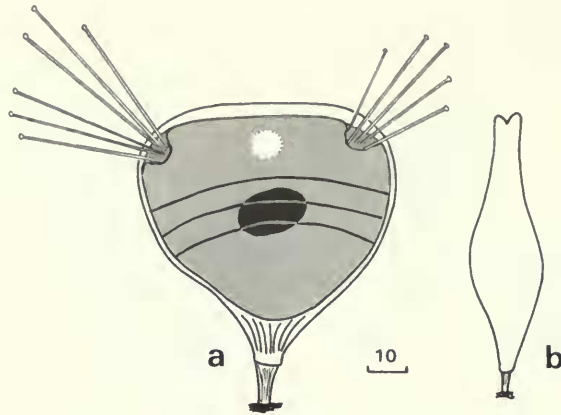


Fig. 25 *Acineta kahli*, after Kahl, 1934 (called *A. pulchra*).

capitate tentacles emerge. Stalk short, 25–30 μm long, attached to the hapacticoid copepod *Laomedea*. Ovoid macronucleus centrally located, with single apical contractile vacuole.

Acineta kahli (Kahl, 1934) nom. nov.

Acineta pulchra Kahl, 1934 not *A. pulchra* Swarczewsky, 1928

DESCRIPTION (Fig. 25). Medium (70 μm long), marine, loricate species with a pyriform outline, laterally flattened. The lorica is strongly transversely striated in the equatorial region. Actinophores reduced. Two fascicles of capitate tentacles which project through the apical slit-like aperture. Stalk short, 10 μm long, attached to inanimate objects. Ovoid central macronucleus present and an apical contractile vacuole. Reproduction undescribed.

NOTE. When Kahl (1934) first described this species the specific name *pulchra* was preoccupied by *Acineta pulchra* Swarczewsky, 1928. In view of this the organism has here been assigned the replacement name *kahli*.

Acineta karamani Hadži, 1940

DESCRIPTION (Fig. 26). Medium to large (40–150 μm long), marine, loricate suctorian whose outline varies from oval to triangular to almost Y-shaped, flattened laterally. The apical aperture in the lorica is the typical dumb-bell shape through which the two fascicles of capitate tentacles protrude. Actinophores lobe-like usually well developed but can be reduced on some occasions. Cytoplasm does not completely fill the lorica in a fully grown specimen and the posterior quarter of the lorica is usually empty. Lorica may be striated either longitudinally and/or transversely. The stalk is short, 10 μm long and attached to the shrimp *Atyaephyra desmaresti*. Macronucleus ovoid to irregular in shape, there may be two apical contractile vacuoles present.

Acineta laevis Dons, 1918

DESCRIPTION (Fig. 27). Small (40 μm long), loricate, marine species that has apparently lost its tentacles or perhaps represents a resting stage. Lorica cup-like to oval in outline, laterally compressed. Stalk short, 10 μm long, but wide, 8 μm , attached to red algae. Actinophores reduced. Single contractile vacuole.

NOTE. This species has been described on two occasions (Dons, 1918; Wailes, 1943) and neither author observed the presence of tentacles.

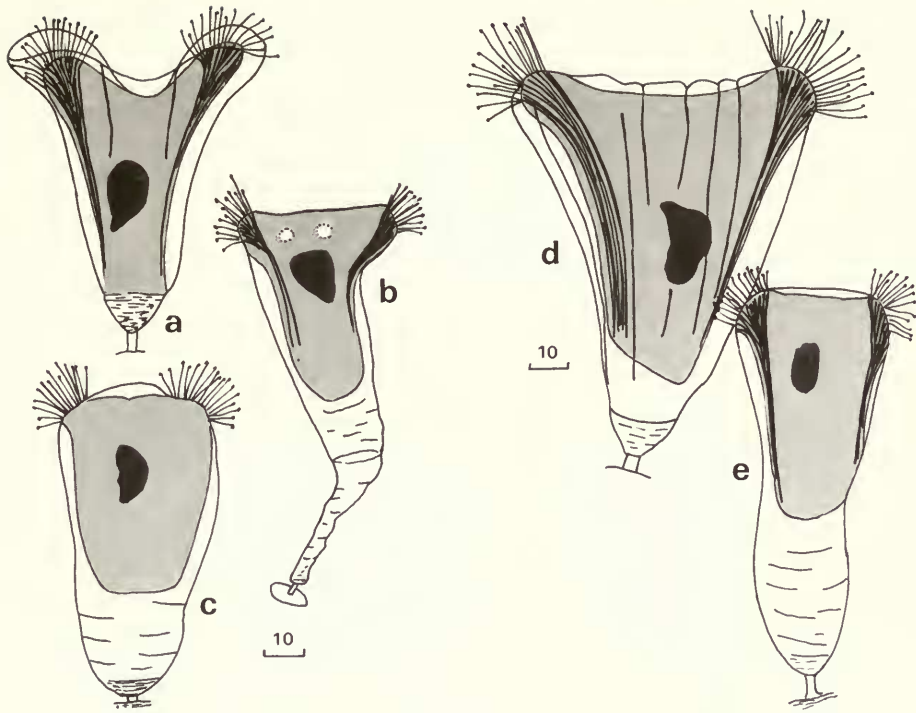


Fig. 26 *Acineta karamani*, after Hadži, 1940.

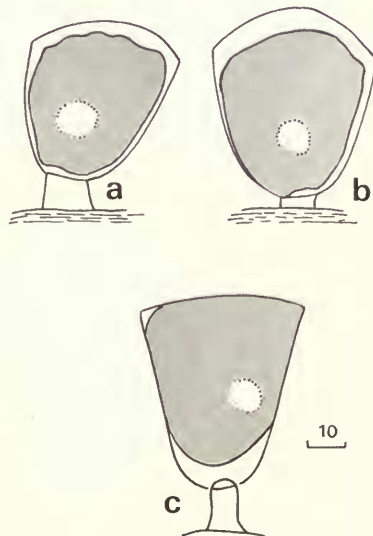


Fig. 27 *Acineta laevis*: (a, b) after Dons, 1918; (c) after Wailes, 1943.

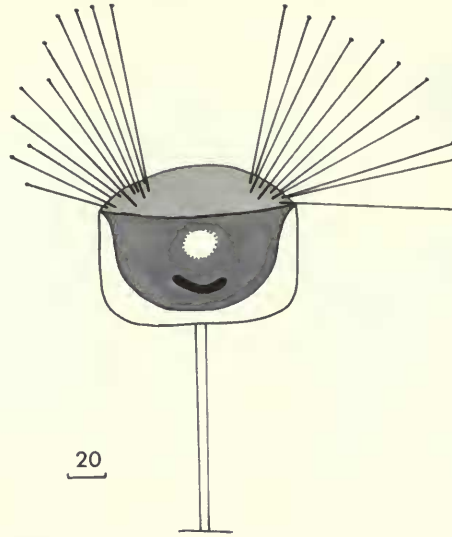


Fig. 28 *Acineta lasanicola*, after Maskell, 1887.

Acineta lasanicola Maskell, 1887

DESCRIPTION (Fig. 28). Medium (55 μm long), freshwater, loricate species whose lorica is broader than deep, looking rather like a saucepan. Actinophores reduced but the cytoplasm extends beyond the oval apical aperture to form a rounded dome. Two fascicles of capitate tentacles present. Stalk twice the length of the lorica. Contractile vacuole centrally located. Macronucleus elongate, curved like a sausage. Reported from New Zealand.

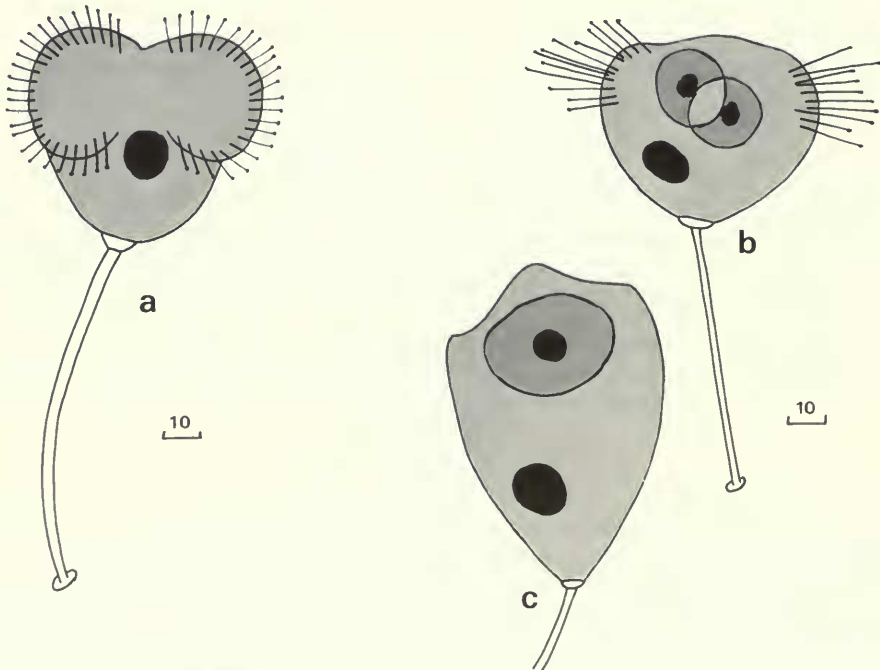


Fig. 29 *Acineta lobata*, after Swarczewsky, 1928.

Acineta lobata Swarczewsky, 1928

DESCRIPTION (Fig. 29). Medium (50–90 μm long), freshwater, loricate species that is oval to pyriform in outline, laterally compressed but not strongly so. Apical aperture broadly dumb-bell shaped. Two large rounded lobe-like actinophores present, each bearing a fascicle of capitate tentacles which project out through the aperture. Stalk long, 80–100 μm , and joins the lorica via a broad collar region. Reported from Lake Baikal attached to the gammarid crustacean *Odonthogammarus pulcherrimus*. Centrally located spherical macronucleus present, reproduction by multiple endogenous budding.

Acineta ovalis Swarczewsky, 1928

DESCRIPTION (Fig. 30). Medium (60 μm long), freshwater, loricate suctorian that is oval in outline, wider than long, lateral compression weak. There is an oval apical aperture through

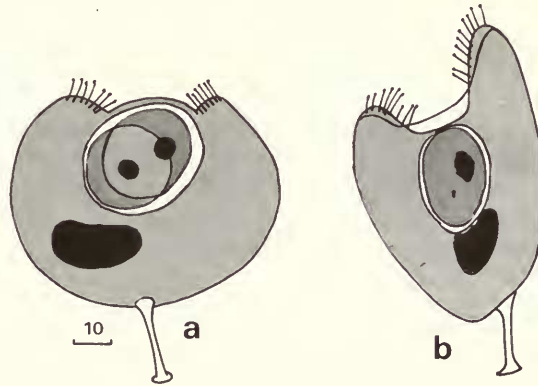


Fig. 30 *Acineta ovalis*, after Swarczewsky, 1928.

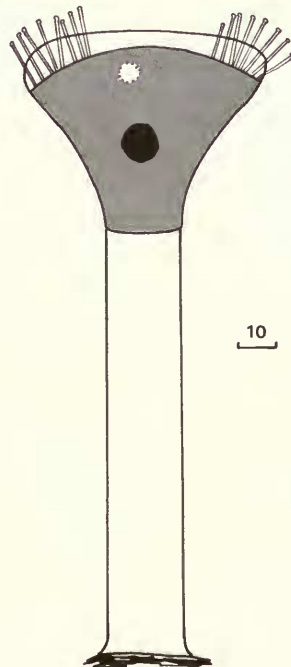


Fig. 31 *Acineta pachystylos* after Holm, 1925 (called *Thecacineta pachystylos*).

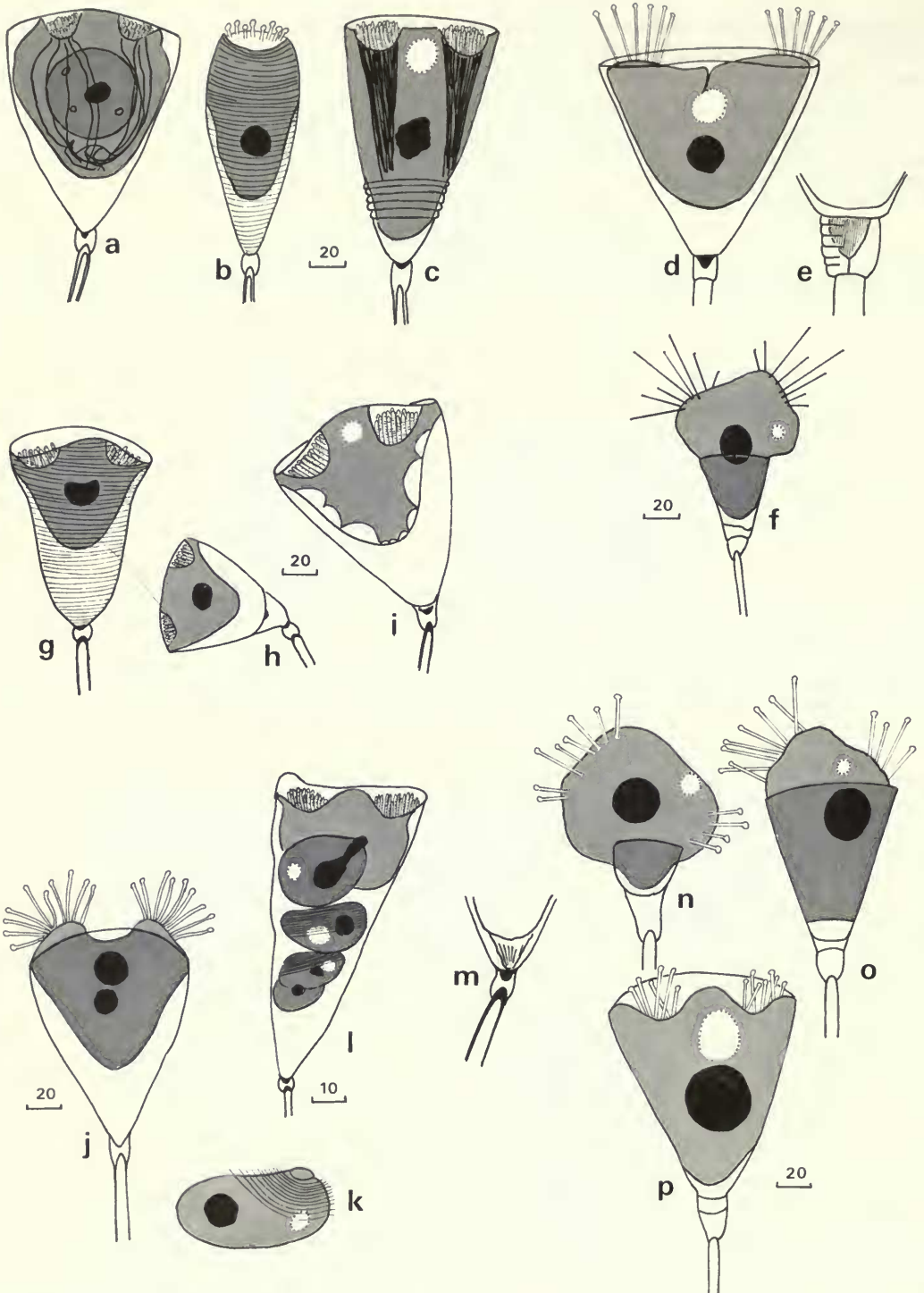


Fig. 32 *Acineta papillifera*: (a-c) after Collin, 1912; (d, e) after Penard, 1920; (f) after Holm, 1925; (g-i) after Collin, 1912; (j, k) after Keppen, 1888; (l, m) after Collin, 1912; (n-p) after Keppen, 1888.

which the two fascicles of short capitate tentacles just protrude. Actinophores lobe-like. Stalk medium length, 20 μm , joining lorica via a cup-like expansion. Reported from Lake Baikal attached to the gammarid crustacean *Poekilogammarus sukaczewi*. Macronucleus ovoid, reproduction by multiple endogenous budding.

Acineta pachystylos (Holm, 1925) Matthes, 1956

Thecacineta pachystylos Holm, 1925

DESCRIPTION (Fig. 31). Small to medium (50 μm long), freshwater, loricate suctorian that is almost triangular in outline, laterally flattened. The apical aperture is slit-like through which the two fascicles of capitate tentacles just protrude. Cytoplasm confined well within the lorica, actinophores reduced. Stalk long, 110 μm , and exceptionally wide, 20 μm , with parallel sides at junction with lorica. Attached to inanimate objects. Macronucleus spherical, with single apical contractile vacuole. Reproduction not described.

Acineta papillifera Keppen, 1888

Acineta collini Kahl, 1934

Acinetella collini Jankowski, 1978

DESCRIPTION (Fig. 32). Medium to large (80–150 μm long), marine or freshwater, loricate suctorian that varies from oval to triangular in outline, laterally flattened. Apical aperture slit-like or dumb-bell shape through which the two fascicles of capitate tentacles project. Cytoplasm usually confined within lorica but sometimes the lorica is reduced to small cup-like structure (Fig. 32n). Stalk long, usually several times the length of the lorica. Lorica sometimes striated transversely. Stalk always joins the lorica via a bulbous collar region forming a flexible joint. Reproduction by internal circuminvaginative budding (Kormos and Kormos, 1958). Sometimes several oval buds produced with eleven oblique ciliary rows each. Attached to the alga *Ulva*. Macronucleus ovoid, single apical contractile vacuole.

NOTE. Originally described by Keppen (1888), Collin (1912) stated it to be an easily identifiable species and included *Acineta compressa* as one of its synonyms. He stated that Claparède and Lachmann (1859) had distinctly figured its subglobular collar at the junction of stalk and lorica. In fact their diagram clearly shows that the collar of *A. compressa* has parallel sides and is not like the ovoid collar of *A. papillifera*. Collin (1912) also stated that reproduction resulted in a single bud whereas in another place in the same monograph he includes a diagram of multiple buds in *A. papillifera* (see Fig. 321). Kahl (1934) was of the opinion that *A. papillifera* Collin was not the same as *A. papillifera* Keppen and erected *A. collini* to distinguish the two. Here the two descriptions are considered to be of the same species. Recently, Jankowski (1978) erected the genus *Acinetella*, with *Acineta collini* Kahl as the type species, because of its possession of a hollow stalk and an oval collar. Since the present author has already stated that the two descriptions are thought to be the same it follows that *Acinetella* is a synonym.

Acineta parva Swarczewsky, 1928

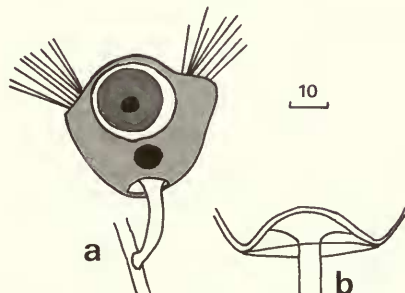


Fig. 33 *Acineta parva*, after Swarczewsky, 1928.

DESCRIPTION (Fig. 33). Small (30–40 μm long), freshwater, loricate suctorian species, laterally compressed, bell-shaped in outline. Apically, there is an oval aperture through which two fascicles of tentacles protrude. Actinophores present but reduced. Stalk short, 25–30 μm long, which joins the lorica via a spatula-shaped end embedded into a concavity in the posterior pole of the lorica. Reported from Lake Baikal as ectocommensal on the gammarid crustacean *Crypturopus tuberculatus*. Budding by monogemmic endogenous buds.

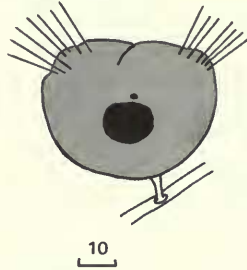


Fig. 33 *Acineta pugmaea*, after Swarczewsky, 1928.

Acineta pugmaea Swarczewsky, 1928

DESCRIPTION (Fig. 34). Small (30–40 μm long), freshwater, loricate suctorian with an oval outline, lateral compression weak, oval in cross-section. Anteriorly there is an oval aperture through which the low lobe-like actinophores and two fascicles of tentacles protrude. The stalk is shorter than the body length, 10 μm long, and attaches to the gammarid crustacea *Plesiogammarus gerstaeckeri* and *Crypturopus pachytus* in Lake Baikal. Large centrally located macronucleus present. Reproduction not described.

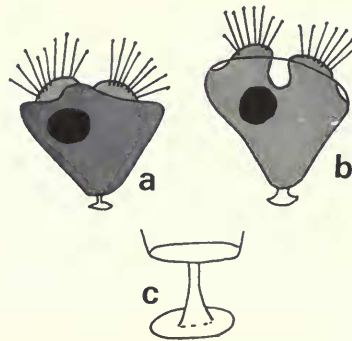


Fig. 35 *Acineta pulchra*, after Swarczewsky, 1928.

Acineta pulchra Swarczewsky, 1928

DESCRIPTION (Fig. 35). Small (30–35 μm long), freshwater, loricate species that is essentially triangular in outline, laterally compressed. Apically, the aperture is oval and sometimes there are flap-like extensions to the lorica so that the aperture rim is not always simply smooth as it is in most other species of the genus. Two actinophores moderately developed, each bearing a fascicle of tentacles. Stalk less than 5 μm long, joining the lorica via a wide but narrow strip-like collar (Fig. 35c). Reported from Lake Baikal attached to the gammarid crustacean *Odonthogammarus pulcherrimus* via a large circular basal plate.

NOTE. This species is not synonymous with *Acineta pulchra* Kahl, 1934 which as the junior synonym has been renamed *Acineta kahli* n. sp.

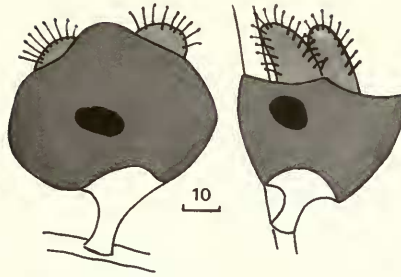


Fig. 36 *Acineta pumila*, after Swarczewsky, 1928.

Acineta pumila Swarczewsky, 1928

DESCRIPTION (Fig. 36). Small (45 μm long), freshwater, loricate suctorian that is oval to bell-shaped in outline, lightly compressed laterally. Aperture oval through which two well developed actinophores each bearing capitate tentacles protrude. Aperture rim not smooth, with flap-like lorica extensions and scalloped. Stalk short, 20 μm long, attached to the lorica via a spatulate-shaped end. Species reported from Lake Baikal attached to the gammarid crustacean *Gammarus kietlinskii*. Macronucleus spherical, reproduction not described.

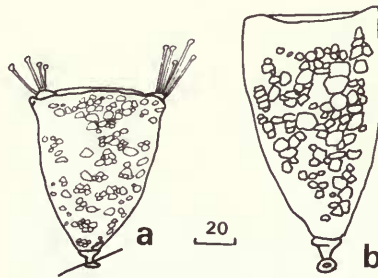


Fig. 37 *Acineta schulzi*, after Schulz, 1932 (called *A. tuberosa*).

Acineta schulzi (Schulz, 1932) Kahl, 1934

Acineta tuberosa Schulz, 1932

DESCRIPTION (Fig. 37). Medium to large (90–120 μm long) brackish, loricate suctorian with an inverted bell-shaped outline, laterally compressed. The lorica is covered in small particles of sand. Apically there is a dumb-bell shaped aperture through which the two fascicles of capitate tentacles emerge. Actinophores present. Stalk short, 10–15 μm long, joining the lorica via a cup-like end. Attached to copepods including *Tachidius brevicornis* (Precht, 1935). Nuclear and reproductive features not described.

NOTE. Originally described as a variety of *Acineta tuberosa* but was erected a species by Kahl (1934).

Acineta simplex Maskell, 1886

Acineta nieuportensis Sand, 1899

DESCRIPTION (Fig. 38). Small (35–50 μm long), fresh to brackish-water, loricate species that is goblet-shaped in outline, laterally compressed. There is an oval apical aperture through which two fascicles of capitate tentacles protrude. Actinophores reduced. Stalk medium, 35 μm long, attached to algae and inanimate objects in fresh and estuarine waters. There is a centrally located macronucleus and an off-centre contractile vacuole. Reproduction not described.

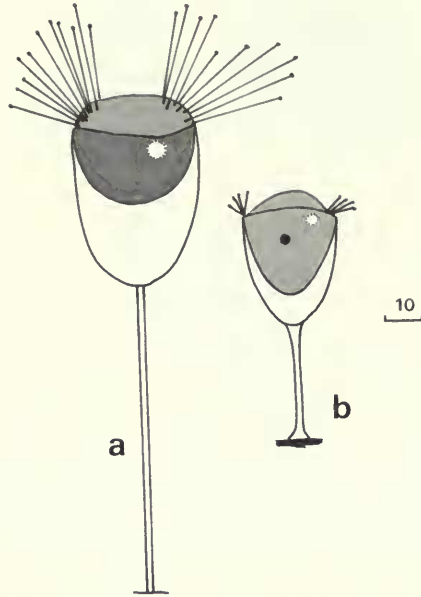


Fig. 38 *Acineta simplex*, (a) after Maskell, 1886; (b) after Sand, 1899.

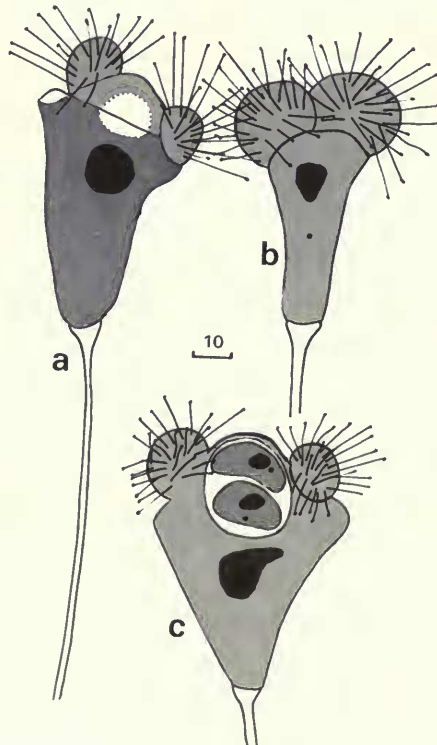


Fig. 39 *Acineta sphaerifera*, after Swarczewsky, 1928.

Acineta sphaerifera Swarczewsky, 1928

Tokophrya radiata Gajewskaja, 1933 *pro parte* (Fig. 138 only)

DESCRIPTION (Fig. 39). Medium (65–70 μm long), freshwater, loricate species with an elongated bell-shaped outline, weakly compressed laterally. Apically there is an oval aperture through which the two well developed spherical actinophores protrude. Each actinophore bears a fascicle of capitate tentacles. Stalk at least 100 μm long, joining the lorica via a cup-like end. Reported from Lake Baikal attached to the gammarid crustacean *Ceratogammarus cornutus*. There is a centrally located macronucleus and an apical contractile vacuole. Reproduction by multiple endogenous bud formation.

NOTE. Gajewskaja (1933) described a variant of *Tokophrya radians* in Lake Baikal which has exactly the same appearance as *A. sphaerifera* and is treated here as a synonym, however this only refers to the variant illustrated in Fig. 138 of that work and not to *Tokophrya radians* in general.

Acineta sulcata Dons, 1928

Acineta benesaepa Schulz, 1933

Donsia sulcata (Dons, 1928) Jankowski, 1967

Plicophrya sulcata (Dons, 1928) Jankowski, 1975

DESCRIPTION (Fig. 40). Small (35–55 μm long), marine, loricate species with a corrugated almost rectangular outline, laterally compressed. The lorica is heavily striated or ridged transversely. There is a dumb-bell shaped apical aperture through which the two actinophores, each bearing a

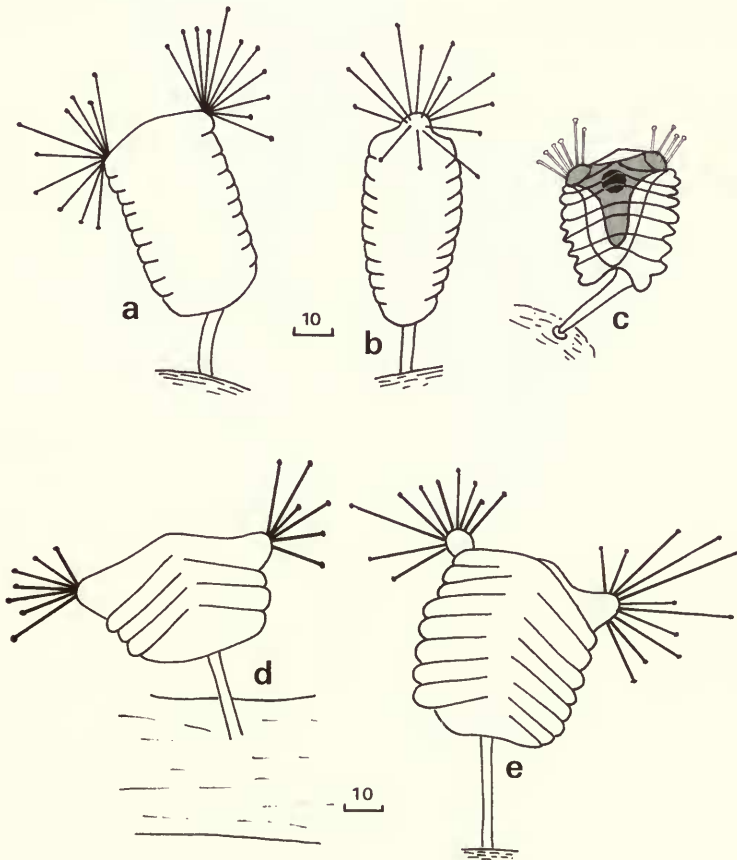


Fig. 40 *Acineta sulcata*: (a, b, d, e) after Dons, 1928; (c) after Schulz, 1933 (called *A. benesaepa*).

fascicle of capitate tentacles, protrude. Stalk short, 20 μm long, with parallel sides attached to crustacea including the halacarid mite *Copidognathus fabriciusi*, and the ostracods *Hemicythere villosa* and *Cythereis tuberculata*. Macronucleus spherical, reproduction by monogemmic endogenous bud formation.

NOTE. *Acineta benesaepa* was transferred into *A. sulcata* by Kahl (1934). Jankowski (1967) was of the opinion that the presence of heavy transverse ridges on the lorica was sufficient to erect the new genus *Donsia* unfortunately the name was preoccupied by a mollusc. Jankowski (1975) therefore erected another generic name *Plicophrya* with *P. sulcata* as the type for the genus. The presence of heavy ridges on the lorica is not considered here to be sufficient to erect a new genus particularly since the type species for the genus *Acineta* is often heavily ridged.

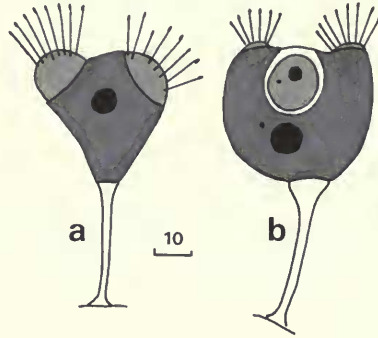


Fig. 41 *Acineta swarczewskia*, after Swarczewsky, 1928 (called *A. pusilla*).

Acineta swarczewskia (Swarczewsky, 1928) nom. nov.

Acineta pusilla Swarczewsky, 1928 (preoccupied by *Acineta pusilla* Maupas, 1881)

DESCRIPTION (Fig. 41). Small (35 μm long), freshwater, loricate species with an overall oval outline, compressed laterally. Apical aperture dumb-bell shaped with edges of lorica sometimes deeply cut away so that the actinophores emerge laterally as well as apically. In other specimens the lorica is not cut away and the two actinophores, each bearing a fascicle of capitate tentacles, slightly protrude anteriorly. Stalk medium, 40 μm long, joining the lorica via a cup-shaped end. Reported from Lake Baikal attached to the gammarid crustacea *Axelboeckia carpenteri*, *Onmatogammarus albinus* and *Odonthogammarus pulcherrimus*. Reproduction by monogemmic endogenous bud formation. Spherical macronucleus centrally located.

NOTE. This species was originally described under the name *A. pusilla*, a name preoccupied by another taxon *A. pusilla* Maupas, 1881. The latter has been transferred to the genus *Conchacineta* in this revision.

Acineta truncata Collin, 1909

Lecanophrya truncata Kahl, 1934

DESCRIPTION (Fig. 42). Small (40–50 μm long), marine or freshwater, loricate species with an inverted-bell outline, laterally compressed. The apical aperture is oval to dumb-bell shape. Actinophores reduced. Two fascicles of capitate tentacles on apical face of cytoplasm sometimes positioned so closely together that they almost merge into a single spreading group. Stalk short to medium 15–30 μm long, and sometimes wide, 10–15 μm , joining lorica either via a cup-like end or the sides may be parallel. Stalk always longitudinally striated. Attached to the harpacticoid copepod *Ameira*. Macronucleus spherical, centrally located. Contractile vacuole apical. Reproduction by internal budding (Gajewskaja, 1933).

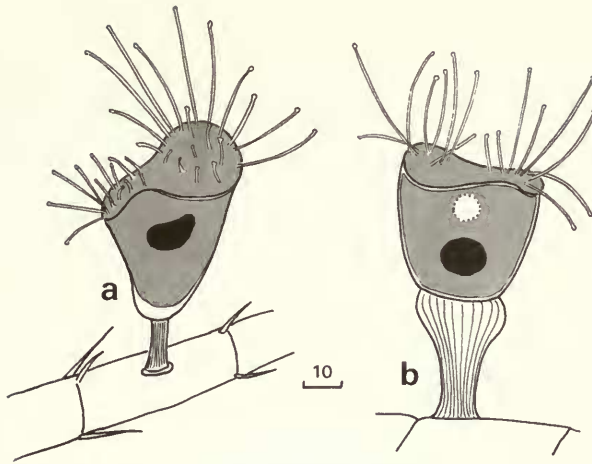


Fig. 42 *Acineta truncata*: (a) after Collin, 1912; (b) after Gajewskaja, 1933.

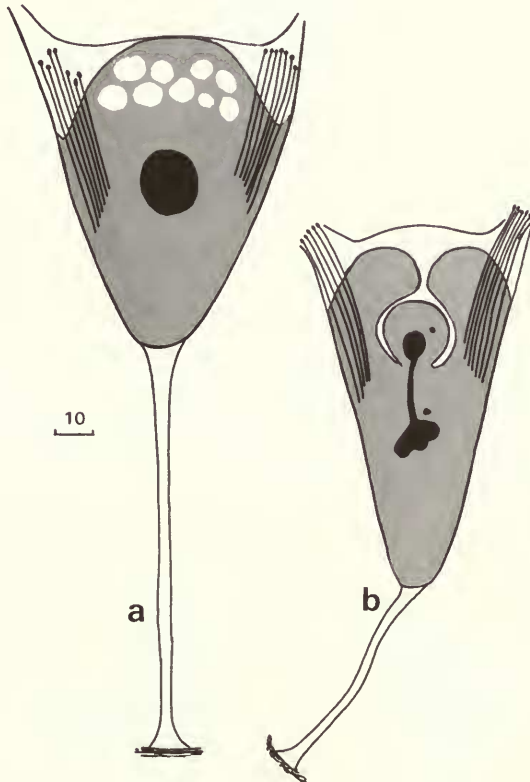


Fig. 43 *Acineta tubulifera*, after Swarczewsky, 1928.

NOTE. This species was originally described as a marine suctorian attached to harpacticoid copepods but later it was also reported from Lake Baikal (Gajewskaja, 1933). Kahl (1934) incorrectly transferred it into the genus *Lecanophrya* which only contains species that reproduce by exogenous budding.

Acineta tubulifera (Swarzewsky, 1928) n. comb.*Thecacineta tubulifera* Swarczewsky, 1928

DESCRIPTION (Fig. 43). Medium to large (80–95 μm long), freshwater, loricate suctorian with a conical outline, laterally compressed. Structure of aperture distinctive, the apical end of the lorica is sealed leaving only two tube-like apertures through which the two fascicles of capitate tentacles protrude. Actinophores reduced. Stalk medium to long, 55–105 μm , joining the lorica via an expanded end. Reported from Lake Baikal attached to the gammarid crustacea *Axelboeckia carpenteri*, *Echinogammarus fuscus* and *Acanthogammarus godlewskii*. Centrally located spherical macronucleus. There are several apical contractile vacuoles. Reproduction by endogenous buds.

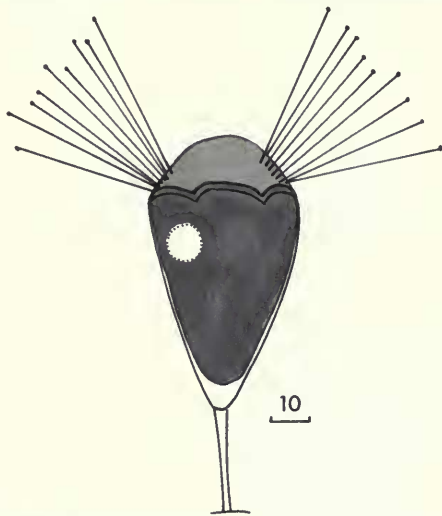


Fig. 44 *Acineta tulipa*, after Maskell, 1887.

Acineta tulipa Maskell, 1887

DESCRIPTION (Fig. 44). Medium (70 μm long), loricate, freshwater species whose outline resembles that of a tulip. The distinctive edge of the lorica aperture is scalloped to form five thickened lobes. Stalk short, 30 μm long. Actinophores reduced but the cytoplasm extends beyond the lorica aperture to form a dome. Two fascicles of capitate tentacles present. Contractile vacuole displaced to one side. Reported from New Zealand.

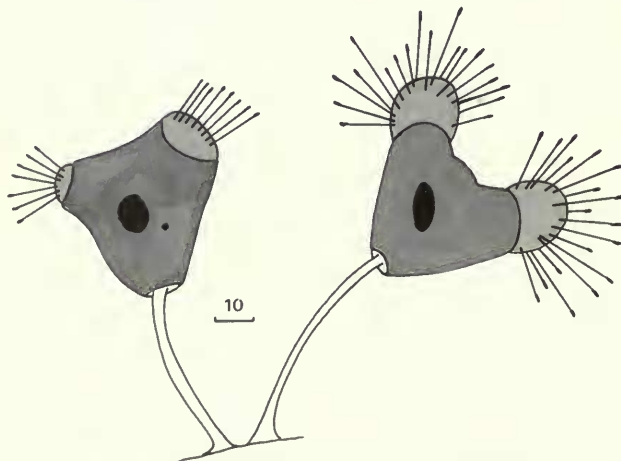


Fig. 45 *Acineta vulgata*, after Swarczewsky, 1928.

Acineta vulgata Swarczewsky, 1928

DESCRIPTION (Fig. 45). Small (40–50 µm long), freshwater, loricate species whose outline varies from triangular to Y-shape when the actinophores are particularly well developed. Flattened laterally. Actinophores lobe-like variable in size. Two fascicles of capitate tentacles present. Both actinophores and tentacles project through the oval apical lorica aperture. Stalk medium to long, 45–65 µm, joining the lorica via a conical collar embedded into a cavity in the terminal region of the lorica. Reported from Lake Baikal attached to the gammarid crustacea *Axelboeckia carpenteri*, *Odonthogammarus pulcherrimus*, *O. calcaratus*, *Acanthogammarus parasiticus*, *Parapallasea borowskii* and *Brandtia lata*. Spherical macronucleus centrally located.

Genus *ACINETIDES* Swarczewsky, 1928

Acineta Ehrenberg, 1833 *pro parte*

Periacineta Collin, 1909 *pro parte*

The genus *Acinetides* was erected by Swarczewsky (1928) as a single species genus for a suctorian found in Lake Baikal which possessed all the attributes of the genus *Acineta* except that it had a stylotheca rather than a real stalk. The genus *Periacineta* was originally set up by Collin (1909) for the suctorian *Hallezia buckei* (Kent) Sand, 1899–1901, however this, the type species, was transferred to the genus *Discophrya* Lachmann, 1859 by Matthes (1954). According to the International Code of Zoological Nomenclature this meant that the genus *Periacineta* became a junior synonym of *Discophrya* so that any species remaining in *Periacineta* would either need to be transferred to another appropriate genus or would need a new generic name. In the case in question, all nominal species that remained in *Periacineta* after the transfer of *Periacineta buckei* (Kent) Collin to *Discophrya* could be assigned to other genera. Some were transferred to other genera by Matthes (1954) and here some have been assigned to *Acinetides* for the first time.

Diagnosis of *Acinetides*

Marine or freshwater suctorians whose outline varies from triangular to bell-shape and which are strongly laterally compressed. Stylotheca, a lorica whose posterior region is elongated to form a stalk-like appendage present. Two actinophores present, each bearing a fascicle of capitate tentacles which protrude through the apical slit-like aperture. Tentacles absent in one species. Reproduction by monogemmic endogenous budding producing ovoid buds whose ciliary pattern remains undescribed. Suctorian attached to a variety of substrata including algae, crustacea and inanimate objects.

Key to the species of *Acinetides*

1	Marine	2
	Freshwater	3
2	Actinophores distinct, cell wider than long	<i>A. symbiotica</i>
	Actinophores indistinct, cell longer than wide	<i>A. gruberi</i>
3	Cell contents extend into stalk region	4
	Cell contents do not extend into stalk region	6
4	Bell-shaped, cell contents extend down to base of stalk	5
	Elongated-triangular shape, cell contents extend part way down stalk region	<i>A. varians</i>
5	Anterior contractile vacuole, body length twice body width	<i>A. lacustris</i>
	Posterior contractile vacuole, body width almost equal to body length	<i>A. urceolata</i>
6	With tentacles	7
	Without tentacles	<i>A. labiata</i>
7	Body triangular, width almost equal to body length	<i>A. triangularis</i>
	Body bell-shape, body length twice width	<i>A. lacustris</i>

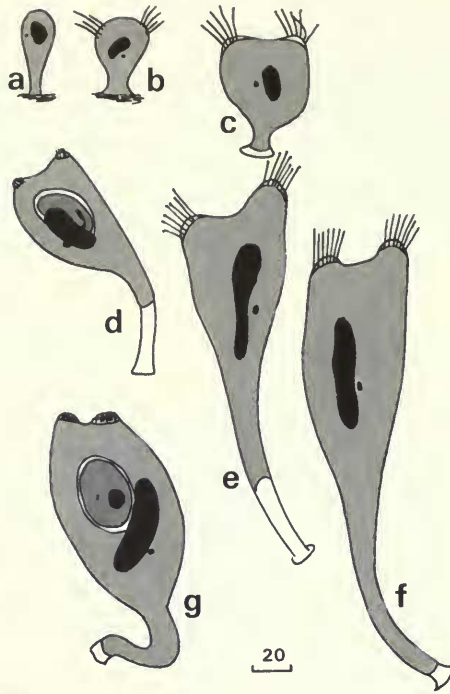


Fig. 46 *Acinetides varians*, after Swarczewsky, 1928.

Species descriptions

Acinetides varians Swarczewsky, 1928

DESCRIPTION (Fig. 46). This type species is a freshwater suctorian that has an elongated triangular outline and is laterally compressed. Fully grown specimens are large (240 μm long) but immature ones vary from about 40 μm long upwards. Variation in outline at different growth stages are illustrated in Fig. 43a–f. Two actinophores each bearing a fascicle of capitate tentacles protrude through an apical slit-like aperture. The lorica extends posteriorly to form a stalk-like stylotheca which is partially filled with cytoplasm. The species has only been described from Lake Baikal (Swarzewsky, 1928) where it was found attached to the amphipod *Poecilogrammarus pictus*. There is a centrally located elongated ovoid macronucleus. Reproduction by monogemmic endogenous budding.

Acinetides gruberi (Gruber, 1884) n. sp.

Acineta sp. Gruber, 1884

Acineta tuberosa Collin, 1912 *pro parte*

DESCRIPTION (Fig. 47). Large (200 μm long), loricate, marine suctorian whose length is approximately twice its width, laterally compressed. Lorica extends posteriorly to form a stalk-like stylotheca. Anteriorly the lorica has a slit-like aperture through which two fascicles of capitate tentacles protrude. Reproduction by monogemmic endogenous budding.

NOTE. This species was transferred by Collin (1912) to *Acineta tuberosa*, however the presence of a stylotheca does not allow its inclusion in that genus.

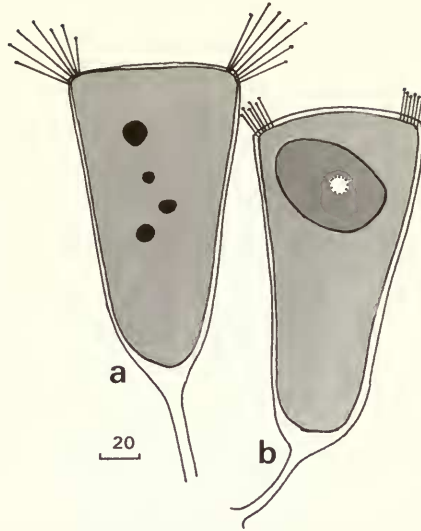


Fig. 47 *Acinetides gruberi*, after Gruber, 1884 (called *Acineta* sp.).

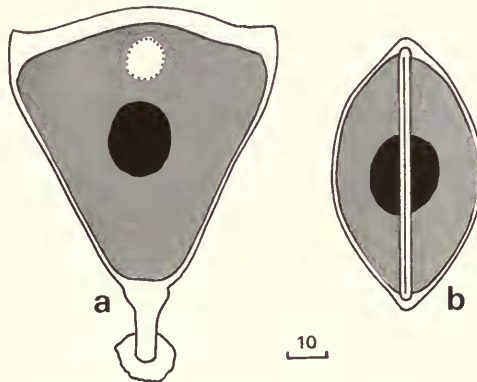


Fig. 48 *Acinetides labiata*, after Rieder, 1936 (called *Acineta labiata*).

Acinetides labiata (Rieder, 1936) n. comb.

Acineta labiata Rieder, 1936

DESCRIPTION (Fig. 48). Freshwater, medium (80 μm long), loricate suctorian that is laterally compressed and triangular in outline. Anteriorly the lorica has a slit-like aperture but tentacles are apparently absent and actinophores are reduced. Posteriorly the lorica forms a short, 15 μm long, thecostyle with a prominent basal disc-like plate. Stylothecha does not contain cytoplasm. Contractile vacuole apically located, spherical macronucleus in centre of body.

Acinetides lacustris (Stokes, 1886) n. comb.

Acineta lacustris Stokes, 1886

Periacineta lacustris Penard, 1920

DESCRIPTION (Fig. 49). Freshwater, large (100–180 μm long), loricate suctorian, laterally compressed. Anteriorly the lorica has a slit-like aperture through which the two actinophores

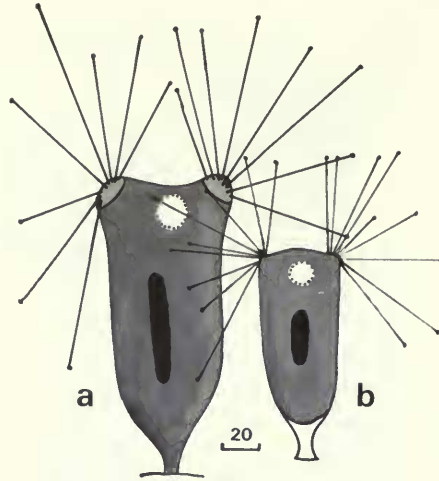


Fig. 49 *Acinetides lacustris*: (a) after Stokes, 1886 (called *Acineta lacustris*); (b) after Penard, 1920 (called *Periacineta lacustris*).

each bearing a fascicle of capitate tentacles protrude. Posteriorly the lorica is extended to form a short, 20 μm , stylothecha which may or may not be filled with cytoplasm. Found in ponds attached to *Anacharis* sp. Single centrally located elongate macronucleus and an anterior contractile vacuole.

Acinetides symbiotica (Daday, 1907) n. comb.

Acineta symbiotica Daday, 1907

Acineta calix Daday, 1907

Acineta calyx Daday, 1910

DESCRIPTION (Fig. 50). Small to medium (35–55 μm long), loricate suctorian, approximately triangular in outline and laterally compressed. Anteriorly the lorica has a slit-like aperture through which the two actinophores each bearing a fascicle of capitate tentacles protrude. Posteriorly the lorica is extended to form a short, 15 μm , stylothecha which is not filled with cytoplasm. Found attached to either the colonial green alga *Botryococcus* (*Botryomonas*) *natans* Schmidt or to the post-mysis larva of the crustacean *Caridina wyckii*. Macronucleus located central to posterior. Reproduction not described.

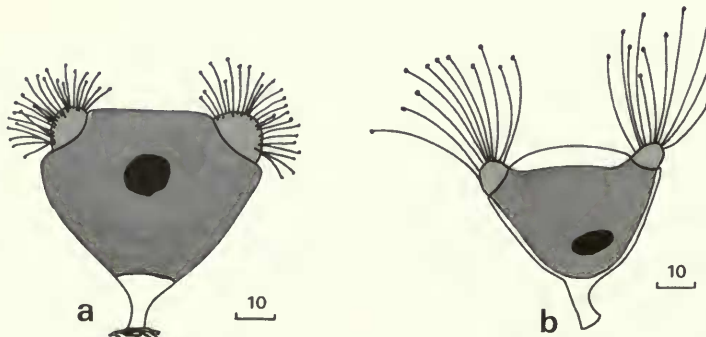


Fig. 50 *Acinetides symbiotica*: (a) after Daday, 1907 (called *Acineta calix*); (b) after Daday, 1907.

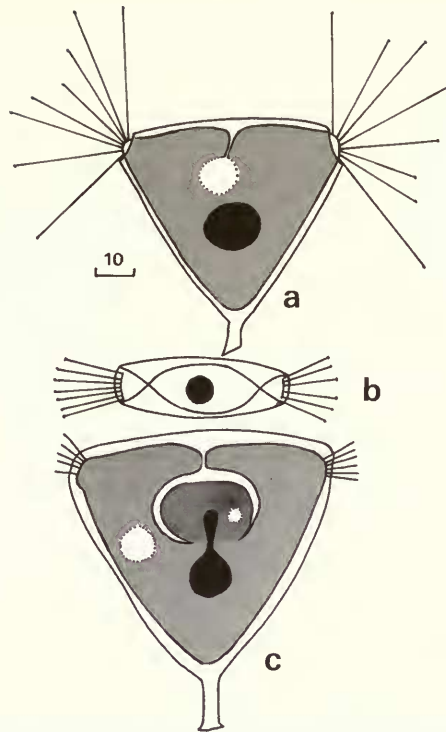


Fig. 51 *Acinetides triangularis*, after Penard, 1920 (called *Periacineta triangularis*).

Acinetides triangularis (Penard, 1920) n. comb

Periacineta triangularis Penard, 1920

Acineta triangularis Matthes, 1954

DESCRIPTION (Fig. 51). Freshwater, medium (50 µm long), loricate suctorian that has an equilateral triangular outline, strongly compressed laterally. The lorica has a dumb-bell slit-like aperture through which two fascicles of capitate tentacles protrude. Posteriorly the lorica extends into a short, 10 µm, stylothea. There is a centrally placed spherical macronucleus and a laterally located contractile vacuole. Reproduction by monogemmic endogenous budding.

Acinetides urceolata (Stokes, 1885) n. comb.

Acineta urceolata Stokes, 1885

Periacineta urceolata Collin, 1909

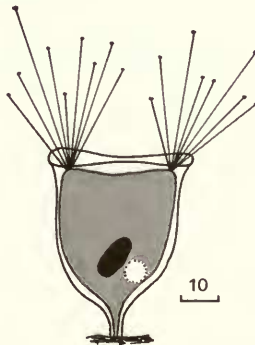


Fig. 52 *Acinetides urceolata*, after Stokes, 1885a (called *Acineta urceolata*).

DESCRIPTION (Fig. 52). Freshwater, small to medium (40 μm long), loricate suctorian with a bell-shaped outline, laterally compressed. There is a dumb-bell slit-like aperture and two fascicles of capitate tentacles. The stylotheca is short, 10 μm , and contains a strand of cytoplasm, attached to aquatic plants. Both the ovoid macronucleus and the contractile vacuole in a posterior location.

NOTE. Originally described by Stokes (1885a).

Genus *CONCHACINETA* Jankowski, 1978

Acineta Ehrenberg, 1833 *pro parte*

Nematacineta Jankowski, 1978

Soracineta Jankowski, 1978

The genus *Conchacineta* was erected by Jankowski (1978) on the basis of the following brief note, '*Conchacineta* (*Ac. constricta* Collin; with rows of tentacles)', where the type species and main distinguishing character are given in parentheses. The tentacles of certain other species of suctoriana are also arranged in rows rather than in bundles, but in some of these cases it would be highly inappropriate to include them in a genus along with *Acineta constricta* Collin. This suggests that the original description was not sufficiently well defined, furthermore another genus, *Nematacineta*, erected in the same publication (Jankowski, 1978) was also said to have an arcuate row of tentacles. In spite of this, the generic name has been retained for the sake of taxonomic stability and the diagnosis expanded to include both genera.

Diagnosis of *Conchacineta*

Marine suctorians whose outline shape varies from oval to pyriform; laterally flattened. Actinophores absent. Capitate tentacles arranged as a single row in two fascicles. The latter may be difficult to distinguish in some species if set close together. Tentacles protrude through an apical dumb-bell shaped slit in the lorica. A stalk attaches the suctorian to a variety of substrates including hydrozoa, crustacea, nematodes, polychaete worms and inanimate objects. In one species the stalk has been reported to be missing occasionally as sometimes happens in the genus *Podophrya*. Macronucleus spherical. Endogenous monogemmlic budding has been reported in 2 species. Ciliation of the oval larva arranged in 10 oblique to longitudinal rows.

Key to the species of *Conchacineta*

1	Body borne upon stalk	2
	Stalk absent, attached by tentacles	<i>C. complatana</i>
2	Lorica with definite waist-like indentation	<i>C. constricta</i>
	Lorica without waist	3
3	Width of body greater than length	4
	Length of body greater than width	6
4	Lorica narrows towards stalk	5
	Lorica very wide near stalk	<i>C. complatana</i>
5	Stalk wide (about 8 μm). Epizoic on crustacea	<i>C. amphiasci</i>
	Stalk narrow (about 2 μm). Epizoic on bryozoa and hydrozoa	<i>C. pusilla</i>
6	Stalk striated transversely, apex of body rounded	
	Epizoic on nematodes	<i>C. rotunda</i>
	Stalk smooth, apex of body truncate	<i>C. ovata</i>

Species descriptions

Conchacineta constricta Jankowski, 1978

Acineta constricta Collin, 1909

DESCRIPTION (Fig. 53). This the type species, is almost circular in outline, approximately 70 μm in diameter, with a distinctive central waist-like indentation on each lateral edge. The lorica is

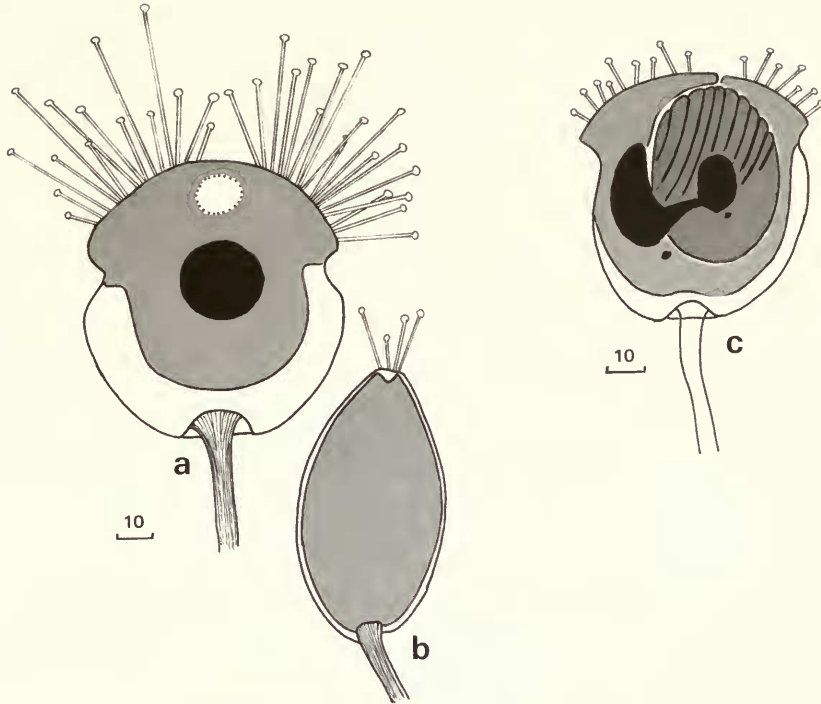


Fig. 53 *Conchacineta constricta*, after Collin, 1912 (called *Acineta constricta*).

strongly compressed laterally and open anteriorly via a slit-like aperture through which the 2 fascicles of capitate tentacles protrude. The tentacles are arranged as a row in each fascicle. The lorica is mounted on a longitudinally striated stalk attached to crustacea such as *Pagurus cuanensis* Thompson. There is a single centrally located macronucleus and an anterior contractile vacuole. Endogenous, monogemmic budding results in a relatively large, $50 \times 35 \mu\text{m}$, ovoid bud bearing 10 obliquely orientated rows of cilia.

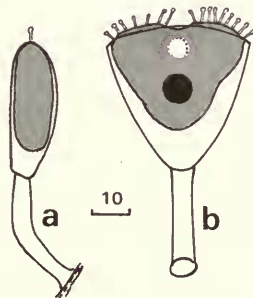


Fig. 54 *Conchacineta amphiasci*, after Precht, 1935 (called *Acineta amphiasci*).

Conchacineta amphiasci (Precht, 1935) n. comb.

Acineta amphiasci Precht, 1935

DESCRIPTION (Fig. 54). Marine suctorian that is pyriform to triangular in outline, strongly compressed laterally and is about $27\text{--}50 \mu\text{m}$ long. The lorica has an anterior slit-like aperture through which the short capitate tentacles protrude. The tentacles are arranged as a single row in

each of the 2 fascicles. The stalk is relatively wide, 8 μm , and serves to attach the lorica to the copepod *Amphiascus typhlops*. There is a central macronucleus and an anterior contractile vacuole. Budding has not been described.

Conchacineta complatana (Gruber, 1884) n. comb.

Acineta complatana Gruber, 1884

Acineta complanata Collin, 1912

Soracineta complanata Jankowski, 1978

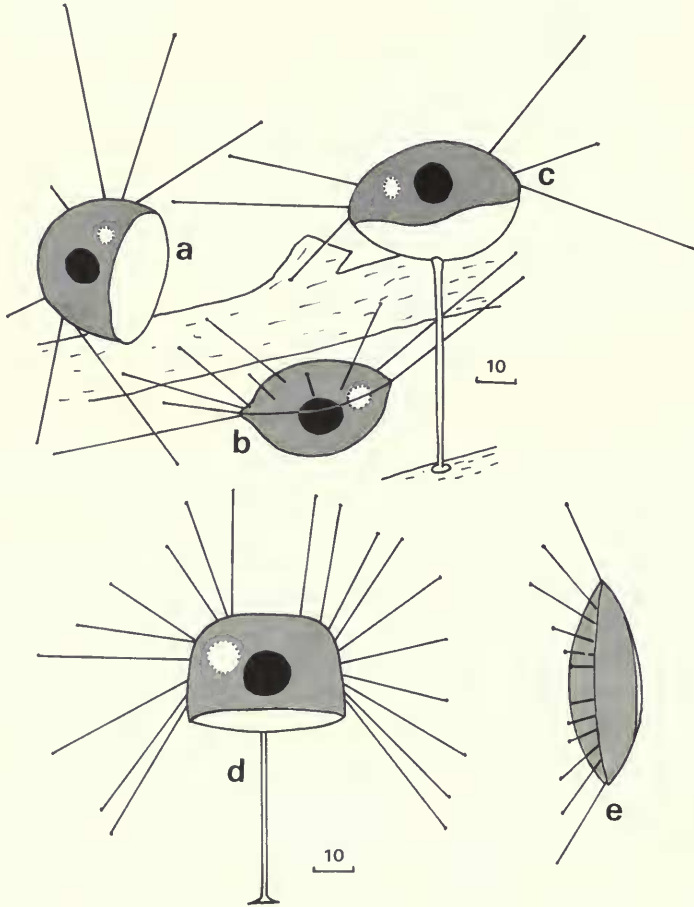


Fig. 55 *Conchacineta complatana*: (a–c) after Collin, 1912 (called *Acineta complanata*); (d, e) after Gruber, 1884 (called *Acineta complatana*).

DESCRIPTION (Fig. 55). Marine suctorian that is strongly oval in outline, laterally flattened and is wider than deep ($40 \times 30 \mu\text{m}$). The lorica is open antero-laterally via a slit-like aperture through which two fascicles of long, 50 μm , capitate tentacles protrude. The tentacles are arranged as a single row in each of the fascicles. The body is normally mounted on a long, 60 μm , stalk but occasionally may become detached when the suctorian attaches itself to the substratum or to its prey using its tentacles. The stalk is usually attached to hydrozoa, such as *Halecium beanii* Johnston, or to bryozoa. There is a single centrally placed macronucleus and a laterally located contractile vacuole. The mode of budding has not been described.

NOTE. The specific name was originally quite clearly spelt as '*complatana*' by Gruber but Collin (1912) and subsequent authors have all mis-spelt it as '*complanata*'. Jankowski (1978) set up the

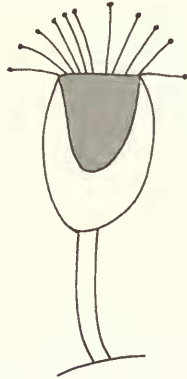


Fig. 56 *Conchacineta ovata*, after Pritchard, 1852.

genus *Soracineta* Jankowski, 1978 for this species using the following brief phrase '*Soracineta* (*Ac. complanata* Gruber; with semilorica)', however there are several other genera of suctorina containing partially loricate species and this is not considered sufficient grounds on which to erect a new genus.

***Conchacineta ovata* (Pritchard, 1852) n. comb.**

Alderia ovata Pritchard, 1852

Podophrya ovata Wright, 1858

DESCRIPTION (Fig. 56). Marine, loricate oval suctorian whose anterior end is bluntly truncate. The capitulate tentacles emerge from the lorica in a single row at the apex of the cell. Stalk approximately same length as lorica attached to hydroid colonies such as *Sertularia*. Size unrecorded. Budding and internal structures not described.

NOTE. An incompletely described species that has been placed in the genus *Conchacineta* because of the arrangement of the tentacles. Originally described without a name by Alder (1851).

***Conchacineta pusilla* (Maupas, 1881) n. comb.**

Acineta pusilla Maupas, 1881 (not *Acineta pusilla* Swarczewsky, 1928)

Acineta emaciata Maupas, 1881

Acineta parva Sand, 1899 (not *Acineta parva* Swarczewsky, 1928)

Paracineta parva Collin, 1912

Paracineta parva Wailes, 1943

DESCRIPTION (Fig. 57). Marine, loricate, oval to lozenge shaped suctorian whose cytoplasm rarely fills the lorica. There is a dumb-bell shaped aperture at the apex of the cell through which the short, 10 μm , tentacles protrude. Tentacles arranged in 2 fascicles as a single row in each. Stalk tends to be short but varies between 10–20 μm in length. Size also variable but this probably reflects different stages in the cell's growth. Small. 10 μm wide, oval forms tend to be wider than deep. Older forms are larger, 50 \times 60 μm . Found attached to a variety of substrates including algae, bryozoa and the tubes of the polychaete worm *Phyllochaetopterus prolifica*. Macronucleus ovoid to spheroid, contractile vacuole located laterally. Monogemmic endogenous bud formation described but details of the buds were not recorded (Maupas, 1881).

NOTE. Although Maupas (1881) described *Acineta pusilla* and *Acineta emaciata* in the same publication, the description of the former species appeared a few pages before that of the latter, thus *Acineta pusilla* takes priority. The species *Acineta pusilla* Maupas, 1881 should not be confused with *Acineta pusilla* Swarczewsky, 1928 see p. 106.

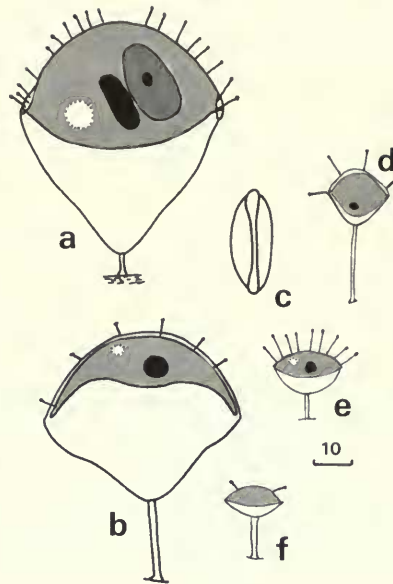


Fig. 57 *Conchacineta pusilla*: (a–c, f) after Maupas, 1881 (called *Acineta emaciata*); after Maupas, 1881; (e) after Wailes, 1943 (called *Paracineta parva*).

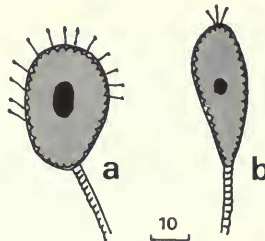


Fig. 58 *Conchacineta rotunda*, after Allgén, 1952; (a) called *Acineta rotunda*; (b) called *Acineta ovoidea*.

Conchacineta rotunda Allgén, 1952

Acineta rotunda Allgén, 1952

Acineta ovoidea Allgén, 1952

Nematacineta rotunda Jankowski, 1978

DESCRIPTION (Fig. 58). Oval, laterally compressed marine suctorian found attached to the nematode worm *Desmadora*. Capitate tentacles arranged in a single row around the antero-lateral edges of the lorica. Stalk shorter than body length, striated transversely. Macronucleus centrally located. Reproduction not described.

NOTE. Allgén (1952) described 2 species of *Acineta* occurring together on the nematode *Desmadora*. The second of the 2 species, *Acineta ovoidea*, has been interpreted here to be *Acineta rotunda* viewed from the edge and thus illustrating the lateral compression that is common in these genera of suctorians. The genus *Nematacineta* Jankowski, 1978 was erected with the phrase '*Nematacineta* (*Ac. rotunda* Allgén; with an arcuate row of tentacles)'. This brief description alone is insufficient to erect a new genus since it falls within the limits of the previously described *Conchacineta* Jankowski, 1978.

Genus *CROSSACINETA* Jankowski, 1978*Acineta* Ehrenberg, 1833 *pro parte*

The genus *Crossacineta* was erected by Jankowski (1978) on the basis of the following brief diagnosis '*Crossacineta* (*Ac. ornata* Sand; lorica with annular ribs)' where the type species and main diagnostic character are given in parenthesis. The lorica of one other previously described species, *Acineta annulata* Wang and Nie, 1933 is also heavily ribbed and this has been included in the genus *Crossacineta* for the first time.

Diagnosis of *Crossacineta*

Marine or brackish water suctorians whose outline shape is approximately pyriform and oval in cross-section. The lorica is heavily ribbed transversely and there is an oval apical aperture through which the cell and its 2 fascicles of capitate tentacles protrude. Actinophores absent. The stalk is about 1/3 length of the lorica and the cell is attached to marine algae and hydrozoa. Macronucleus spherical. Budding not described.

Key to the species of *Crossacineta*

- 1 Ribs sharply project beyond lorica edge. Ribs separated by unribbed parts of the lorica *C. ornata*
 Rounded ribs do not project beyond lorica edge. Lorica totally ribbed, without non-ribbed parts *C. annulata*

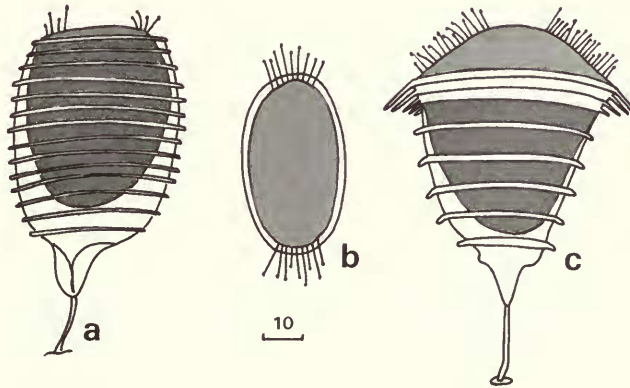


Fig. 59 *Crossacineta ornata*, after Sand, 1899 (called *Acineta ornata*).

Species descriptions*Crossacineta ornata* (Sand, 1899) Jankowski, 1978*Acineta ornata* Sand, 1899

DESCRIPTION (Fig. 59). This the type species is found in brackish waters. It is medium sized (70 μm long) and may be immediately distinguished by the heavy transverse ribs on its lorica which project out laterally. The ribs are interspersed with smooth areas of the lorica which is oval in cross-section. The animal is mounted on a short, 20 μm long, thin stalk that is attached to algae via a circular basal plate. Anteriorly there is an oval aperture through which the cell and its 2 fascicles of capitate tentacles protrude. Actinophores absent. Budding and buds remain undescribed.

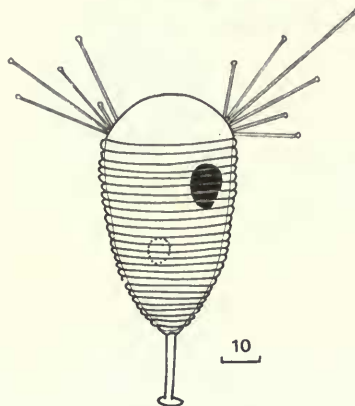


Fig. 60 *Crossacineta annulata* after Wang & Nie, 1933 (called *Acineta annulata*).

Crossacineta annulata (Wang and Nie, 1933) n. comb.

Acineta annulata Wang and Nie, 1933

DESCRIPTION (Fig. 60). Marine, medium (65 μm long) suctorian whose corrugated lorica is composed of many transverse rows of rounded ribs which increase in number as the animal grows. The body is oval in cross-section. The lorica is mounted on a short stalk, 20 μm long, and is attached to seaweeds or hydrozoa such as *Sertularia* sp. Anteriorly there is an oval aperture through which the cell and its 2 fascicles of capitate tentacles protrude. Actinophores absent. The spherical to oval macronucleus is in the anterior half of the body and the contractile vacuole in the posterior third. Budding and buds not described.

Genus **CRYPTACINETA** Jankowski, 1978

Acineta Ehrenberg, 1833 *pro parte*

The genus *Cryptacineta* was erected by Jankowski (1978) on the basis of the following brief remark '*Cryptacineta* (*Ac. operata* Swarc.; with mucous lorica)' where the type species, incorrectly spelt, and major distinguishing feature are given in parenthesis. Since *Acineta operata* Swarczewsky, 1928 is the only species of that genus possessing a mucoid lorica and since it also lacks actinophores then the genus erected by Jankowski (1978) has been accepted here but has been rather more fully defined below.

Diagnosis of *Cryptacineta*

Freshwater suctorian whose outline varies from oval to tulip-shape. The lorica is thick and mucoid in nature, totally enveloping the cell and stalk base. Anteriorly the two fascicles of tentacles project through an aperture of undefined shape. Actinophores absent. Posteriorly the stalk projects through the lorica. Attached to gammarid crustaceans. Budding type and buds remain undescribed. Macronucleus ovoid. Single species genus.

Description of species

Cryptacineta operata (Swarczewsky, 1928) Jankowski, 1978

Acineta operata Swarczewsky, 1928

Cryptacineta operata Jankowski, 1978

DESCRIPTION (Fig. 61). This the type species is found in Lake Baikal. It is a small-medium

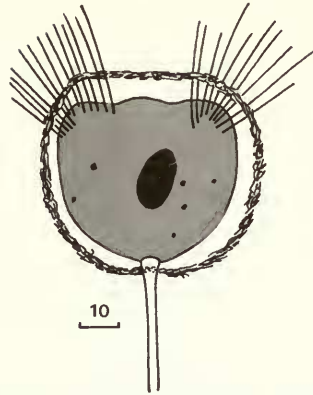


Fig. 61 *Cryptacineta operta*, after Swarczewsky, 1928 (called *Acineta operta*).

(50–60 μm long) suctorian whose thick mucoid lorica completely envelops the stalked tulip-shaped body. Anteriorly there are 2 fascicles of tentacles projecting through the lorica while posteriorly the stalk also penetrates the surrounding lorica. Reproduction and type of buds remain undescribed. Macronucleus ovoid. Attached to the two gammarid crustaceans *Carinogammarus seidlizi* and *C. wagneri*.

Genus *KELLICOTTA* n. gen.

Acineta Ehrenberg, 1833 *pro parte*

The species *Acineta cuspidata* Kellicott, 1885 differs markedly from other species in that genus in several respects. Firstly, it has long capitate tentacles which Kellicott (1885) described to have 'a writhing searching motion like that of the arms of the common *Hydra*'. Tentacles such as these are completely unlike any of those known in other members of the genus. Secondly, the body is oval in outline and there are no lobe-like actinophores which are usually seen in *Acineta*. Finally the body was described by Kellicott (1885) to be 'spheroidal or sub-cylindrical' without mention of lateral compression as found in *Acineta*. For these reasons this species cannot be fitted into the genus *Acineta* nor into any other previously described genus including *Podocyathus* (*Actinocyathus*) as tentatively suggested by Kellicott (1885). It has therefore been necessary to erect the new genus *Kellicotta* with *Kellicotta cuspidata* (Kellicott, 1885) n. comb. as the type species.

Diagnosis of *Kellicotta*

Freshwater suctorians, ovoid, not laterally compressed. Lorica cup-shaped borne on short rigid stalk, apical aperture oval to round in outline. Actinophores absent. Tentacles long with writhing action, capitate arranged in two fascicles projecting out beyond aperture rim. Mode of reproduction unknown, buds not described. Attached to aquatic plants. Single species genus.

Key to species of *Kellicotta*

- 1 Lorica has two prominent cusps forming the aperture rim *K. cuspidata*

Species description

Kellicotta cuspidata (Kellicott, 1885) n. comb.

Acineta cuspidata Kellicott, 1885

DESCRIPTION (Fig. 62). Small (40 μm long), ovoid, freshwater suctorian housed in a cup-like lorica which has two distinctive cusps forming the rim of the aperture. Actinophores absent.

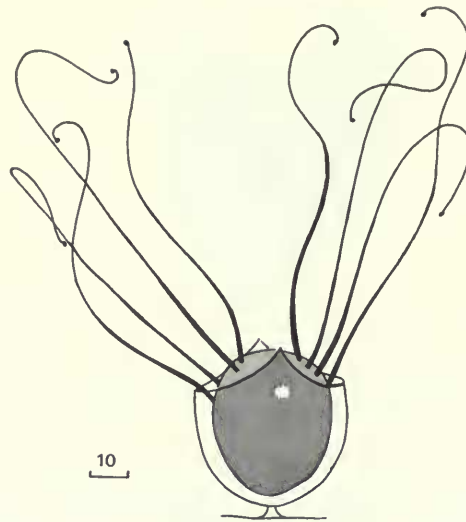


Fig. 62 *Kellicottia cuspidata*, after Kellicott, 1885 (called *Acineta cuspidata*).

Two fascicles of long, 2–3 times body length, capitate tentacles that are capable of a writhing, searching action. Lorica borne upon a short, less than $5\ \mu\text{m}$ long, rudimentary stalk attached to freshwater algal filaments (*Oedogonium*). Single contractile vacuole located in the anterior body third. Reproduction undescribed.

Genus *PHYLLACINETA* Jankowski, 1978

Acineta Ehrenberg, 1833 *pro parte*
Ternacineta Jankowski, 1978

The genus *Phyllacineta* was erected by Jankowski (1978) using the following brief note, '*Phyllacineta* (*Acineta jolyi* Maupas; with three actinophores)' where the data in parentheses refer to the type species and major distinguishing character respectively. While the description is brief it is nevertheless sufficient for the specialist to be able to understand and accept his proposal. The feature which distinguishes the two species in this genus from *Acineta* is their possession of three fascicles of tentacles borne upon short actinophores. Additionally, although not perfectly clear from the original descriptions, it would appear that there are three separate apertures in the lorica rather than a single elongated dumb-bell shaped slit as in *Acineta*. For these reasons the proposal of Jankowski (1978) is supported and a full emended diagnosis is given below.

Diagnosis of *Phyllacineta*

Marine or freshwater suctorians. Outline appearance of body varies from an oval to irregular diamond shape; laterally flattened. There are 3 low lobe-like actinophores present, 1 at the cell apex and 2 on either lateral body edge. Tentacles, either simply capitate or with expanded trumpet-like ends, grouped in 3 fascicles which protrude through the lorica via 3 separate apertures. Lorica attached by a stalk to crustacea, hydrozoa, bryozoa or algae. Macronucleus spherical. Asexual reproduction by simple endogenous monogemmic budding producing ovoid migratory larvae bearing 5 transversal rings of cilia.

Key to the species of *Phyllacineta*

- 1 Marine, with stalk as long as approximately diamond-shaped body. With single contractile vacuole, tentacles simply capitate *P. jolyi*
- Freshwater, stalk approximately a quarter of the length of the ovoid body. With 1–3 contractile vacuoles, tentacles with trumpet-ends *P. tripharetrata*

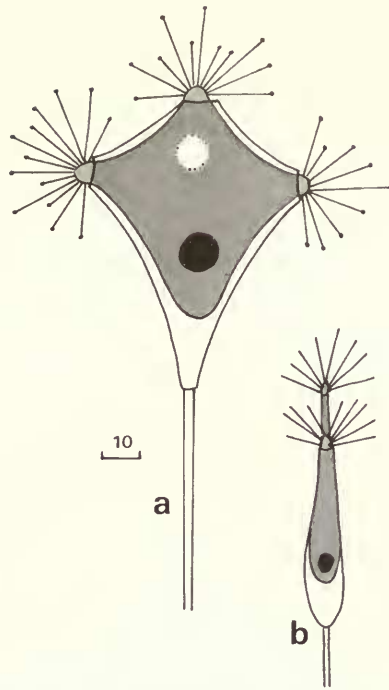


Fig. 63 *Phyllacineta jolyi*, after Maupas, 1881 (called *Acineta jolyi*).

Species descriptions

Phyllacineta jolyi (Maupas, 1881) Jankowski, 1978

Acineta jolyi Maupas, 1881

DESCRIPTION (Fig. 63). This, the type species, is approximately 80 μm long and is irregularly diamond-shaped in outline. The lorica is strongly compressed laterally and is pierced by three apertures through which the three short actinophores, bearing simple capitate tentacles, protrude. The lorica is mounted on a stalk that is at least the length of the lorica and attached distally to marine algae, hydrozoa or bryozoa. There is a single, anteriorly located, contractile vacuole and a posterior spherical macronucleus.

Phyllacineta tripharetrata (Entz, 1902) n. comb.

Acineta tripharetrata Entz senior, 1902

Ternacineta tripharetrata Jankowski, 1978

DESCRIPTION (Fig. 64). The low conical body, almost triangular in some specimens, narrows anteriorly and measures about 45 μm in length by 115 μm wide. The lorica although compressed is not so strongly flattened as in the type species, however, it is pierced by 3 apertures through which the 3 fascicles of tentacles protrude. The actinophores are not easy to distinguish but in some specimens there is a definite tendency for the body to form low lobes in the vicinity of the fascicles. The tentacles are reminiscent of those in *Choanophrya*, being rather 'baggy' in appearance with expanded trumpet-like tips. The lorica is mounted on a short stalk, 10 μm , attached to freshwater crustacea such as *Daphnia pulex* and *Cyclops phaleratus*. There are 1–3 contractile vacuoles located across the broad posterior end of the cell. The ovoid macronucleus is centrally located. Endogenous, monogemmic budding results in a large, 50 \times 40 μm , ovoid bud bearing 5 transverse ciliary rings and sexual reproduction by conjugation has been described by Entz (1902).

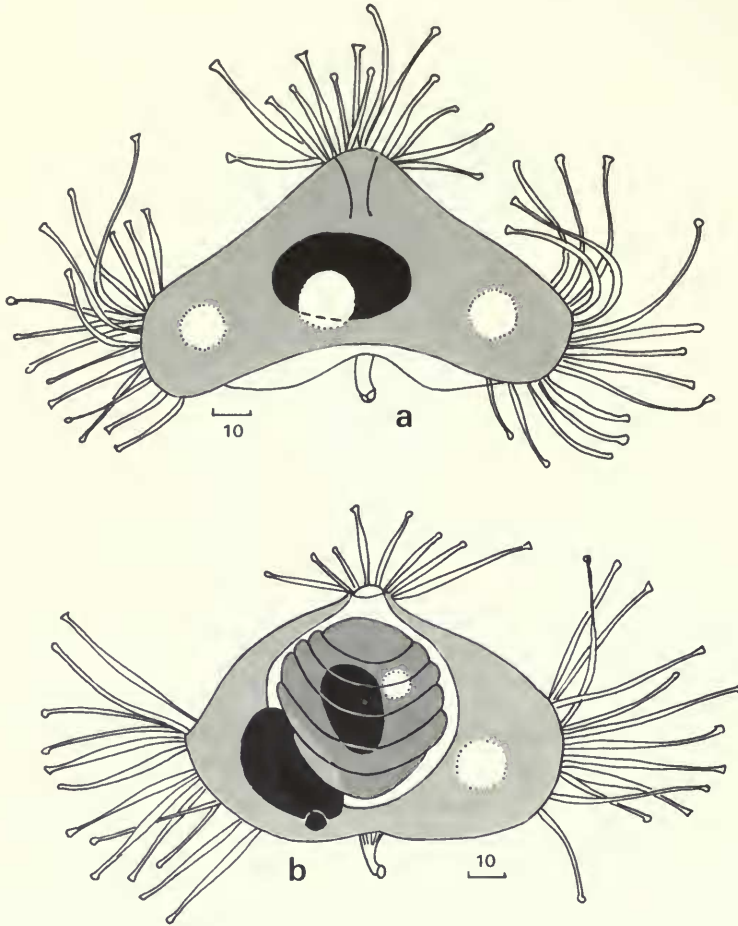


Fig. 64 *Phyllacineta tripharetrata*, after Entz, 1902 (called *Acineta tripharetrata*).

NOTE. The genus *Ternacineta* Jankowski, 1978 was erected on the basis of the following brief note '*Ternacineta* (*Ac. tripharetrata* Entz, with three bunches of tentacles)'. It is here considered to be unnecessary to erect a single species genus when it can quite easily be fitted into the genus *Phyllacineta* Jankowski, 1978 which also has 3 bunches of tentacles. However, actinophores are not easy to distinguish in this species and its tentacles are of a different structure to those of the type species. More observations on specimens are needed to confirm the true taxonomic position of this species.

Genus *VERACINETA* Jankowski, 1978

Acineta Ehrenberg, 1833 *pro parte*

The genus *Veracineta* was erected by Jankowski (1878) on the basis of the brief phrase, '*Veracineta* (*Ac. tisei* Guilcher; with apical tentacles)' where the type species and main distinguishing feature are given in parenthesis. Since all described *Acineta* spp. have tentacles arranged more or less apically then this can hardly be precisely what Jankowski (1978) meant. Presumably he intended to indicate that the presence of a single fascicle of apical tentacles was the salient feature and it is this interpretation that has been used here. The tentacles of one other previously

described species, *Acineta pyriformis* Stokes, also possesses this feature and has been included in the genus *Veracineta* for the first time.

Diagnosis of *Veracineta*

Freshwater or marine loricate suctorians whose outline is pyriform and oval in cross-section. Actinophores absent. Capitulate tentacles arranged in a single apical fascicle protruding through an oval apical aperture. A stalk attaches the suctorian to either copepods or to aquatic plants. Macronucleus oval to elongate. Single bud produced, presumably endogenously although this has not yet been reported fully, with 4 oblique ciliary rows. If budding is later observed to be external then the genus should be included in *Paracineta* Collin, 1911.

Key to the species of *Veracineta*

- | | | |
|---|---|----------------------|
| 1 | Marine, ectocommusal on copepods | <i>V. tisbei</i> |
| | Freshwater, growing on aquatic plants | <i>V. pyriformis</i> |

Species descriptions

Veracineta tisbei (Guilcher, 1950) Jankowski, 1978

Acineta tisbei Guilcher, 1950

DESCRIPTION (Fig. 65). This the type species is a rather small (lorica about 25 μm long), pyriform suctorian whose apex is wider than its base. The cell only occupies the anterior quarter of the lorica which is oval in cross-section. The lorica is pierced apically by an oval aperture through

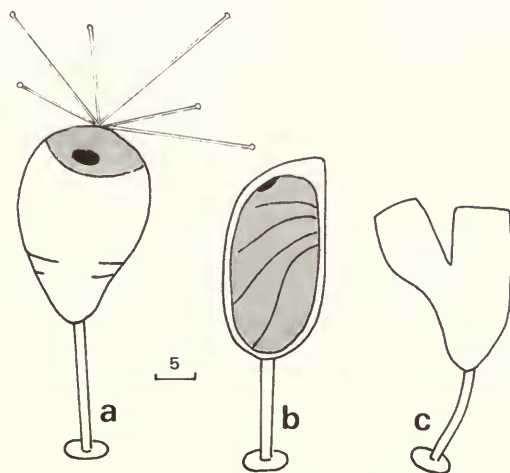


Fig. 65 *Veracineta tisbei*, after Guilcher, 1950 (called *Acineta tisbei*).

which the single apical fascicle of capitulate tentacles protrude. The lorica is mounted on a stalk and attached via a circular plate to the cephalothorax of the copepod *Tisbe furcata* Baird. The macronucleus is oval to elongate. The actual process of budding has not been described but is presumed to be endogenous. However the buds have been observed and described in some detail. Indeed, Guilcher (1950) reported that, in most specimens, the buds lay inside and completely occupied the lorica (Fig. 65B) whilst few adults were observed. Buds have 4 oblique ciliary girdles which originate at the anterior and an apical scopula region composed of several kinetosomes grouped together.

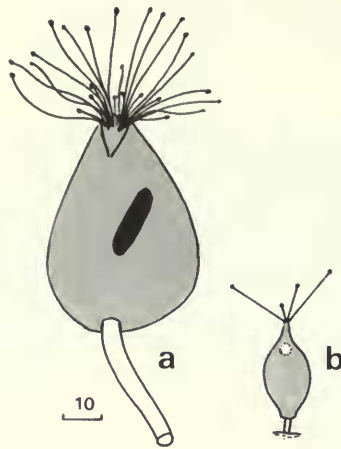


Fig. 66 *Veracineteta pyriformis*: (a) after Gassovsky, 1916 (called *Acineta pyriformis*); (b) after Stokes, 1891 (called *Acineta pyriformis*).

Veracineteta pyriformis (Stokes, 1891) n. comb.

Acineta pyriformis Stokes, 1891

DESCRIPTION (Fig. 66). This species has been described on two occasions (Stokes, 1891; Gassovsky, 1916) and the descriptions differ from each other in some respects that might reflect different ages of the specimens concerned. It is a small (23–60 μm long), loricate, freshwater suctorian that is approximately pyriform in outline with the base usually being broader than the apex. The cell completely fills the lorica and a single apical fascicle of capitate tentacles protrude through the oval aperture. Tentacle numbers vary from few to many, 4–25, and stalk length varies too, $1/4$ – $2/3$ lorica length. The animal attaches itself to aquatic plants including the alga *Cladophora* sp. The macronucleus is oval to elongate and there is a single anteriorly located contractile vacuole.

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*NOTE: The author was unaware of the important paper by Jankowski (*Trudy zool. Inst. Leningr.* 1981, 107: 80–115) until after the submission of this manuscript.

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