

MEDDELELSER OM GRØNLAND

UDGIVNE AF

KOMMISSIONEN FOR VIDENSKABELIGE UNDERSØGELSER I GRØNLAND

Bd. 104 · Nr. 11

THE SCORESBY SOUND COMMITTEE'S 2ND EAST GREENLAND
EXPEDITION IN 1932 TO KING CHRISTIAN IX'S LAND

LEADER: EJNAR MIKKELSEN

COELENTERATA, CTENOPHORA
AND CHÆTOGNATHA

BY

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WITH 10 FIGURES IN THE TEXT

KØBENHAVN

C. A. REITZELS FORLAG

BIANCO LUNOS BOGTRYKKERI A/S

1933

On the 2nd East-Greenland Expedition of the Scoresby Sound Committee, 1932, the zoologist of the expedition, Mr. M. DEGERBÖL, collected some marine animals in the neighbourhood of the coast between Cape Dalton and Angmagssalik, particularly in the fjord Kangerdlugsuak about mid-way between these two points (see the map, fig. 10). The material collected is too small to serve as base for a general zoogeographical discussion, but as the marine fauna of this part of the east coast of Greenland was practically unknown up to now, it is worth while to give a brief account of the results of the investigations.

Among the Hydroids one species is described as new to science: *Corymorpha obvoluta* n. sp.

New to East Greenland are moreover the following species: *Coryne sarsi*, *Sarsia tubulosa*, *Catablema vesicarium*, and *Virgularia tuberculata*.

Coelenterata.

Hydroida.

Hydroids were only collected in Kangerdlugssuak; the following species were found:

Coryne sp.

A small, sterile colony of a *Coryne* was found on *Grammaria abietina* at a depth of 175 m, August 20th, stat. 31. It may probably belong to the species *Coryne sarsi* (Lovén), the medusa of which (*Sarsia tubulosa*) was found somewhat further north. *Coryne sarsi* has not with certainty been recorded from the east coast of Greenland.

Eudendrium ?*capillare* Alder.

A sterile colony on *Grammaria abietina* from 175 m, stat. 31, is supposed to belong to *Eudendrium capillare*. Most probably it is the same species which has been recorded from Danmark's Havn in North-East Greenland, about $76\frac{3}{4}^{\circ}$ N., under the name of *Eudendrium tenellum* (KRAMP 1911). On the west coast of Greenland this species is known as far north as $69^{\circ}41'$ N.

Further distribution: almost cosmopolitan.

Tubularia sp.

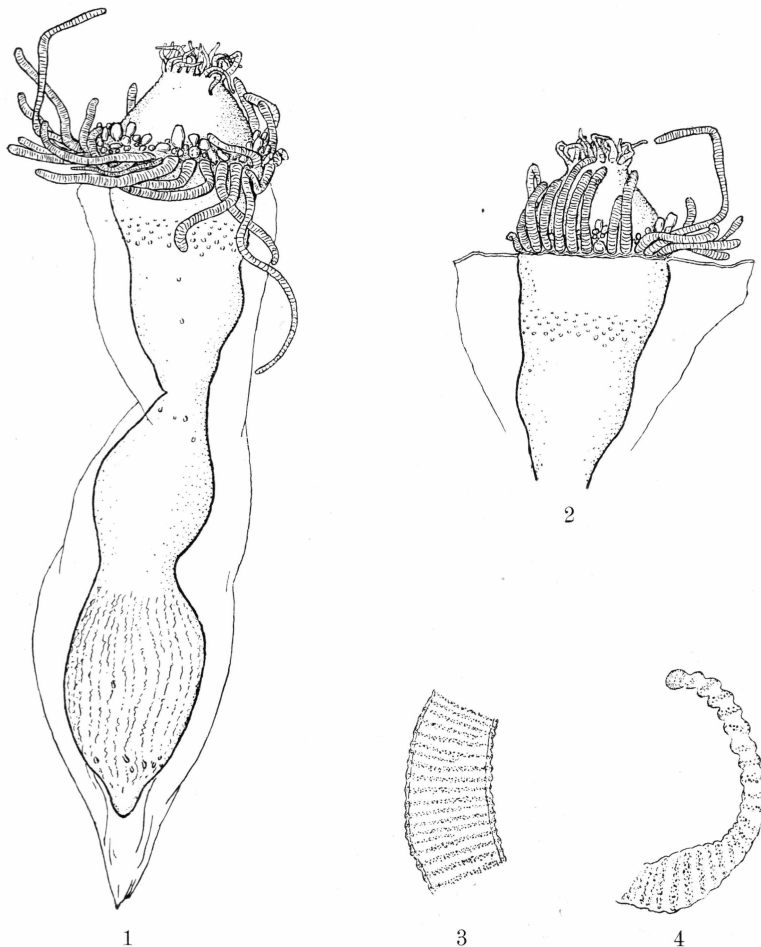
Some large, empty tubes of a *Tubularia* were found at stat. 19, August 21st, about 200 m.

Corymorpha obvoluta n. sp.

Kangerdlugssuak, at the partition of the fjord, stat. 31, depth 175 m, muddy bottom, August 20th 1932, one specimen.

Description: Height 32 mm. Hydrocaulus fairly thick, up to 6 mm, no constriction between the hydrocaulus and the hydranth. The entire hydrocaulus covered by a thick, gelatinous periderm right up to the proximal whorl of tentacles and continued some way below the aboral end of the hydrocaulus; the periderm is everywhere closely connected with the ectoderm. The basal one-third of the hydrocaulus is

somewhat swollen, egg-shaped, terminating below in a tenon-like prolongation. The usual longitudinal striation, due to endodermal canals, is restricted to this egg-shaped part of the hydrocaulus. No root-like filaments are observed, as in other species of *Corymorphinæ*, but small



Figs. 1—4. *Corymorpha obvoluta* n. sp. — Fig. 1. Type specimen. $\times 3$. The periderm is drawn as being quite transparent. — Fig. 2. The same seen from the other side; the periderm is cut open, loosened from its upper line of attachment immediately below the tentacles, and turned outwards to both sides. — Fig. 3. Middle portion of one of the proximal tentacles, showing girdles of nematocysts. — Fig. 4. One of the distal tentacles.

rounded or elongate papillæ, exactly like those above the tuft of filaments in *Corymorpha nutans*, are present, and these papillæ are distributed in a peculiar way: some few papillæ occur here and there, in no particular order, on the surface of the hydrocaulus, and at a short distance below the proximal tentacles there is a distinct belt of papillæ,

placed in about five, not quite regular, transverse rows, those of the uppermost rows being very small and rounded, whereas the papillæ of the lower rows are larger, pear-shaped, and downwards directed; their structure and presumed significance will be further discussed below. The upper part of the hydrocaulus is obconical and passes gradually into the broad, conical hypostome of the hydranth, limited from the latter by the proximal whorl of tentacles.

The proximal tentacles, 28 in number, are fairly long and much contractile; in contracted state they are cylindrical, bluntly ending, when extended they are slightly tapering towards the tip. These tentacles are provided with numerous, closely-set transverse bands of nematocysts (see fig. 3). There are 20 distal tentacles, placed in a single whorl on the top of the hypostome, surrounding the mouth; they are somewhat swollen below, and they seem to be less contractile than the proximal tentacles. Like these latter they are provided with transversal bands of nematocysts throughout their length, and in the terminal end they have a small, round knob of nematocysts (see fig. 4).

The gonophores (fig. 5) are placed in a whorl immediately above the proximal tentacles; they are collected into several small clusters, each consisting of 3—5 gonophores in different stages of development. The gonophores are cryptomedusoid, elongate-oval in outline, and each provided with four small knobs, containing nematocysts, in the distal end.

If the animal has had any special colour, it has entirely disappeared in the specimen.

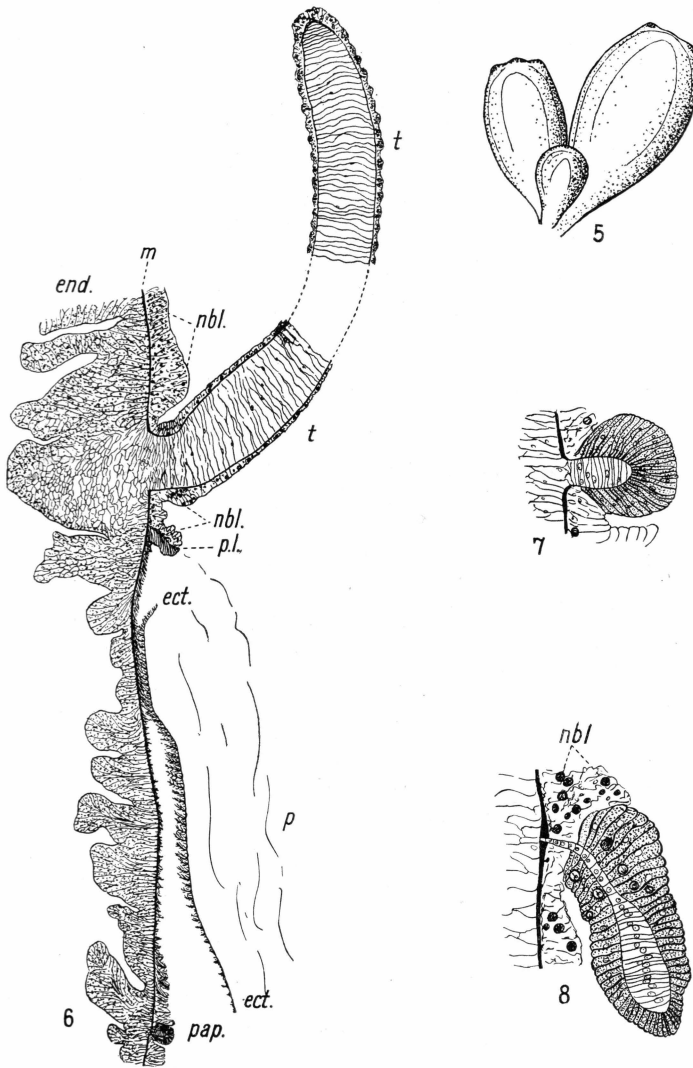
Internal structure. The specimen is preserved in alcohol and is not in a suitable condition for a study of the histological structure. Some important anatomical features may, however, be described.

The endoderm of the hypostome and of the upper part of the hydrocaulus is provided with numerous longitudinal folds or wrinkles, but there is not the slightest trace of a diaphragm separating the hydranth from the stalk as in typical *Corymorphinæ*. The hydrocaulus is hollow, except in the basal one-third, which is filled by a formless mass of cells, evidently in a state of decay, and in the periphery of this part longitudinal canals can still be traced; probably this basal part of the hydrocaulus has had a similar structure as the entire hydrocaulus in other *Corymorphinæ*.

The tentacles are solid. In the proximal as well as in the distal tentacles the endoderm consists of a single row of discoidal cells, almost without protoplasm (see fig. 6); in the basal part of the tentacles there are several layers of endoderm cells, but still no hollow space. The endoderm of the tentacles communicates directly and without any marked constriction with the endoderm of the hydranth.

The mighty, soft periderm-layer is intimately connected with the

ectoderm of the hydrocaulus and cannot be removed without rupturing the epithelium (see fig. 6); its upper limit is distinctly marked by an annular ridge around the body immediately below the tentacles.



Figs. 5—8. *Corymorpha obvoluta* n. sp. — Fig. 5. A cluster of gonophores. — Fig. 6. Longitudinal section of part of the body-wall with one of the proximal tentacles (middle portion of the tentacle left out in the figure). — Fig. 7. Longitudinal section of young papilla. — Fig. 8. Longitudinal section of older papilla, with several nematocysts; the ectoderm of the adjacent part of the body-wall is rich in nematoblasts. — *ect* folded ectodermal epithelium (partly ruptured) from which the periderm is secreted. *end* endoderm. *m* mesosarc. *nbl* ectoderm rich in nematoblasts and nematocysts which are destined for the tentacles. *p* periderm. *pap* young papilla. *p.l.* upper limit of the periderm. *t* tentacle.

The papillæ are out-growths from the body-wall (see figs. 7 and 8). Their ectoderm consists of high and narrow cells partly containing nematocysts, the endoderm of a single file of discoidal cells; their supporting lamella is extremely thin. In young papillæ (fig. 7) the endoderm is in broad connection with that of the hydrocaulus, in older papillæ (fig. 8) the connection is very narrow and may even be entirely obliterated. There is no trace of filaments having issued from these papillæ and afterwards been torn off. As, however, the periderm is perforated outside the papillæ, I nevertheless consider them a kind of organs for

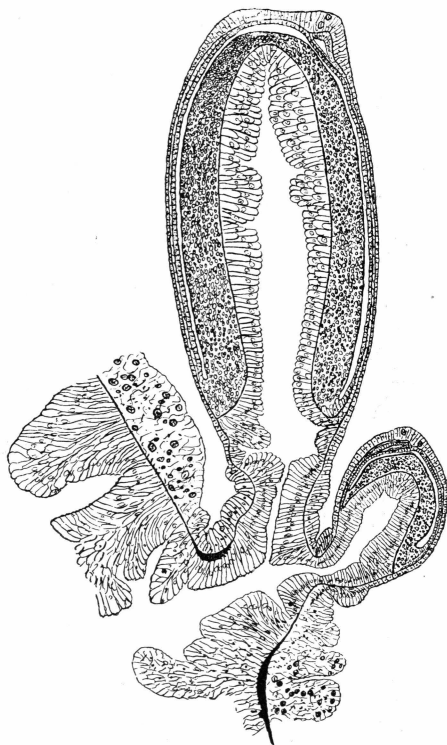


Fig. 9. *Corymorpha obvoluta* n. sp. Longitudinal section of gonophores and adjacent part of the hypostome. In the large gonophore the section has passed along a perradius on the right hand side and along an interradius on the left hand side; in the small gonophore the opposite is the case. — When passing from the central cavity of a gonophore to its external, lateral surface, the following tissues are seen: endoderm, mesosarc, and ectoderm (containing gonads) of the manubrium; (the narrow bell-cavity); ectoderm of the subumbrella; endoderm lamella of the umbrella, communicating with that of the pedicel in the perradius, separated from it in the interradius, and somewhat dilatated and hollow in the distal part of the perradius; ectoderm of the exumbrella, dilatated in the distal, perradial nematocyst-knob. — At the top of the gonophore the two ectoderm layers of the umbrella are only separated by a thin mesosarc.

attachment, being able to extend themselves through the periderm into the surrounding bottom-material. The accumulation of papillæ in a belt around the upper portion of the body, in connection with the development of the periderm all along the hydrocaulus, indicate, I think, that the animal has been entirely immersed in the bottom with only the hypostome and the tentacles projecting above the surface of the mud.

The gonophores. — Fig. 9 shows a longitudinal section of one of the largest gonophores observed, and also of one in an earlier stage of development. The gonophores of this specimen are male. There is a very large manubrium (spadix), the hollow endoderm of which reaches almost to the top, but there is no mouth-opening; the ectoderm of the manubrium is entirely occupied by the gonad. The bell-cavity reaches downwards almost to the proximal end of the gonophore, but it is very narrow. The walls of the umbrella are very thin, except in the four distal knobs which contain numerous nematocysts and represent rudiments of tentacles. The umbrella-wall consists of two thin layers of ectoderm separated by a thin endoderm lamella except in the closed velar plate at the top. The endoderm lamella consists of one cell-layer; there are no radial canals and no circular canal, but in each of the four distal knobs the endoderm is somewhat dilatated and contains a small hollow space. In young gonophores these four spaces are much larger and extend somewhat downwards, so that a kind of radial canals are present in the distal portion of the gonophore. In the full-grown gonophore there is still another indication of a radial structure: The endoderm lamella of the umbrella communicates with the endoderm of the manubrium only in the four perradii (on the right hand side of fig. 9), whereas in the interradian parts the ectoderm of the manubrium is only separated from the external ectoderm-layer of the umbrella by a thin mesosarc. Moreover the endoderm of the manubrium is provided with four longitudinal ridges. — The male gonophores as here described are typically cryptomedusoid, though not in a very advanced stage of reduction, the bell-cavity being very deep, and rudiments of tentacles being present.

Systematical position. This species is evidently closely related to *Corymorpha annulicornis* M. Sars (*Heterostephanus annulicornis* Allman), the only other species of *Corymorphinæ* in which the proximal tentacles are provided with rings of nematocysts (M. Sars: 1860, Om Ammeslægten *Corymorpha* . . ., Forhandl. Vidensk.-Selsk. Christiania for 1858, p. 4; 1877, New and little known Coelenterates, Fauna littoralis Norvegiæ, P. 3, p. 8, Pl. I figs. 7—13). Sars rightly remarks (1877 p. 9) that the proximal tentacles "which in the other species of the genus *Corymorpha* are very little or not at all contractile, may here be considerably shortened, and are moreover remarkable for their ornamentally

ringed structure", and as a matter of fact, the species described above is the first example of ringed tentacles having been found in another species of this group. In *C. annulicornis*, moreover, the distal tentacles are provided with a distal knob of nematocysts (somewhat more pronounced than in *C. obvoluta*), but destitute of nettle-rings as those found in the distal tentacles of my new species. Common to both species are also the following features: the distal tentacles placed in one whorl; the periderm enclosing the entire hydrocaulus (very thin in *C. annulicornis*); the absence of filaments; the presence of a circle of "small shortly-cylindrical papillæ" around the upper part of the hydrocaulus at a short distance below the proximal tentacles (in *C. annulicornis* only 6—8 papillæ in one circle; Sars considered them organs for attachment). In both species the gonophores are sessile, placed on the hypostome immediately above the proximal whorl of tentacles, but there is an important difference in the structure of the gonophores: in *C. annulicornis* they are medusoid, and probably break away as free-swimming medusæ provided with one large tentacle; in *C. obvoluta* they are cryptomedusoid, with four equally developed tiny rudiments of tentacles. There is no reason to believe, therefore, that the small *C. annulicornis* (15 mm high) should be a younger stage of *C. obvoluta*; they are distinct species, though closely related.

Owing to the difference in structure of the two whorls of tentacles in *C. annulicornis*, ALLMAN (1864, On the Construction and Limitation of genera . . . , Ann. Mag. Nat. Hist., III, 13, p. 359) made this species the type of a new genus, *Heteractis*, afterwards (1864, Notes on the Hydroida, idem III, 14, p. 61) changing the name into *Heterostephanus*, because the former was preoccupied by the botanists. If a proper genus should be established to comprise the two species *annulicornis* and *obvoluta*, the generic name ought to be *Heteractis* which has the priority, the rules of priority not preventing the simultaneous use of the same generic name for a plant and an animal. The structure of the proximal tentacles (the arrangement of their nematocysts and their great power of retraction) certainly distinguishes these two species from all other members of the subfamily, but all the other peculiarities pointed out above, and not occurring in typical forms of *Corymorpha*, are really found in some other species.

Capitate distal tentacles are observed in very young specimens even of such a highly differentiated form as *Corymorpha nutans*, and also in a somewhat advanced stage of a *Corymorpha* from the Mediterranean, mentioned by STECHOW (1919, Zur Kenntnis der Hydroidenfauna des Mittelmeeres. . . , Zool. Jahrb. Syst., Bd. 42, p. 8, fig. B) and referred by him to ?*Heterostephanus annulicornis*, though the prox-

imal tentacles have no rings of nematocysts (it is a juvenile stage, probably of a typical *Corymorpha*).

Only one whorl of distal tentacles is found in *Corymorpha nana* Alder and in "*Tubularia*" *solitaria* Warren (this latter species will be further mentioned below).

The periderm reaching upwards until the base of the hydranth is found in *Corymorpha nana* and "*Tubularia*" *solitaria*, where it is very thin, and in a *Corymorpha* sp. from the North Sea, described by BROCH (1905, Nordsee-Hydroiden...., Bergens Museums Aarbog for 1905, No. 6, p. 5, Taf. II figs. 1—4, presumed by the author to be a young individual of *C. nutans* or *C. nana*, but distinguished from the latter by numerous distal tentacles in several whorls), which seems to have a thick and soft perisarc very similar to that described above in *C. obvoluta*. Moreover the interesting species *Gymnogonos crassicornis* Bonnevie (see below) is covered by a thin periderm throughout the length of the hydrocaulus.

No constriction between the hydrocaulus and the hydranth is found in *Lampra microrhiza* Hickson & Gravely (1907) and in *Gymnogonos crassicornis* Bonnevie; in *Corymorpha* sp. Broch (1905) there is only a very slight indication of a constriction.

Complete lack of a diaphragm at the base of the hydranth is only known with certainty in *Gymnogonos crassicornis* Bonnevie, and in this latter species we also find a similar belt of papillæ around the upper part of the hydrocaulus as that observed in *C. obvoluta*.

Some of the species mentioned above have been considered transitional forms between *Tubulariinae* and *Corymorphinae*. This is, however, an inappropriate term, because no one of these two subfamilies has developed from the other; most probably they are diverging branches from a common origin, and within each group we may find species which have retained one or more primitive characters inherited from the common ancestors which, probably, have resembled the *Pennariidæ*. Also, as among other animals, we may expect to find primitive and highly specialized characters together in one and the same species; a species which is highly specialized in some respects may still have retained certain primitive characters, which have disappeared in other species. We are not allowed, therefore, to apply the term of "primitive" or "transitional form" to a species, because it has retained a few characters pointing backwards to the group from which the species presumably has developed. — I will mention some of the supposed "transitional forms" between *Tubulariinae* and *Corymorphinae*.

STECHOW (1923, Zur Kenntnis der Hydroidenfauna des Mittelmeeres etc., Zool. Jahrb. Syst. Bd. 47, p. 51) considers *Tubuletta splendida*

Haeckel (1899, *Kunstformen der Natur*) such a transitional form. It is undoubtedly a *Tubularia*; the "Wurzelfasern" are not necessarily homologous with the root-filaments of *Corymorpha*, but may be secondarily transformed stolons as we know them in *Stegopoma*, *Nemertesia*, and *Eudendrium planum*, where the colony may be anchored to the soft bottom-material by a dense tuft of filiform stolons.

On the other hand, *Tubularia solitaria* Warren is undoubtedly a *Corymorpha* adapted to live partly immersed in sponges. It was thoroughly described by WARREN (1906, On *Tubularia solitaria* sp. nov., a Hydroid from the Natal Coast, Ann. Natal Governm. Mus. vol. I, pp. 83—96, Pl. X and XI); STECHOW (1921) made it the type of a new genus, *Zyzzyzus* (see STECHOW 1923, Zool. Jahrb. Syst. Bd. 47, p. 50). Both authors consider it a transitional form between *Tubulariinae* and *Corymorphinae*, and STECHOW finds its nearest relative in *Tubulella* Haeckel. It is in several respects a highly specialized *Corymorpha*, with a mighty developed diaphragm at the base of the hydranth, and with typical longitudinal endodermal canals in the hydrocaulus. The absence of filaments is probably a secondary character, as also the development of peculiar root-like processes from the immersed portion of the hydrocaulus, presumably an outcome of adaptation to the special mode of living of this species. The most peculiar feature of this species is the development of its egg into an actinula. It resembles *Corymorpha obvoluta* in the extension of the periderm and in the arrangement of the gonophores which, moreover are cryptomedusoid. A very interesting feature is the occurrence of male and female gonophores on one and the same hydranth.

Gymnogonos crassicornis was described by BONNEVIE (1898, Zur Systematik der Hydroiden, Zeitschr. wiss. Zool. Bd. 63, p. 481, Taf. XXV figs. 1—11). In several respects it is a very interesting species. The complete absence of a diaphragm below the hydranth, the even transition without any trace of constriction between hydrocaulus and hydranth, the position of the gonophores directly on the hypostome, and the extension of the periderm throughout the length of the hydrocaulus, indicate a low systematical position within the *Corymorphinae*, and the presence of a belt of papillae around the upper portion of the hydrocaulus, constructed exactly as in *Corymorpha obvoluta*, denotes a relationship with this latter species. On the other hand, the presence of root-filaments, and the distal tentacles being placed in several whorls, are tokens of a fairly high specialization, as also the interesting fact that the proximal tentacles are hollow as in *Branchiocerianthus*, the highest developed group of *Corymorphinae*. The gonophores are styloid which, however, is of no great systematical importance. It is not stated in the description whether the nematocysts of the tentacles are placed in rings, or uniformly scattered as in other *Corymorphinae*; according

to the figures the latter seems to be the case. Moreover nothing is said about longitudinal endodermal canals in the hydrocaulus¹⁾. The species was found in the mouth of Trondhjemfjord on the west coast of Norway at a depth of 400 m.

I think it highly probable that there exists a relationship between the three species *Corymorpha annulicornis* Sars, *Corymorpha obvoluta* nov., and *Gymnogonos crassicornis* Bonnevie, the former being the lowest organized form, *C. obvoluta* a little further advanced, and *crassicornis* having acquired some of the characters found in the more specialized forms of *Corymorpha*, but still retaining some primitive features.

These three species decidedly belong to the *Corymorphinæ* (though "*Heterostephanus*" *annulicornis* has frequently been placed among the *Pennariidæ* owing to the capitate distal tentacles). There are, however, some aberrant species which are not easily reckoned among the *Corymorphinæ*, but present so much resemblance to the species mentioned above that a relationship seems probable.

Hypolytus peregrinus Murbach from Woods Hole in North America (MURBACH 1899, in Quart. Journ. Microscop. Sci. vol. 42, p. 341, Pl. 34 figs. 1—10) is a solitary hydroid resembling my new species *Corymorpha obvoluta* in the possessing of two distant verticils of filiform tentacles provided with rings of nematocysts, and it has some sessile gonophores (styloid) above the proximal tentacles; the hydrocaulus is hollow and flexible and has no organs of attachment, and no permanent perisarc; by means of a secretion from the coenosarc it may be temporarily attached to foreign objects, but it may also be found swimming freely about in the water. I find it very probable that this species is allied to *Corymorpha obvoluta*, being secondarily adapted to a free-living habit. If so it is not to be reckoned alongside with *Margelopsis* and *Pelagohydra* (see STECHOW 1923 p. 49).

Trichorhiza brunnea Russell (1906, Proceed. Zool. Soc. London, p. 99, Pl. V, *Rhizotrichia* Stechow 1919 p. 6) is generally referred to the *Pennariidæ*. It is a minute hydroid, found in the Firth of Clyde. Its specially developed hydrocaulus and hydrorhiza do not recall a *Corymorpha*, but the hydranth is certainly very like that of *Corymorpha annulicornis*, with a distal whorl of short, capitate tentacles and a prox-

¹⁾ After the above was written I have been able to examine a series of sections of *Gymnogonos*, kindly sent to me by Miss BONNEVIE. The upper portion of the specimen, from the mouth until a little below the girdle of papillæ, has been transversally sectioned. I am unable to determine the arrangement of the nematocysts in the tentacles, and as the series does not comprise the lower portion of the hydrocaulus, it gives no information concerning longitudinal canals in the latter.

There are also sections of *Heterostephanus annulicornis*, showing that the papillæ below the tentacles may be present in greater number than stated by Sars, and also that the gonophores may be collected in small clusters.

imal whorl of long tentacles provided with numerous rings of nematocysts; from the hypostome are produced free medusæ with four rudimentary marginal bulbs, one of which is larger than the others, thus indicating a relationship with *Steenstrupia*, the medusa of *Corymorpha*.

Tiarella singularis Fr. E. Schulze (1876, in Zeitschr. wiss. Zool. Bd. 27, p. 403, Taf. 29 & 30, *Tricyclusa* Stechow 1919 p. 6) from Trieste is a solitary, fixed hydroid with three whorls of capitate tentacles, partly with indication of an annular arrangement of nematocysts below the terminal knob. It is probably derived from the same root as the above-mentioned genera and species, but possibly leading towards the *Tubulariinae* rather than towards the *Corymorphinae*.

In *Pennaria* the nematocysts in the proximal, filiform tentacles are not placed in rings, but are unilateral. The possession of ringed tentacles in certain forms of *Corymorphinae* cannot, therefore, be supposed to be inherited from higher organized forms of *Pennariidæ*.

The existence, as demonstrated above, of a whole series of more or less primitive hydroids, in which at least one of the two verticils of tentacles have their nematocysts placed in rings, and showing an evident relationship both with the higher organized forms of *Corymorphinae* and with the *Pennariidæ*, seems to me to demonstrate that the annulation of the tentacles is a character aquired at an early period when the *Tubulariidæ* branched off from some primitive forms of *Pennariidæ*, a character which gradually disappeared again in the higher developed forms of *Tubulariinae* as well as of *Corymorphinae*, but still persists in some few primitive species such as *Corymorpha obvoluta* and *annulicornis* and in *Hypolytus* and *Rhizotrichia*.

It must still be mentioned that VANHÖFFEN (1897, Die Fauna und Flora Grönlands, Drygalski's Grönland-Expedition, Bd. II, p. 244) has found two very small specimens of a *Corymorpha*, allied to *C. annulicornis*, in Little Karajak Fjord on the west coast of Greenland, about 70°30' N., at a depth of 40 m. Unfortunately no further information is given about the structure of these specimens.

Cuspidella procumbens Kramp.

Some few hydrothecæ on *Lafoea fruticosa*, stat. 19, about 200 m, August 21st. — An arctic species, previously found in Danmark's Havn at North-East Greenland and in a few localities on the west coast of Greenland north of 67°50' N.

Lafoea fruticosa M. Sars, forma *genuina*.

Found in three localities in Kangerdlugssuak at very different depths: stat. 18, 10 m, stat. 20, 175 m, and stat. 19, about 200 m. In the latter locality it was very abundant. — Previously known from

numerous localities on the east coast of Greenland between 70° and 77° N., and also common along the west coast. — Further distribution arctic and boreal.

Lafoea gracillima (Alder), forma *typica*.

In shallow water, 10 m, stat. 18, August 14th, on *Grammaria abietina* and *Lafoea fruticosa*. — The species has previously been found in some localities on the northern part of the east coast of Greenland between about 70° and 76 $\frac{3}{4}$ ° N. Also occurring along the entire west coast of Greenland. — Further distribution cosmopolitan.

Grammaria abietina (M. Sars).

Several large colonies, some of them fertile, were found in three localities in Kangerdlugssuak: at depths of 10 m (stat. 18), 60—70 m (stat. 17), and 175 m (stat. 31). — Previously known from the mouth of Scoresby Sound and from Danmark's Havn, about 70—76 $\frac{3}{4}$ ° N. Also occurring along the entire west coast of Greenland. — Further distribution arctic-boreal; in the western part of the Atlantic it has never been found further south than at the coast of Labrador, along the European coasts it penetrates as far south as the British Isles.

Campanularia integra McGillivray.

A few thin-walled hydrothecæ were found on *Grammaria abietina* in two localities: stat. 18, 10 m, and stat. 31, 175 m; in a third locality, stat. 19, depth about 200 m, the species was very abundant on *Lafoea fruticosa*. All of the hydrothecæ observed are very thin-walled, slender in shape, and mounted upon comparatively long pedicels. — On the east coast of Greenland this species has, up to now, only been found in the neighbourhood of Danmark's Havn, about 76 $\frac{3}{4}$ ° N., where it is very abundant, and also there almost all specimens were of the thin-walled form. — The species is common along the west coast of Greenland, the thin-walled form being the most common also there, though hydrothecæ with thickened walls may occasionally occur. — Further distribution cosmopolitan.

Hydromedusæ.

Sarsia tubulosa (M. Sars).

D'Aunay Bay, about 69° N. 25°25' W., July 16th, near the surface, 15 specimens, 3—9 mm high. — Not previously known from East-Greenland. Common in the coastal waters along the west coast of Greenland between about 60° and 70°30' N. — Further distribution boreal, penetrating into the Arctic.

Catablema vesicarium A. Agassiz.

Angmagssalik, September 8th, ringtrawl 100 m wire, 2 specimens, diameter 16—21 mm, each containing a specimen of the Amphipod *Themisto compressa* forma *compressa*. — Not previously known from East Greenland. Common along the west coast of Greenland about 60°—70°30' N. — Further distribution arctic.

Aglantha digitale (O. Fr. Müller).

3 miles off Cape Stephensen, about 68°23' N. 28°33' W., July 22nd, in a vertical haul, one specimen, 14 mm high; Ravn's Fjord between Cape Ravn and Cape Johnstrup, about 68°30' N. 28°15' W., July 29th, plankton-net 200 m wire, one specimen, 17 mm high; stat. 32 in Kangerdlugssuak, August 20th, ringtrawl 250 m wire, one specimen, 8 mm high. — Previously found near Cape Bismark, about 77° N., and in the neighbourhood of Angmagssalik; also in several localities far from land off the east coast of Greenland as far north as about 75³/₄° N. Very common in the waters west of Greenland. — Further distribution arctic and boreal, circumpolar.

Aeginopsis laurentii Brandt.

Ravn's Fjord between Cape Ravn and Cape Johnstrup, about 68°30' N. 28°15' W., July 29th, plankton-net 200 m wire, two specimens, diameter 13—16 mm. — Previously found east of Angmagssalik and near Cape Bismark. Also known from the waters west of Greenland between about 64° and 81³/₄° N. — Further distribution arctic, probably circumpolar.

Scyphomedusæ.*Cyanea capillata* (L.).

Angmagssalik, at the surface in the harbour, September 9th, one large specimen. — Previously recorded from the mouth of Scoresby Sound. Common along the west coast of Greenland as far north as the Umanak Fjord, about 70°45' N. — *Cyanea arctica* Péron & Lesueur cannot be maintained as a separate species distinct from the common North-Atlantic *C. capillata*.

Lucernaria quadricornis O. Fr. Müller.

Some specimens of this sessile medusa were found in three localities in Kangerdlugssuak: stat. 8, 10 m, one very large specimen, 80 mm high in its present strongly contracted state; stat. 24, 20 m, two specimens 20 and 60 mm high, much contracted; stat. 3, 70 m, one well-preserved specimen, 50 mm high, of which the stalk measures 25 mm. — Previously found at Tasiusak, near Angmagssalik, on the east coast of

Greenland, about $65^{\circ}30'$ N. — Also found in some localities on the west coast, between about 62° and $65^{\circ}50'$ N. — Further distribution: northern coasts of Europe; east coast of North America north of Massachusetts Bay.

Alcyonaria.

Eunephthya florida (Rathke).

In Miki's Fjord (immediately east of Kangerdlugssuak) four large, slender colonies of this species were found at a depth of 130 m. — Previously found in a few localities off Scoresby Sound. Fairly common off the west coast of Greenland between about 60° and 73° N. — Further distribution: deeper parts of the Atlantic boreal region.

Virgularia tuberculata Marshall.

One specimen, 13 cm high, in Miki's Fjord, 150 m. — The occurrence of this sea-pen on the east coast of Greenland is interesting. The species has its main distribution, as far as we know, along the coasts of northern Europe from south-west of Ireland northwards almost to the Taimyr peninsula on the north coast of Siberia, mainly at depths of more than 200 m, and it has also been found between Beeren Island and Spitzbergen. In a recent paper (Meddel. om Grønland Bd. 79, No. 4, 1932) I have recorded this species from a locality in the Baffin Bay, off Lancaster Sound, 680 m, thus very far from its area of occurrence as known up to then. Now as the species has been found on the east coast of Greenland, its occurrence in the Baffin Bay is less amazing than before.

Actiniaria.

(Identified by Professor O. CARLGREN, Lund).

Edwardsia vitrea (Dan.).

Miki's Fjord, 130 m, August 25th, one specimen. — Previously found in Franz Joseph Fjord, $73^{\circ}16'$ N. $23^{\circ}15'$ W., 28—36 m. — Further distribution: Spitzbergen and in the cold area in the Norwegian Sea.

Halcampoides purpurea (Studer).

Miki's Fjord, 130—175 m, August 25th, two specimens. — Previously found in several localities on the east coast of Greenland between Cape Dalton (about $69\frac{1}{2}^{\circ}$ N.) and Mackenzie Bay (about 74° N.) at depths from 1 m to 220 m. — Further distribution: probably cosmopolitan, though mainly occurring in the cold areas of the Arctic and the Antarctic.

Allantactis parasitica Dan.

Kangerdlugssuak, 175 m, stat. 31, August 20th, two specimens. — Previously found in several localities on the east coast of Greenland

between Angmagssalik and Mackenzie Bay, about 66° — 74° N., from the beach out to about 200 m. Also common along the west coast, particularly north of 69° N. — Further distribution arctic.

Hormathia nodosa (Fabricius).

Kangerdlugssuak, stat. 1, August 10th, one specimen; stat. 26, 11—15 m, August 18th, one specimen. — Previously found in some localities on the east coast of Greenland between Angmagssalik and Danmark's Havn, about 66° — $76\frac{3}{4}^{\circ}$ N. Common along the west coast. — Further distribution: mainly arctic, but penetrating into the boreal region, particularly so along the coast of North America.

Ctenophora.

Beroë cucumis Fabricius.

Barclay Bay, about $69^{\circ}15'$ N. $24^{\circ}50'$ W., at the beach, July 14th, one specimen, length 38 mm, diam. 21 mm; d'Aunay Bay, about 69° N. $25^{\circ}25'$ W., July 16th, near the surface, one specimen, diam. 9 mm; 3 miles off Cape Stephensen, about $68^{\circ}23'$ N. $28^{\circ}33'$ W., July 22nd, one specimen, about 6 mm; Kangerdlugssuak, near stat. 8, at the beach, August 10th, one specimen; do. (stat. 20), August 16th, ringtrawl 120 m wire, two small specimens; do. (stat. 30), at the surface, August 18th, two specimens, diam. 11—14 mm; Miki's Fjord, August 25th, one specimen.

Previously found in several localities far from land off the east coast of Greenland, but never in the neighbourhood of the coast where, as seen from the above statements, it is really quite common. — Very common in the waters west of Greenland. — Further distribution cosmopolitan.

Chætognatha.

Two species of Chætognaths were collected in various localities on the Blosseville Coast:

Sagitta elegans Verrill, var. *arctica* Aurivillius.

D'Aunay Bay, about 69° N. $25^{\circ}25'$ W., July 16th, near the surface: 3 specimens, 31—35 mm long.

Off Cape Stephensen, about $68^{\circ}23'$ N. $28^{\circ}33'$ W., 3 miles from the coast, July 22nd, in two vertical hauls: Hensen-net 9 specimens, 18—37 mm; ringtrawl 7 specimens, 29—40 mm.

Ravn's Fjord between Cape Ravn and Cape Johnstrup, about $68^{\circ}30'$ N. $28^{\circ}15'$ W., July 29th, plankton-net 200 m wire, one specimen, 18 mm.

Kangerdlugssuak, about $68^{\circ}30'$ N. $32^{\circ}30'$ W. (stat. 32), August 20th,

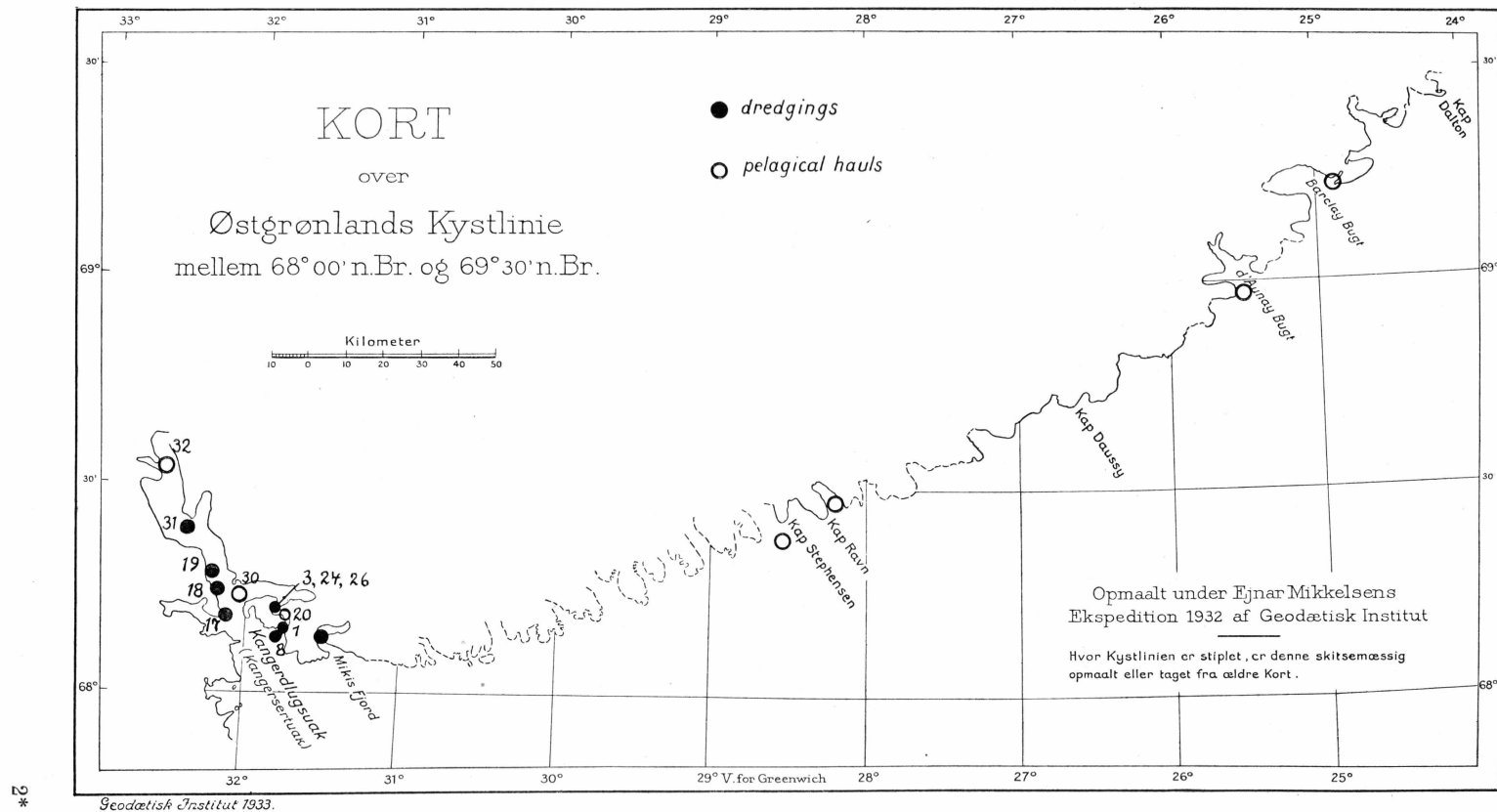


Fig. 10.

ringtrawl, two hauls: 225 m wire, 7 specimens 31—39 mm; 250 m wire, 55 specimens 28—42 mm.

Sagitta elegans is known from numerous localities in the area between North-East Greenland and Spitzbergen, and in the neighbourhood of Cape Bismark it has been found at a short distance from the coast, but up to now it has not been recorded from the coastal waters further south on the east coast of Greenland. It is very common along the entire west coast of Greenland, mainly in the neighbourhood of the coast.

Further distribution: *Sagitta elegans* belongs to the coastal waters in the northern Atlantic area; var. *arctica* occurs in arctic waters and is probably circumpolar.

Eukrohnia hamata (Möbius).

Found in most of the above-mentioned localities together with the preceding species:

Off Cape Stephensen, Hensen-net, 11 specimens, 5—32 mm; ring-trawl 2 specimens, 24—35 mm.

Ravn's Fjord between Cape Ravn and Cape Johnstrup, 200 m wire, 2 specimens, 20—27 mm.

Kangerdlugssuak (stat. 32): 225 m wire, 26 specimens, 12—34 mm; 250 m wire, 175 specimens, 13—40 mm.

Previously found in great abundance in the Greenland Sea between North-East Greenland and Spitzbergen and in the Denmark Strait, and very common in the waters west of Greenland, mainly in the open sea, less common in the coastal waters.

Further distribution: deeper parts of all oceans. In the warmer seas it only occurs in the deeper strata, but in the colder areas it is quite common also in the upper water layers, though usually only above fairly deep water, mainly outside the 600 m line and very rarely met with above depths of less than 200 m.

As will be seen from the above statements, there is a marked difference in the geographical distribution of these two species. It is interesting, therefore, that they are about equally common in the coastal area here dealt with, and still more interesting are the observations on the size of the individuals. The specimens of *Sagitta elegans* were all fairly large, middle-sized or full-grown, whereas there were many quite small individuals of *Eukrohnia hamata* in spite of the fact that this latter species only breeds in very deep water. This interesting fact cannot be explained by difference in the breeding time of the two species, but may be due to the current conditions prevailing along this part of the East-Greenland coast.
