

STUDIES ON THE FAUNA OF CURAÇAO AND OTHER  
CARIBBEAN ISLANDS: No. 148.

NEW SPECIES OF ASCIDIAN FROM  
THE WEST INDIES

by

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The ascidian fauna of the West Indian region is relatively well known as a result of the work of VAN NAME (1902, 1921, 1930, 1945), BERRILL (1932), MILLAR (1962a) and VAN DER SLOOT (1969).

During the past few years one of us has carried out extensive collecting in the coastal waters of Jamaica with a view to preparing a faunistic and ecological account of the ascidians of that island. In the course of this work a number of new species have been discovered, which are the subject of the present paper. In addition we propose that *Halocynthia microspinosa* (Van Name, 1921) be reinstated.

With the exception of *Ascidia (Phallusia) caguayensis* all species have been collected as a result of SCUBA diving in the deeper parts of the coral reef. While all of the species have been seen in the living condition by GOODBODY, we are grateful to the late Professor T. F. GOREAU and his associates at the Discovery Bay Marine Laboratory for the collection of much additional material from the deep reef beyond 30 m.

The following are the map references for the localities at which specimens were collected:

Bluefields	18°10.0' N	78°03.0' W
Discovery Bay	18°29.0' N	77°26.0' W
Drunkenman Cay	17°54.0' N	76°50.8' W
Port Royal Marine Laboratory	17°56.05' N	76°50.65' W
South Knolls	17°54.0' N	76°51.3' W

We are indebted to the American Museum of Natural History for the loan of specimens of *Ascidia curvata* (Traustedt) and *A. sydneyensis protecta* Van Name. We also thank Mr. C. B. LEWIS, Director of the Institute of Jamaica for assistance with the literature on early place names.

The work was in part assisted by a grant (No. G.B. 7079) from the U.S. National Science Foundation to one of us (I.G.). Acknowledgement is also made to the Nuffield Foundation for a personal grant to GOODBODY to facilitate work at Dunstaffnage during the preparation of the paper.

The type specimens are deposited in the United States National Museum (National Museum of Natural History), Washington, D.C.

### Family CLAVELINIDAE

#### *Clavelina puertosecensis* sp. n.

Fig. 107

**Holotype:** Rio Bueno, JAMAICA, 25 m, 11.I.1967 (coll. J. Neumann).

**Paratypes:** Discovery Bay, 55 m, X.1970 (coll. E. Graham); Discovery Bay, 57 m, XII.1970 (coll. N. Copland); Discovery Bay, 55 m, I.1971 (coll. N. Copland).

**Other material:** Discovery Bay, 28.IX.1966 (T. Goreau); same, 17 m, 19.II.1967 (J. Lang); same, 7.I.1968; same, X.1970, 55 m (E. Graham); same, I.1971, 55 m (N. Copland); same, 46 m, III.1971 (Graham). – Bluefields, 27 m, 31.VIII.1968 (Goreau).

Intact specimens for preservation are difficult to obtain as the colonies are very fragile and firmly attached to coral rocks. Colonies usually consist of from two to five zooids widely separated from one another. Stolons arising from the posterior end of the zooids ramify over the substratum and may or may not communicate with adjacent zooids. Each stolon bears numerous lateral swellings which contain cell masses and which are presumably incipient buds. In laboratory observations, however, they rarely developed into new zooids.

The test is transparent and smooth, except over the lower part of the abdomen where it is rougher and slightly wrinkled.

Zooids are 1–2 cm in length, about half of which is thorax (Fig. 107a). They may be bright purplish blue throughout, except for a ring of yellow pigment round the siphons, or may be translucent with blue pigment rings at the anterior and posterior ends of the thorax.

Both siphons are anterior and the atrial slightly behind the branchial, and both have smooth margins.

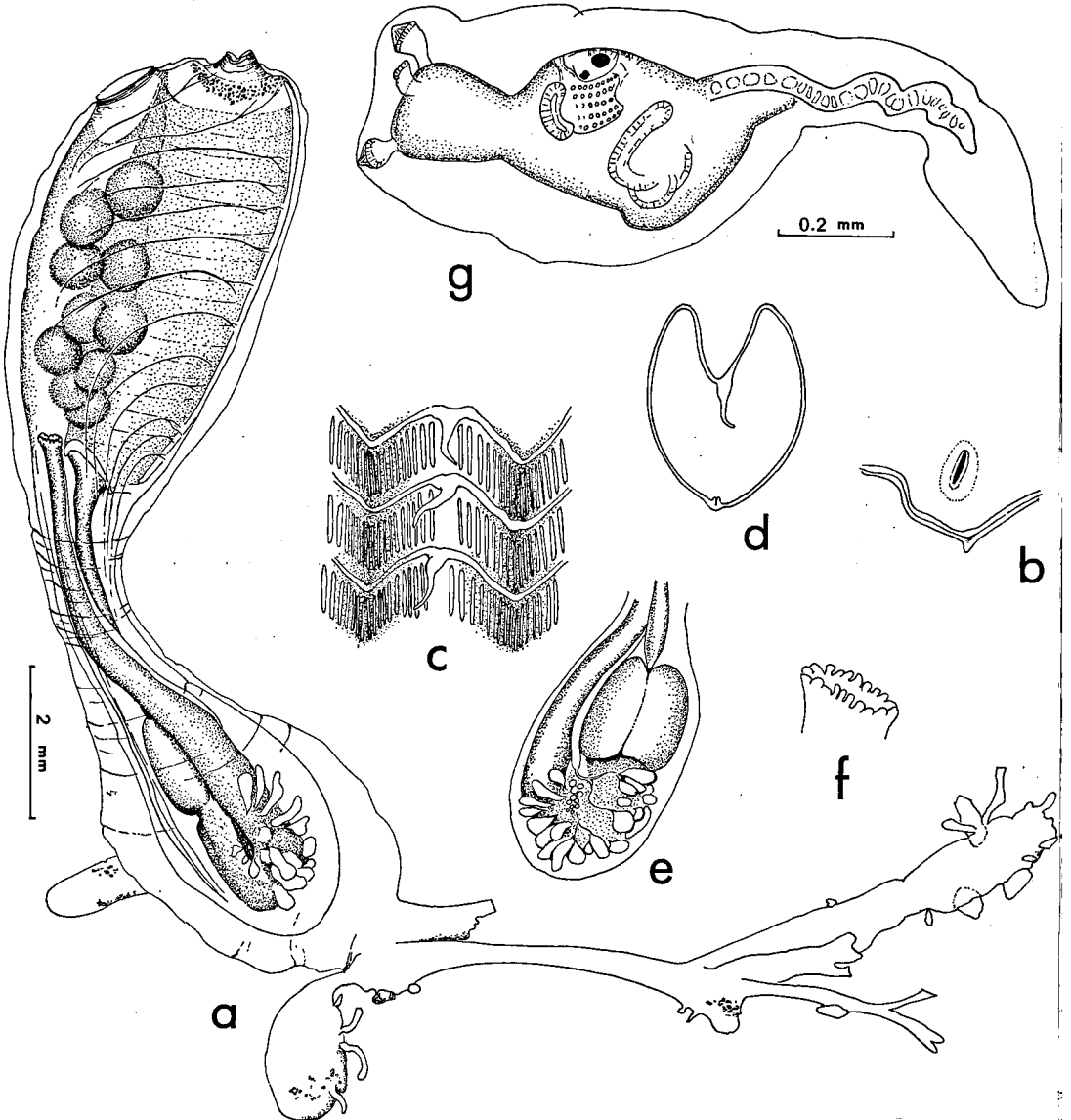


Fig. 107. *Clavelina puertosecensis* sp. n. – a, single zooid with embryos; b, dorsal tubercle; c, portion of branchial wall and dorsal languets; d, transverse section of branchial sac; e, abdomen; f, anus; g, larva.

The musculature is composed primarily of 14–18 fine strands running diagonally on each side of the thorax. Ventrally (i.e. adjacent to the endostyle) many of the muscles bifurcate. Dorsally they turn into a longitudinal direction and at least the more posterior of these muscles continue down the abdomen as a retractor muscle. Fine sphincter muscles are present round the siphons (Fig. 107a).

There are about 16–20 branchial tentacles of at least two sizes. The dorsal tubercle has a narrow longitudinal slit-like opening (Fig. 107b). The branchial sac has 12–18 rows of stigmata, with 50–70 stigmata in a row. The dorsal lamina is formed of a series of quite large triangular languets, one corresponding to each transverse branchial bar (Fig. 107c). An unusual feature of the branchial sac is the infolding of the dorsal wall along its length to form a deep groove, which is particularly prominent in the living animal. It may serve to accommodate embryos during development, although they are not confined to the groove (Fig. 107c, d).

The oesophagus is long and narrow and the stomach, which is near the lower end of the abdomen, ovoid and smooth-walled (Fig. 107e). The lower intestinal loop is divided by indistinct constrictions, and the long ascending limb ends in the anus at the base of the atrial cavity. The anal margin generally appears to be smooth, but in one zooid was seen to have about 20 small lobes (Fig. 107f).

The gonads which are typical of the genus and lie beside the intestinal loop, consist of a small central ovary surrounded by many ovoid to elongate pear-shaped male follicles (Fig. 107e).

Development of larvae takes place in the atrial cavity, of which the dorsal branchial groove is a part, and not in an incubatory pouch as described in *Clavelina fecunda* (SLUITER, 1904). The larvae (Fig. 107g) have three papillae, in triangular arrangement, arising from a stout anterior process of the trunk. Ocellus and otolith are present. A fully developed larva measures 0.75 mm from the end of the papillae to the base of the tail.

Small colonies maintained in the laboratory in running sea water frequently exhibit regression of the thorax, which may occur quite suddenly. Resorption and re-organisation may then require several days, before the zooid is again functional. The significance of this

process is obscure as it does not lead to the development of new zooids from incipient buds on the adjacent stolon. The process probably also occurs under natural conditions, as indicated by the distinction between the firmer old-looking abdominal test and the softer new-looking thoracic test. A similar differentiation has been seen in Sycozoa and Hypsistozoa in which zooids periodically degenerate to be replaced by new zooids surrounded by fresh terminal test arising from more permanent basal test (MILLAR, 1971).

The present species most resembles *Clavelina fecunda* (Sluiter), a little known species of which five specimens were collected near the Banda Islands by the Siboga Expedition and which formed the basis of SLUITER's (1904) original description. A further three specimens were taken at the Palau Islands (TOKIOKA, 1967). In both cases the specimens were from water of less than 6 m.

*Clavelina puertosecensis* is similar to *C. fecunda* in size, isolation of the zooids and in most structural features; it is probable also that *C. fecunda* is bluish in life although this colouration has mostly been lost in preserved specimens (TOKIOKA, 1967). The new species differs from *C. fecunda* in the organisation of the muscles and the absence of a well developed incubatory pouch. The differences are comparatively small but in view of the differences in geographical and depth distribution it is likely that they are indeed different species.

*Clavelina puertosecensis* is relatively common on the fore-reef slope of the north coast of Jamaica at depths from 15–60 m, but it appears to be most common at the latter depth. A single specimen has also been collected near Bluefields on the south coast of the island at a depth of 27 m.

The species is named from the original Spanish name for Discovery Bay on the north coast of Jamaica where most of the specimens have been collected. CHRISTOPHER COLUMBUS on his first visit to Jamaica in 1494 entered the bay in search of water and finding none named it Puerto Seco or Dry Harbour.

## Family POLYCLINIDAE

***Euherdmania morgani*, sp. n.**

Fig. 108

**Holotype:** South Knolls, W of Drunkenman Cay, JAMAICA, 10 m, 4.XI.1967.

**Paratypes:** Drunkenman Cay, S of Port Royal, 7 m, 31.VIII.1966, 2 colonies (coll. I. Goodbody).

All three colonies are fleshy, translucent grey and capitate in form (Fig. 108a, b). The holotype has two heads, flattened from side to side, and each about 35 mm high and 25 mm wide. In a second colony there is one large head about 35 mm in height and 40 mm wide, and a smaller head developing to one side. The larger heads contain 25–30 zooids. The third colony has nine small heads.

Zooids are approximately 27 mm in length in the preserved condition, the thorax occupying 7 mm, the abdomen 12 mm, and the post abdomen 8 mm (Fig. 108c). The whole of the zooid is embedded in the test and only the openings of the siphons are visible on the surface. The siphons, which are anteriorly placed, have six distinct lobes, but in some zooids the siphonal margins are almost smooth. The principal mantle musculature consists of dorsal and ventral longitudinal bundles and numerous fine strands encircling the thorax (Fig. 108d). The longitudinal muscles continue down through the abdomen, into the post abdomen to form the main retractor muscles of the zooid. Sphincter muscles surround each siphon and are more developed at the rim than towards the base.

The branchial tentacles are very fine, although moderately long, and are about 10–15 in number. The branchial sac has about 22 rows of stigmata, with approximately 35 stigmata in each row of either side. Large triangular leaf-like languets project into the branchial sac from the mid-dorsal line and the transverse bars are tall and shelf-like, also projecting prominently (Fig. 108e). The effect in the living animal must be to partially isolate each row of stigmata into a pocket-like formation of the branchial sac. The dorsal tubercle is funnel-shaped with a simple transverse or oblique narrow oval opening (Fig. 108f).

The oesophagus is long and narrow and the elongate stomach has 11 or 12 folds, some of which are divided along their length (Fig.

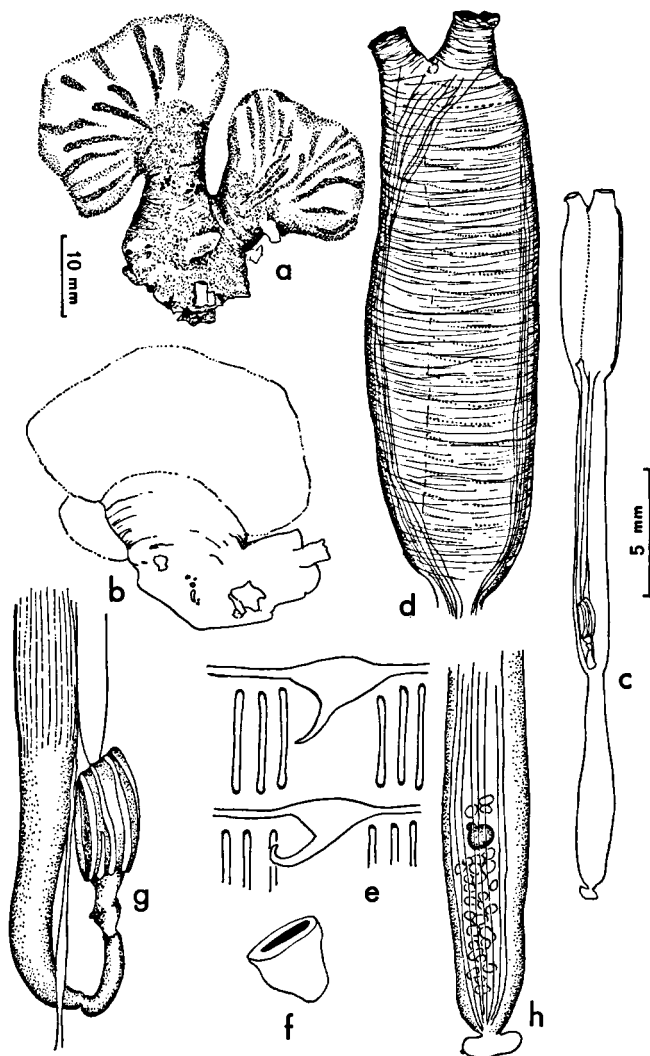


Fig. 108. *Euherdmania morgani* sp. n. a, b, whole colonies; c, zooid; d, mantle musculature of thorax; e, portion of branchial wall and dorsal languets; f, dorsal tubercle; g, abdomen; h, post-abdomen.

108g). The intestinal loop is short and the anus, situated at the base of the atrial cavity, has a 2-lobed margin.

In all of the zooids examined the gonads are difficult to discern.

TABLE 25

DISTINCTIVE CHARACTERS OF VARIOUS SPECIES OF  
*Euherdmania* AND *Ritterella*.

SPECIES	COLONY	THORACIC LONGITUDINAL MUSCLES	TENTA- CLES	ROWS OF STIGMATA	FOLDS OF STOMACH
<i>Euherdmania morgani</i> , sp. n.	Capitate heads, not encrusted	Gathered into dorsal and ventral bundles	10-15	22	11 or 12
<i>Euherdmania vitrea</i> Millar	Fan-shaped, not encrusted	Gathered into a dorsal bundle	about 100	18-20	about 12
<i>Ritterella aequalisiphonis</i> (Ritter & Forsyth)	Club-shaped lobes, connected basally, encrusted	Equally spaced strands	20	8	6 or 7
<i>Ritterella pulchra</i> (Ritter)	Sheaf-like bundles united basally, not encrusted	Oblique strands converging postero- dorsally	12	8-10	6- 8
<i>Ritterella vestita</i> Millar	Club-shaped, encrusted	Equally spaced strands	24	27-34	8-10

The testis is a long series of small irregular follicles extending along the post-abdomen and the ovary is a loose aggregation of cells confined to the central part of the anterior half of the post-abdomen (Fig. 108h).

As noted by KOTT (1957, 1963) the systematics of the sub-family Euherdmaniinae are very confused. It is to this group that the new species belongs and being in no better position than previous authors to clarify the issues we must place the species in what seems the most appropriate genus, recognising that the generic name may have to be changed. The choice of genus seems to be *Ritterella* Harant (1931), *Euherdmania* Ritter (1907), *Sigillinaria* Oka (1933) or *Placentela* Redikorzev (1913). *Ritterella* and *Euherdmania*, with a plicate stomach, appear to accommodate the new species better than *Placentela* or *Sigillinaria* (which according to KOTT is a synonym of *Placentela*). Species attributed to *Ritterella* have the zooids completely embedded, and for this reason might be the right genus for the Jamaican species. However, although *Euherdmania claviformis* (Ritter, 1903), the type species of *Euherdmania*, has zooids free except for



basal connections, species with embedded zooids have been described. In particular we may note *E. vitrea* Millar (1961) where the generic characters of the zooid are strongly supported by a larval structure almost identical to that of *E. claviformis*.

Within the genera mentioned above four species are sufficiently like the Jamaican material to require comparison, and the distinctions are shown in Table 25.

It appears that *E. vitrea* is the species most like the new species, from which it differs mainly in the number of tentacles, the arrangement of longitudinal muscles and the form of the colony. We have therefore assigned it to the genus *Euherdmania*.

Only three colonies of the species have been found, all within half a mile of one another. Two of these were collected in about 7 m of water on the windward side of Drunkenman Cay; the third colony was taken from South Knolls (to the west of Drunkenman Cay) in 10 m. The Drunkenman Cay reef and South Knolls are close to the outflowing water from Kingston Harbour, and in consequence are probably slightly more productive than other reef areas. *Clavelina picta* (Verrill) is another species of ascidian occurring only in this area.

The new species is named after Sir HENRY MORGAN, the sixteenth century buccaneer who had his base at Port Royal and later became Lieutenant-Governor of Jamaica.

### Family ASCIDIIDAE

#### *Ascidia xamaycana*, sp. n.

Fig. 109

**Syntypes:** Discovery Bay, JAMAICA, 70 m, 14.I.1967, 7 specimens (coll. R. Chapman).

**Other material:** Discovery Bay, 53 m, 18.IX.1970, 4 spec. (N. Copland); same, 15.III.1971.

The body is very delicate and is pale lime green in life. Large specimens are rectangular in outline, flattened from side to side and attached along the whole of the left side. The largest specimen examined was 28 mm in length and 12 mm in breadth. The oral siphon is terminal and the atrial siphon lies about  $\frac{1}{3}$  of the body length from it (Fig. 109a, b, c).

The test is thin, delicate and transparent and has numerous branching vessels throughout. The body wall is very thin on both

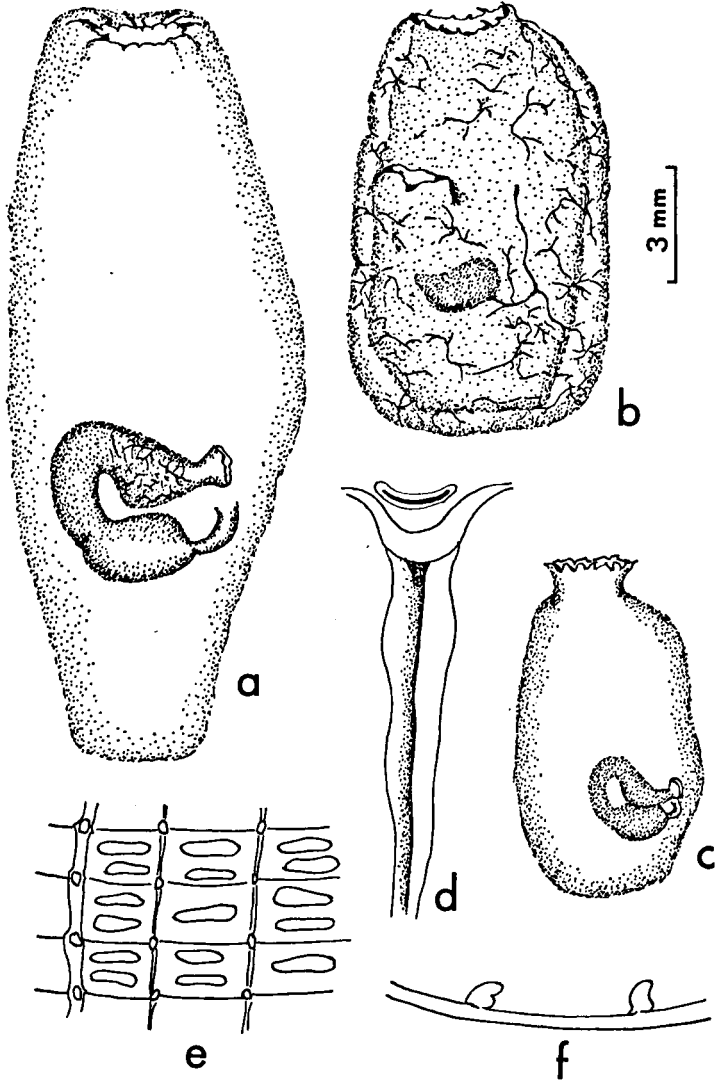


Fig. 109. *Ascidia xamaycana* sp. n. - a, b, c, whole animals; d, dorsal tubercle and anterior portion of dorsal lamina; e, portion of branchial wall; f, papillae on internal longitudinal bar.

sides and the musculature consists of very fine criss-cross strands over most of the right side which tend to lie more transversely on the dorsal and ventral parts of the body. No muscles are found on the left side.

The branchial siphon is short but wide, and in large specimens very wide, and it has 16–24 tooth-like lobes. The atrial siphon is less wide but also has a toothed border. The tentacles are usually fewer than 20, but the number varies from 12 to 30. The dorsal tubercle is very inconspicuous with a small straight transverse or only slightly curved opening (Fig. 109d). The branchial sac is delicate, and the walls lack plication. The internal longitudinal vessels are slender and bear short, almost knob-like papillae at the junctions with transverse vessels only (Fig. 109e, f). There are normally 2 or 3 stigmata per mesh between longitudinal bars. The dorsal lamina is a narrow membrane inrolled to the right and supported by ribs from the transverse bars.

The alimentary canal occupies a remarkably small part of the body. The short curved oesophagus leads to the ovoid stomach showing only faint traces of longitudinal folds. The intestinal loop is narrow and the rectum generally lies more or less across the body, ending in a funnel-shaped usually two-lipped anus. There is a conspicuous swelling of the intestine where it leads to the rectum (Fig. 109a, c).

The testes ramify over much of the alimentary canal and the ovary lies between the canal and branchial sac. In one specimen the ovary is formed of clusters of oocytes.

The species is characterised by the great delicacy of the whole animal, the wide oral siphon, lack of branchial plications, and the presence of an intestinal swelling.

In some respects the new species is similar to *A. curvata* (Traustedt), but differs in a number of characters (Table 26).

*Ascidia xamaycana* has so far been collected only from the fore-reef slope on the north coast of Jamaica from depths of 6 to 70 metres.

The name *A. xamaycana* is derived from the original Arawak Indian name for the island of Jamaica rendered by the early Spanish settlers as Xamayca; the *X* is pronounced like *ch* in the German *ach*. An alternative rendering of the word as *xamachana* used in the Scyphomedusan genus *Cassiopea* is incorrect (BIGELOW, 1900).

TABLE 26

CHARACTERS OF *Ascidia curvata* AND *Ascidia xamaycana*.

	<i>A. curvata</i>	<i>A. xamaycana</i>
Body shape	Tapered anteriorly	Truncate anteriorly
Branchial tentacles	Numerous (more than 50 counted in one specimen)	Usually fewer than 20
Prebranchial region	Large	Very small
Branchial siphon	Eight lobes	16-24 tooth-like lobes
Mantle muscles on right side	Well developed	Poorly developed
Dorsal tubercle	U-shaped opening	Small transverse straight opening
Branchial papillae	Long	Short
Intestinal swelling	Absent	Present
Intestinal curvature	2 loops	1 loop
Depth range	Shallow water	50-60 metres

***Ascidia (Phallusia) caguayensis*, sp. n.** Fig. 110

Holo type: Reservoir at the Marine Laboratory, Port Royal, JAMAICA, VIII.1964.

Paratypes: Same sample, 7 specimens.

The body is elongate with the posterior end round or somewhat pointed and the anterior part produced as a narrow siphon-like region of very variable length (Fig. 110a). The largest specimen is 70 mm long and 23 mm wide. A few low mammillations are present on the surface of the test, which is translucent grey and fairly soft. Attachment to the substratum was by the left side.

The body wall is delicate and transparent with poorly developed musculature except along the dorsal part of the body where a sharply defined band of transverse muscles extends from just behind the ganglion to near the posterior end of the body (Fig. 110b). In addition, rather weak circular muscles are present round the siphons.

Despite the presence of a narrow and often long anterior region of the body, the oral siphon is found on dissection to be quite short. At its base is a circle of up to 120 closely spaced thin and long tentacles.

The ganglion and neural gland are situated about two thirds of the distance between the oral and the atrial siphon. No normally de-

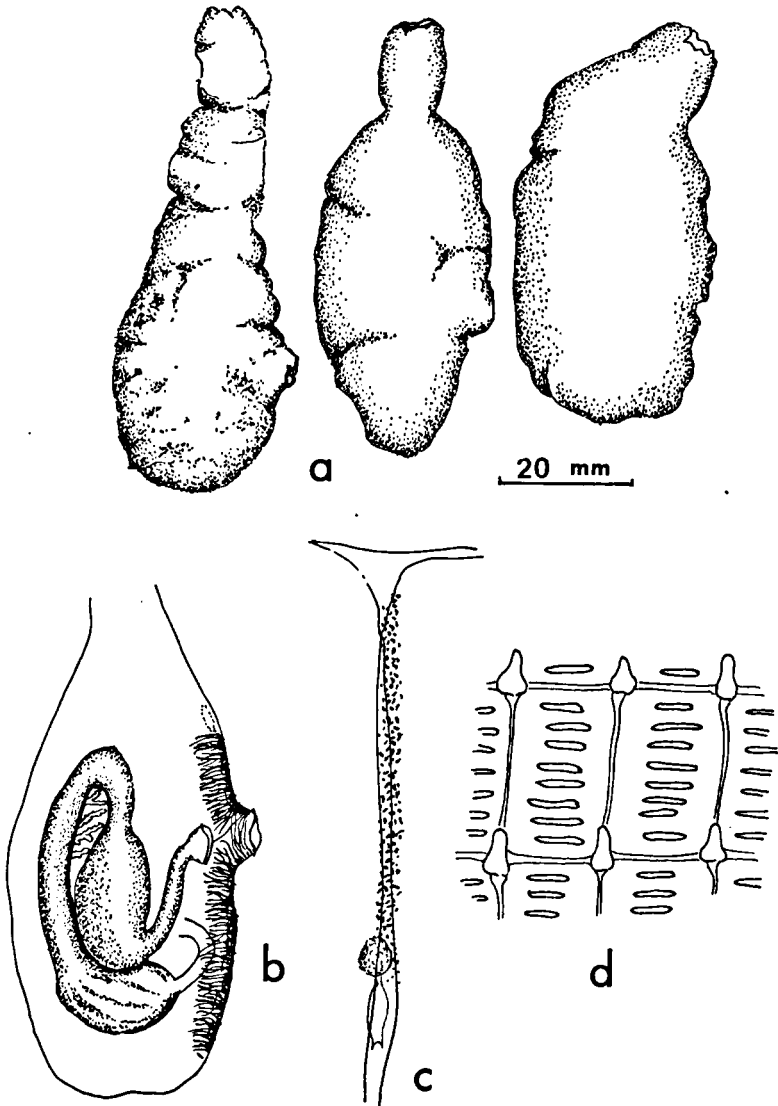


Fig. 110. *Ascidia (Phallusia) caguayensis* sp. n. – a, whole animals; b, animal viewed from left side showing alimentary canal and dorsal musculature; c, secondary canal and openings of dorsal tubercle; d, portion of branchial wall.

veloped dorsal tubercle could be seen. The secondary openings of the neural duct, situated between the bulbous neural gland and the anterior end of the branchial sac and opening into the atrial cavity, are numerous, over 200 having been counted in one specimen (Fig. 110c).

The branchial sac is delicate and its walls lack plication. Transverse bars are of three orders of size and the longitudinal bars are prominent. The branchial papillae, present only at the junction of the transverse and longitudinal bars, are somewhat rounded in outline (Fig. 110d). The meshes usually enclose 8-10 stigmata. The dorsal lamina is plain-edged and rolled to the right.

The oesophagus is quite long and curved, and the stomach horizontal with only indistinct folds. There is a long ascending limb of the intestine and the descending limb expands into a conspicuous sac, from which the rectum leads to the funnel-shaped laterally compressed two-lipped anus.

In spite of their size these animals have poorly developed gonads. The ovary is represented by a few branched strands of tissue lying in the loop of the intestine.

VAN NAME (1945) described a subspecies *protecta* of *Ascidia sydneiensis* in which the musculature is similar to that of the present species. *A. sydneiensis protecta* occurs in California and we have examined one of the paratypes which bears little resemblance to our species. In particular, the neural gland and ganglion are much farther forward and there are no secondary openings of the gland.

The only *Phallusia* hitherto described from the Caribbean is *P. nigra* Savigny, and the present species differs in the absence of dark pigmentation, the softer thinner test, the absence of plications on the branchial wall and in the arrangement of the musculature.

The name *caguayensis* is derived from the Spanish name for their port in Kingston Harbour (Puerto de Caguaya). The name was later mistakenly applied by the English to the cay or island on which the town of Port Royal was built and which they originally named Cagway (RANDEL, 1960).

## Family PYURIDAE

**Bathypera goreau**, sp. n.

Fig. 111

**Holotype:** Discovery Bay, JAMAICA, 53 m, 18.IX.1970 (coll. N. Copland).

**Paratypes:** Discovery Bay, 90 m, 19.IX.1966 (coll. R. Chapman); Discovery Bay, 53 m, 18.IX.1970 (coll. N. Copland); Discovery Bay, 55 m, X.1970 (coll. E. Graham).

**Other material:** Discovery Bay, 60 m, 13.IX.1966 (R. Chapman); same, 55 m, X.1970, 3 specimens (E. Graham).

The body is oval in outline, forming a low dome with the siphons placed toward each end of the upper side. The length varies from 5 to 11 mm. (Fig. 11a, b). In life the animal is deep red, but preserved specimens tend to be orange or colourless.

The test has superficial spicules arranged in rows as in other species of the genus. Each spicule has a flattened bilobed base and a short stalk surmounted by a spherical knob which bears numerous spinous processes (Fig. 111c, d).

The siphons are slit-like, at least in the preserved specimens, and bear no trace of lobes. Inside each siphon is a ring of spicules similar to those on the surface of the body.

The mantle musculature consists of strong strands radiating from the siphons, passing down across the body, and crossed by more delicate circular strands. Circular muscles are also present round the siphons (Fig. 111e). The ganglion is visible as an elongated white body about half way between the siphons.

12-14 branchial tentacles are present, each long and thin with only 2 or 3 short simple side branches (Fig. 111f). The dorsal tubercle is oval with a simple longitudinal or slightly curved slit (Fig. 111g), and the neural gland forms a compact mass close to the tubercle.

There are six conspicuous folds on each side of the branchial sac, and in one specimen examined the arrangement of longitudinal bars was:

dorsal line 0 (10) 2 (12) 2 (14) 1 (14) 2 (13) 2 (12) 2 endostyle.

A series of pointed languets occupies the mid dorsal line of the branchial sac. The stigmata tend to form infundibula on the branchial folds, and there, as well as between folds, they generally appear to be essentially spiral in arrangement (Fig. 111h).

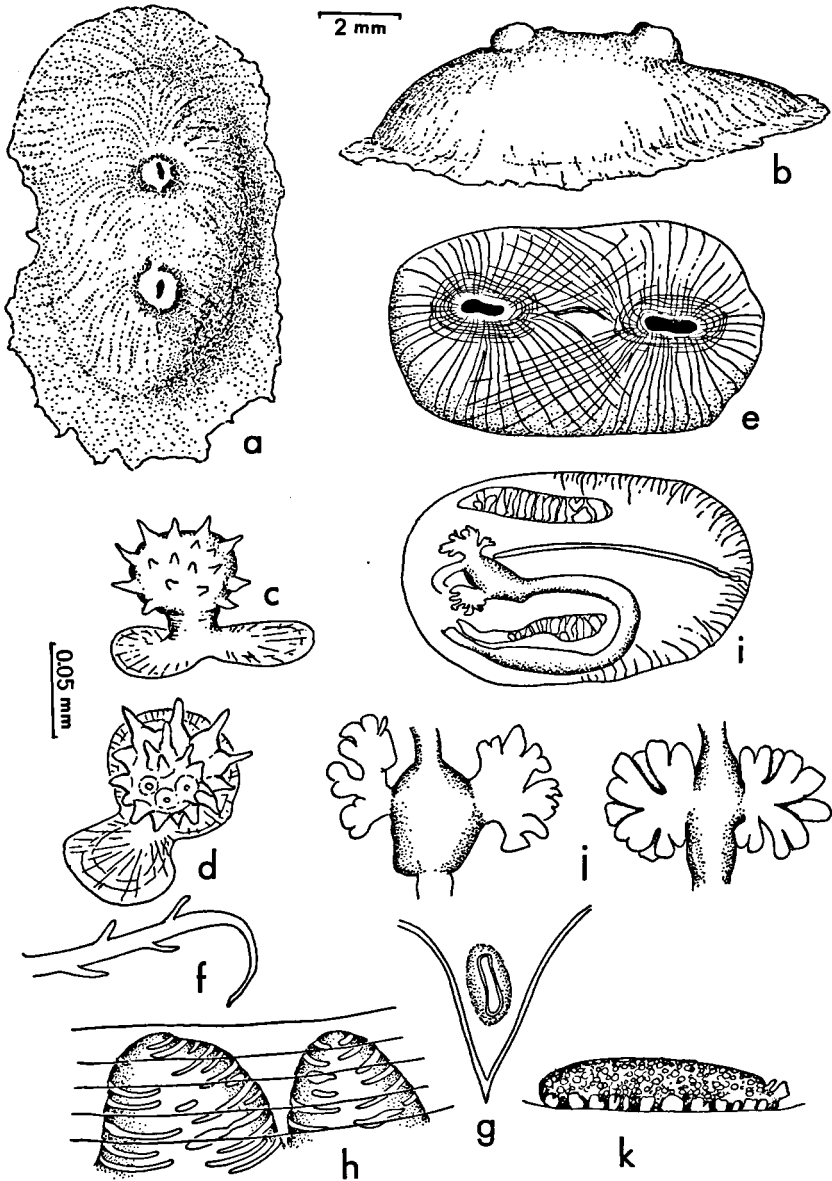


Fig. 111. *Bathypera goreau* sp. n. — a, b, whole animals; c, d, spicules; e, mantle musculature in dorsal view; f, branchial tentacle; g, dorsal tubercle; h, portion of branchial wall; i, ventral view of animal showing alimentary canal and gonads; j, stomach and diverticula; k, gonad.



The alimentary canal forms a simple loop on the left side of the body (Fig. 111i). The oesophagus is short and sharply bent and the stomach small and smooth-walled. A conspicuous lobed diverticulum arises from each side of the stomach and the diverticula are either symmetrically placed or one slightly further forward than the other (Fig. 111j). The remainder of the alimentary canal forms a simple open loop and the anus is either plain-edged or has two shallow lips each bearing a small rounded lobe.

There is one gonad on each side, that of the left being enclosed in the intestinal loop. Each gonad consists of an elongate ovary and a series of irregular and slightly lobed male follicles adjacent to the body wall. Both oviduct and common sperm duct are short (Fig. 111k).

Only three species of *Bathypera* have been described. *B. splendens* Michaelsen, 1904, is an Antarctic species found in depths of 75–3000 m (VAN NAME, 1945). *B. hastaefera* Vinogradova, 1962, also occurs in the Antarctic but with a more localised range (KOTT, 1969). *B. ovoida* (Ritter, 1907) has been recorded from a single station off the west coast of southern California in 2000 m of water but it probably extends to the coasts of British Columbia since ten specimens collected by one of us (I.G.) at 100 m depth in the Saanich inlet, Vancouver Island, appear to be of this species.

*Bathypera goreawi* is distinguished by the form of its spicules, which in the other species of the genus consist of a simple pedicel without a bilobed base surmounted by a ring of spinous processes. The lateral diverticula of the stomach in *B. goreawi* are also distinctive. In *B. splendens* and *B. hastaefera* the stomach is elongate with simple folds, but in *B. ovoida* it has irregular folds.

Only eight specimens of the new species have so far been collected, all from the deep reef area adjacent to Discovery Bay. They were taken at depths from 50 to 90 metres. In every case the animal was attached to the lower surface of an overhanging slab of coral rock. It may be widely distributed at these depths on Caribbean reefs.

The species is named after the late Professor T. F. GOREAU who pioneered the exploration of the deep reef of Jamaica and introduced us to its ascidian fauna.

### ***Halocynthia microspinosa* (Van Name, 1921)**

**Material:** Discovery Bay, JAMAICA, 60 m, 9.XII.1965 (E. Graham); same, 12 m, 18.XII.1965 (R. Chapman); same, 37 m, 4.IV.1966 (T. Goreau); same, 37 m, XII.1966 (Chapman); same, 37 m, 31.XII.1966 (Chapman); same, 15 m, 6.II.1967 (Chapman); same, 4.5 m, 25.III.1967 (Chapman); same, 53 m, 18.XI.1970 (J. Lang). – Lime Cay, Port Royal, 18 m, 27.XI.1966 (I. Goodbody). – S.E. Cay, Port Royal, XII.1966 (Chapman). – Little Pelican Cay, Portland Bight, 3 m, 18.XII.1966 (Goodbody). – Runaway Bay, 18 m, 19.III.1967 (Chapman). – Booby Cay, Negril, 1 m, 10.VIII.1967 (Goodbody). – South Knolls, Port Royal, 9 m, 4.XI.1967 (Goodbody). – Maiden Cay, Port Royal, 1 m, 28.XII.1972 (Goodbody).

VAN NAME (1921) described a new species as *Tethyum microspinosa* from a single specimen whose locality was unknown, but which, from its association with other material in a museum jar, was believed to have come from Andros Island in the Bahamas. It is a species of *Halocynthia* and in a later publication VAN NAME (1945) wrote "No such species has since been found in the West Indian region, and I now believe that the specimen is an abnormal one of *H. pyriformis* which has been placed with the Bahamian material by mistake."

In the Jamaican collections there are 14 specimens all of which have the same morphological features as the original specimen of *Halocynthia microspinosa*; in particular, all lack gonads on the right side. Most of the specimens are small, ranging from 10 to 20 mm in length, but one collected at Discovery Bay is 45 mm long. We have found the new material to differ from VAN NAME's original description only in the number of gonads (3 or 4 in our specimens, 5 in VAN NAME's type specimen). As in other members of the genus the dorsal lamina is replaced by a shallow trough bordered on each side by a series of narrow languets. VAN NAME notes endocarps in the gut loop, but does not mention the small endocarps scattered over the body wall which occur on all of the Jamaican specimens.

It is clear that VAN NAME (1921) was originally correct and that *Halocynthia microspinosa* should be re-instated. It differs from other members of the genus in lacking gonads on the right side (KOTT, 1968) although MICHAELSEN (1919) described an aberrant form of *H. spinosa* Sluiter, 1905 also lacking the right gonads, and MILLAR

(1962b) described a similar condition in specimens of *H. spinosa* from South Africa, and recognised a new form *defectiva* of the species. These forms of *H. spinosa* however, are quite distinct from *H. microspinosa*, as they have two curved gonads which tend to fuse in such a way as to resemble a single ring-shaped gonad. In *H. microspinosa* the gonads are parallel, with no tendency to form ring-shaped bodies. They do, nevertheless, press so closely together that when viewed through the body wall they appear as a single mass of ovarian tissue; only when examined from within the branchial sac do they show their true structure.

## REFERENCES

- BERRILL, N. J., 1932. Ascidiens of the Bermudas. *Biol. Bull.* 62: 77-78.
- BIGELOW, R. P., 1900. The anatomy and development of *Cassiopea xamachana*. *Mem. Biol. Lab. Johns Hopkins Univ.* 4: 191-231.
- HARANT, H., 1931. Contribution à l'histoire naturelle des ascidies et de leur parasites. *Ann. Inst. océanogr. Monaco* 8: 231-389.
- KOTT, P., 1957. The ascidians of Australia II. Aplousobranchiata Lahille; Claveliniidae Forbes and Hanley, and Polyclinidae Verrill. *Austr. J. mar. freshw. Res.* 8: 64-110.
- KOTT, P., 1963. The ascidians of Australia IV. Aplousobranchiata Lahille: Polyclinidae Verrill (continued). *Austr. J. mar. freshw. Res.* 14: 70-118.
- KOTT, P., 1968. A review of the genus *Halocynthia* Verrill, 1879. *Proc. Linn. Soc. N.S.W.* 93: 76-89.
- KOTT, P., 1969. *Antarctic Ascidiacea*. Antarctic Res. Series 13: 239 pp. (Amer. Geophys. Union Nat. Acad. Sci.-Nat. Res. Council, publ. 1725).
- MICHAELSEN, W., 1904. Die stolidobranchiaten Ascidien der Deutschen Tiefsee-Expedition. *Wiss. Ergebn. "Valdivia"* 7: 182-260.
- MILLAR, R. H., 1961. *Euherdmania vitrea*, a new species of ascidian from Brazil. *Ann. Mag. nat. Hist.* 4: 143-147.
- MILLAR, R. H., 1962a. Some ascidians from the Caribbean. *Studies fauna Curaçao* 13: 61-77.
- MILLAR, R. H., 1962b. Further descriptions of South African ascidians. *Ann. S. Afr. Mus.* 46: 113-221.
- MILLAR, R. H., 1971. The biology of ascidians. In *Advances in marine biology* (Russell & Yonge eds.) 9: 1-100.
- OKA, A., 1933. Ueber *Sigillinaria*, eine neue Synascidiengattung aus Nordpazifik. *Proc. Imp. Acad. Japan* 9: 78-81.
- RANDEL, W., 1960. Survival of pre-english place names in Jamaica. *Names* 8: 24-29.
- REDIKORZEV, V., 1913. Neue Ascidien. *Zool. Anz.* 43: 204-213.
- RITTER, W. E., 1903. The structure and affinities of *Herdmania claviformis*, the type of a new genus and family of ascidians. *Mark Anniv. Volume*: 237-261.
- RITTER, W. E., 1907. The ascidians collected by the United States Fisheries Bureau steamer *Albatross* on the coast of California during the summer of 1904. *Univ. Calif. Publs. Zool.*, 4: 1-52.

- SLOOT, C. J. VAN DER, 1969. Ascidiens of the family Styelidae from the Caribbean. *Studies Fauna Curaçao* 30: 1-57.
- SLUITER, C. P., 1904. Die Tunicaten der Siboga-Expedition I. Die socialen und holo-somen Ascidiens. *Siboga-Exp.* 56a: 126 pp.
- SLUITER, C. P., 1905. Tuniciers recueillis en 1904 par M. Ch. Gravier, dans le Golfe de Tadjourah (Somalie Française). *Mem. Soc. Zool. Fr.* 18: 5-21.
- TOKIOKA, T., 1967. Pacific Tunicata of the United States National Museum. *Bull. U.S. natn. Mus.* 251: 1-247.
- VAN NAME, W. G., 1902. The ascidiens of the Bermuda Islands. *Trans. Conn. Acad. Arts Sci.* 11: 325-412.
- VAN NAME, W. G., 1921. Ascidiens of the West Indian region and south eastern United States. *Bull. Am. Mus. nat. Hist.* 44: 283-494.
- VAN NAME, W. G., 1930. The Ascidiens of Porto Rico and the Virgin Islands. *Sci. Survey Porto Rico and Virgin Ids. (New York Acad. Sci.)* 10: 401-512.
- VAN NAME, W. G., 1945. The North and South American Ascidiens. *Bull. Am. Mus. nat. Hist.* 84: 1-476.
- VINOGRADOVA, N. G., 1962. Biological results of the Soviet Antarctic Expedition (1955-1958) 1. *Acad. Sci. U.S.S.R. Zool. Inst. (Exploration of the fauna of the Seas)* 1: 196-215.