DEN NORSKE NORDHAVS-EXPEDITION

1876—1878.

ZOOLOGI.

ACTINIDA.

VED

D. C. DANIELSSEN.

MED 25 PLADER OG 1 KART.

CHRISTIANIA.
GRØNDAHL & SØNS BOGTRYKKERI.
1890.

THE NORWEGIAN NORTH-ATLANTIC EXPEDITION

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BY

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WITH 25 PLATES AND 1 MAP.

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Forord.

Samtlige de paa den norske Nordhavsexpedition indsamlede Actinida ere Dybvandsformer, og en stor Del af dem leve i den kolde Area.

Actinarierne ere i sin store Almindelighed seiglivede Dyr, der orientere sig temmelig let under forandrede baade Livs- og Temperaturforholde. Dette i Forening med, at jeg som Medlem af Expeditionen kunde ivaretage Indsamlingen og holde Dyrene længere Tid levende, hvorved de i Regelen akklimatiseredes saavidt, at de i fuld Vigor udfoldede Tentaklerne og foretog de Bevægelser, der ere dem eiendommelige, — gjorde, at jeg fik god Tid baade til at observere dem og lade dem tegne, trods den oprørte Sø, som Expeditionen ofte var udsat for.

I systematisk Henseende har jeg især fulgt den Inddeling, Professor Richard Hertwig har opstillet for de af ham beskrevne Actinarier fra Challenger-Expeditionen. Som bekjendt har han væsentligt lagt de anatomiske Kjendsgjerninger til Grund for sin Inddeling og for Størstedelen forladt den Methode, der af ældre Forskere er befulgt, nemlig saagodtsom udelukkende at tage Hensyn til de ydre Karakterer. — Imidlertid maa det erkjendes, at disse ydre Kjendemærker ikke ganske bør sættes udaf Betragtning, men at de meget mere maa ansees for at være ret gode Hjælpemidler til at systematisere, og da jeg har havt Anledning til at iagttage Dyrene levende, har jeg ogsaa benyttet disse ydre Karakterer, samtidig med de anatomiske Kjendemærker. Saavidt jeg har formaaet, har jeg taget tilbørligt Hensyn til Gosse's og Andres's Systematik, hvis Arbeider over Actinarierne ere i høi Grad fortjenstfulde. Men for mig har Hertwigs systematiske Inddeling været mere tiltalende, end nogen Andens, forsaavidt den hviler paa en mere stabil Grundvold, er ikke underkastet de mangfoldige Variationer, som Tilfældet er med de ydre Kjendemærker, saasom Størrelse, Hudens ydre Beskaffenhed, Farve, Tentakelantal etc., — imedens jeg fuldt ud maa indrømme, at endnu er Tiden ikke inde til at kunne opstille et i alle Henseender tilfredsstillende System. Dertil udfordres en mere omfattende anatomisk-histologisk Undersøgelse af Actinarierne, end der hidtil er bleven dem til Del.

Preface.

All the Actinida collected on the Norwegian North Atlantic Expedition are deep-water forms, and a great many of them dwell in the cold area.

In general, the great bulk of the Actinaria are animals very tenacious of life, which with considerable facility accommodate themselves to changes of habit and temperature. That circumstance — in conjunction with the fact, that as a member of the expedition I was in a position to personally care for their collection and maintain the animals for a considerable time in the animate state, by which they became so far acclimatized, that they in full active vigour unfolded the tentacles and exercised the movements characteristic of them — enabled me to obtain plenty of time, both to observe them as well as have them drawn in spite of the heavy rolling sea the expedition was frequently exposed to.

In regard to system, I have more particularly followed the classification Professor Richard Hertwig has established for the Actinaria from the Challenger Expedition which he has described. As is known, he has taken, principally, the anatomical features as the basis of his classification, and has abandoned, for the greater part, the method adopted by the older naturalists viz. to confine attention almost exclusively to the external characteristics. It must, however, be acknowledged, that those external characteristics should not be entirely disregarded, but should much rather be regarded as particularly valuable auxiliaries in systematizing, and as I have had the opportunity of observing the animals while in the animate state, I have also considered those external characters along with the anatomical features. So far as it has been possible to do so, I have paid due regard to Gosse's and Andres's systematism — whose works on the Actinaria are in an eminent degree valuable — but Hertwig's systematic classification has had greater attractions for me than that of any other, in so far, that it rests on a more solid foundation and is not exposed to the numerous variations pertaining to external characteristics, such as size, nature of the external integument, colour, number of tentacles &c. whilst I must fully admit, that the time has not yet arrived at which we can establish a — in all respects — satisfactory system. For that, a wider and closer histo-

R Hertwig siger: „Although the existing systems of the Actiniæ undeniably require a complete remodelling on a new foundation, I have retrained from this at present, as the material investigated by me was insufficient. I only considered it absolutely needful to form some larger divisions anew in order to express in some measure the conditions of relationship among the forms. I have taken the structure and arrangement of the septa as the fundamental principle, and distinguish six Tribes of Actinaria: 1 Hexactiniæ; 2. Paractiniæ; 3. Monauleæ; 4. Edwardsiæ; 5. Zoantheæ; 6. Ceriantheæ."

Til 4 af de her nævnte Stammer (Tribus) har jeg kunnet henføre de paa den norske Nordhavsexpedition fundne Actinida; men desforuden har jeg været nødsaget til at opstille en ny Tribus, nemlig „Ægireæ", hvortil jeg har henført to Slægter, som egentlig ikke ere Coelenterater, forsaavidt de ere udstyrede med et udpræget Coelom; men at danne en hel ny Klasse for disse to yderst mærkværdige Dyr har jeg søgt at undgaa, omendskjønt det vistnok havde været det systematisk korrekteste; thi naar Hovedkarakteren for Klassen Coelenterata mangler, naar der nemlig intet Coelenteron er, har unægtelig Klassen tabt sin privilegerede Ret til at bemægtige sig disse Dyr.

Af de indsamlede Actinida ere der 18 nye Slægter og 40 nye Arter, hvilke ere henførte til 15 Familier, hvoraf 5 ere nye.

Bergen, December 1888.

D. C. Danielssen.

logical investigation of the Actiniaria than has yet taken place is necessary.

R. Hertwig says: „Although the existing systems of the Actiniæ undeniably require a complete remodelling on a new foundation, I have refrained from this at present, as the material investigated by me was insufficient. I only considered it absolutely needful to form some larger divisions anew in order to express in some measure the conditions of relationship among the forms. I have taken the structure and arrangement of the septa as the fundamental principle, and distinguish six Tribes of Actinaria: 1. Hexactiniæ; 2. Paractiniæ; 3. Monauleæ; 4. Edwardsiæ; 5. Zoantheæ; 6. Ceriantheæ."

I have been enabled to assign the Actinaria found on the Norwegian North Atlantic Expedition to 4 of the races (Tribus) above named, but I have been able, further, to establish a new Tribus viz. Ægireæ, to which I have relegated two genera that are really not Coelenterata, in so far that they are furnished with a distinguished coelome. I have endeavoured, however, to avoid forming an entirely new class for those two most interesting animals; although it would certainly have been the most systematically correct course to do so, because, when the chief characteristic of the Coelenterata class is absent, when there is thus no Coelenteron, the class has undeniably lost its claim to the privilege of acquiring those animals.

Of the Actinida collected, there are 18 new genera and 40 new species, which are assigned to 15 families, of which 5 are new ones.

Bergen, December 1888.

D. C. Danielssen.

Indhold

(Index.)

Ved en Feiltagelse er denne Slægt i Texten henført til Familien Amphianthidæ, Pag. 4.

(In the text this genus has erroneously been assigned to the family Amphianthidæ, page 4).

Rettelser.

(Errata.)

Side (page) 17 staar: *Stelidiactis Mopsiæ:* — skal staa (read): *Stelidiactis Mopseæ.*
Tab. 1 staar: *Sagartia repens* n. g. d. sp.; — skal staa (read): *Sag. rep.* n. sp.
— 11 staar: *Calliactis Kröyeri*, n. g. et sp.; — skal staa (read): *Call. Kr.*, n. sp.
— 11 staar: *Stilidiactis Mopsea;* — skal staa (read): *Stelidiactis Mopseæ.*
— 11 staar: *Stel. Tubularia;* — skal staa (read): *Stelidiactis Tubulariæ.*

Actinida vel Malacodermata.

Tribus Hexactiniæ, Hertwig.

Familie **Amphianthidæ**, Hertwig.

Korenia[1] **margaritacea**, n. g. et sp.

Tab. I, Fig. 4. Tab. VII, Fig. 1—5.

De Exemplarer, som bleve fundne af Korenia, vare alle fæstede til Stilken af Bathycrinus Carpenteri, Dan. & Kor.

Paa ganske unge Exemplarer er Foddelen rund, næsten skiveformigt udvidet; efterhaanden som Dyret voxer, udvider Fodskiven sig efter Tvervidden og omklamrer ikke ganske Stilken af Bathycrinus Carp.; thi der er altid paa enkelte Steder en Spalte, hvorigjennem Stilken kan sees, og denne Spalte er bredere ud imod begge, næsten lancetformede Ender af Fodskiven, Tab. VII, Fig. 3. Denne er paa de største Individer udvidet indtil 25^{mm} i Længden, imedens Bredden kun er indtil 5^{mm}. Tab. VII, Fig. 1—3. Ved Fodskivens Boining omkring Crinoidestilken fremkommer egentlig 2 Rande, der ere tykke, glatte, noget undulerende, uden at berøre hinanden, Tab. VII, Fig. 3. Imellem den omboiede Fodskive og Stilken, hvorpaa den er fæstet, findes en hornagtig Masse, der indkapsler Stilken, og hvis ydre Flade er fast adhæreret til Fodskiven, hvorfra den upaatvivlelig er afsondret. Dyret kan saaledes neppe forandre Plads, men maa sandsynligvis blive sid-

[1] Slægten er opkaldt efter min afdode Ven og Medarbeider, Dr. Johan Koren.

Actinida vel Malacodermata.

Tribus Hexactiniæ, Hertwig.

Family **Amphianthidæ**, Hertwig.

Korenia[1] **margaritacea**, n. g. et sp.

Pl. I, fig. 4. Pl. VII, figs. 1—5.

The specimens of Korenia which where found on the expedition, were all adherent to the stem of Bathycrinus Carpenteri, Dan. & Koren.

In perfectly young specimens, the inferior or pedal part is round, and almost discoidally expanded. As the animal grows, the pedal disc expands progressively, transversally, and embraces, but not completely, the stem of Bathycrinus Carp. there being always an opening left in a few places, through which the stem may be seen; this opening is broadest towards both of the nearly lanceolate extremities of the pedal disc (Pl. VII, fig. 3.). In the largest specimens, the pedal disc is expanded up to 25^{mm} in length, whilst it only measures up to 5^{mm} in breadth (Pl. VII, figs. 1—3). By the curving of the pedal disc round the stem of the Crinoid, 2 margins are really produced; these are thick, smooth, and somewhat undulating, without, however, touching each other (Pl. VII, fig. 3). Between the bent pedal disc and the stem to which it is adherent, a corneous mass is found encasing the stem, and whose exterior surface adheres firmly to the pedal

[1] The genus is designated after my deceased friend and collaborateur, Dr. Johan Koren.

dende paa Bathycrinus-Stilken sit hele Liv igjennem, naar først Fodskiven har tilstrækkelig omklamret Stilken.

Et Par Exemplarer løsnede sig fra denne og havdes levende i omtrent 8 Dage; men omendskjønt Dyrene toge Næring til sig og bevægede sine Tentakler livligt, bleve de dog forresten liggende ganske uforandrede paa Bunden af Observationskarret. Den omboiede Fodskive udvidede sig ikke, kun den foromtalte, hornede Masse syntes at løsne sig lidt, idet en seig Vædske udsivede fra Fodskiven.

Med ganske unge Dyr forholder det sig noget anderledes; hos dem har Fodskiven kun i ringe Grad — ja hos meget unge endog slet ikke — omklamret Stilken, men er fæstet til denne kun ved en seig, slimet Masse, saa at de muligens kunne forandre Plads. Tab. VII. Fig. 1 *a*.

Kroppen (Kolumnen) er paa unge Exemplarer rund og ikke synderlig videre end den runde Fodskive. Tab. VII. Fig. 1 *a*, men anderledes forholder det sig med de voxne Dyr; hos dem er den nederste Del af Kroppen elliptisk udvidet i samme Retning som Fodskiven, og dens udvendige Væg er her glat. Tab. VII. Fig. 2, 3, imedens den øvrige Del er mindre aflang og stærkt ribbet efter Længden.

Ribberne ere 24 og mest fremspringende paa Kolumnens øverste Rand, der faar Udseende af en foldet Krave. Tab. I. Fig. 4, Tab. VII, Fig. 1, 2, men aftage efterhaanden nedad baade i Tykkelse og Bredde. Tab. VII. Fig. 2. Paa disse Ribber iagttages 3—4 smaa, runde Papiller, der staa i en Længderække og have paa deres fri, afrundede Ende en fin, rund Aabning, Tab. VII. Fig. 2.

Kolumnen er henved 10^{mm} høi; dens øvre Rand er 10^{mm} efter Længden, 7^{mm} efter Bredden; dens nederste Del, hvor den gaar over i Fodskiven, er $22—24^{mm}$ efter Længden og kun 5^{mm} i Bredden. Kropsvæggen er meget fast, og naar Tentaklerne ere indtrukne, næsten bruskagtig saavel at føle paa som at gjennemskjære.

Mundskiven, der er næsten rund, er hvælvet og forsynet med fine Folder, som udgaa straaleformigt fra Munden til Tentakelranden. Paa disse Folder (Ribber) sees hist og her enkelte smaa, runde Papiller, fuldkommen lig dem paa Kroppen, der ovenfor ere omtalte, Tab. VII, Fig. 2. Mundaabningen er aflang med stærkt foldede Læber; dens Længdeaxe krydser Kroppens Længdeaxe, og de to Svælgruber, der ere temmelig brede, findes som sædvanlig hos Actinierne i Mundvinklerne, og ikke som hos Stephanactis paa Mundens bredere Del (Læberne). Mundaabningen og den øverste Del af Svælget synes ikke at have fulgt med den elliptiske Udvidning af Fodskiven og Kroppen.

disc from which it has, undoubtedly, been deposited. The animal can, therefore, scarcely change its situation, but must, probably, remain seated on the Bathycrinus-stem all through its life, after the pedal disc has once sufficiently clasped the stem.

I detached a couple of specimens from the stem, and maintained them alive for about eight days; but although the animals imbibed nutrition and moved their tentacles actively, they yet remained, otherwise, perfectly motionless at the bottom of the glass vessel. The bent pedal disc did not become expanded; only the corneous mass, previously mentioned, seemed to loosen itself a little, whilst a viscous substance exuded from the pedal disc.

In perfectly young animals the relations are somewhat different: in them the pedal disc has only in a slight degree — indeed in very young ones even not at all — embraced the stem, and adheres to it only by a tough slimy mass, so that, possibly, they may be able to change their situation (Pl. VII, fig. 1 *a*).

The body (the column) is, in young specimens, round, and not very much wider than the round pedal disc (Pl. VII, fig. 1 *a*); the case is different however in the adult animals. In them the inferior part of the body is elliptically expanded in the same direction as the pedal disc, and its external wall is, here, smooth (Pl. VII, figs. 2, 3), whilst the remainder is less oblong, and strongly ribbed longitudinally.

The ribs are 24 in number, and are specially protuberant on the uppermost margin of the column, which acquires, thus, the appearance of a frilled collar (Pl. I, fig. 4, Pl. VII, figs. 1, 2) but, lower down, they diminish gradually, both in thickness and in breadth (Pl. VII, fig. 2). On these ribs 3—4 small round papillæ are observed, situated in a longitudinal series, and having, on their free rounded extremities, a minute round opening (Pl. VII, fig. 2).

The column is about 10^{mm} in height; its superior margin measures 10^{mm} longitudinally, and 7^{mm} transversally; its inferior portion, where its passes into the pedal disc, measures $22—24^{mm}$ longitudinally, and only 5^{mm} transversally. The body-wall is very firm, and when the tentacles are retracted it is almost cartilaginous, both to the touch as well as to the knife.

The oral disc, which is almost circular, is arcuate, and is furnished with slender folds issuing radially from the mouth to the tentacular margin. On these folds (ribs) a few small, round, papillæ are here and there seen, exactly like those upon the body previously spoken of (Pl. VII, fig. 2). The oral aperture is oblong, with strongly folded labiæ; its longitudinal axis traverses the longitudinal axis of the body, and the two gonidial grooves, which are rather broad, are found, as usual in the Actinaria, in the oral angles, and not, as in Stephanactis, in the broadest part of the mouth (the labiæ). The oral aperture and the uppermost part of the œsophagus do not appear to have kept pace with the elliptical expansion of the pedal disc and the body.

Tentaklerne ere retraktile, sidde i to Rækker lige indenfor Kolumnens overste Rand, 24 i hver Række, og ere temmelig korte. De inderste ere lidt tykkere og kanske lidt længere, end de i den ydre Række, Tab. I, Fig. 4, Tab. VII, Fig. 1. Hverken Mundskiven eller Tentaklerne kunne dækkes af Kroppens overste Rand, der er yderst haard og lidet bevægelig; selv hos meget unge Individer forblev Mundskiven blottet. Paa et Par Exemplarer var Mundaabningen aflang i samme Retning som Kroppen og Fodskiven; men ogsaa her udgik Svælggruberne fra Mundvigerne.

Kroppens Ectoderm adskiller sig ikke synderligt fra Actiniernes i Almindelighed. Det bestaar af lange Cylinderceller, der bære Bundter af Cilier, og imellem Ectodermcellerne, Tab. VII, Fig. 4 *a*, sees temmelig tætstaaende, kolbeformige, encellede Slimkjertler, Tab. VII, Fig. 4 *b*, samt Nematocyster, der staa temmelig spredte, Tab. VII, Fig. 4 *c*. Indenfor Ectodermet er et Lag Længdemuskler, som især er fremtrædende paa Tentaklerne, Tab. VII, Fig. 4 *d*. Dette Muskellag ligger udenpaa det forholdsvis brede Bindevævslag, Tab. VII, Fig. 4 *e*, 5 *b*, i hvis Midte findes stærke, cirkulære Muskler, der danne tæt liggende Bundter, Tab. VII, Fig. 4 *f*, 5 *c*. Paa Kroppens overste Del ligesom paa Mundskiven ere de stærkt udviklede og samle sig omkring Munden i en ringformig Sphincter, Tab. VII, Fig. 5 *c*, *d*. Bindevævets indre Flade er beklædt med lange Pidskeceller, Tab. VII, Fig. 4, *g*.

Svælget er stærkt foldet, temmelig langt og har to tydelige Svælggruber, der strække sig fra Mundvigerne og ned til dets Ende. Der er sandsynligvis 24 primære, fuldstændige Septa (det vil sige 12 Par), der fæste sig paa Svælget, Mund- og Fodskiven, og hvoraf flere strække sig ud i den forlængede Fod, saavidt jeg kunde iagttage, 3 Par paa hver Side. Af secundære, ufuldstændige Septa fandt jeg kun 21, og paa enkelte Tversnit fandt jeg heller ikke flere end 21 primære, fuldstændige Septa, saa jeg er i nogen Tvivl om, hvorvidt Tallet 24 for disse er ganske korrekt. Det er imidlertid tydeligt, at den indre Række Tentakler aabnede sig i de intraseptale Rum, imedens den ydre Række aabnede sig i de interseptale Rum, saa det er rimeligt, at Tallet 24 er det rigtige.

Gastralfilamenterne ere rigt besatte med Nematocyster og i Kjønsorganerne sees de i tidligere Stadier.

Parieto-basilarmuskelen er smal, men tyk og strækker sig et Stykke henover Fodskivens indre Flade.

Farven.

Kroppen og Foden bleg rosenrød, næsten hvid med stærk Perlemorglands. Mundskiven mørkere rosenrød

The tentacles are retractile, and are placed in two series, just inside the uppermost margin of the column, 24 in each series; they are rather short. The innermost ones are a little thicker, and perhaps also a little longer than those in the outer series (Pl. I, fig. 4, Pl. VII, fig. 1). Neither the oral disc nor the tentacles can be covered by the superior margin of the body, which is extremely hard and but little mobile; even in very young individuals the oral disc remained uncovered. In a couple of specimens the oral aperture was oblong, in the same direction as the body and pedal disc, but here, also, the gonidial grooves issued from the oral angles.

The ectoderm of the body does not differ much from that of the Actinaria in general. It consists of long cylinder-cells carrying fasciculi of ciliæ, and between the ectoderm cells (Pl. VII, fig. 4 *a*) there are observed, claviform, unicellular mucous-glands, rather closely placed (Pl. VII, fig. 4 *b*); and also nematocysts which are placed rather dispersedly (Pl. VII, fig. 4 *c*). Inside of the ectoderm there is a layer of longitudinal muscles, which are specially prominent on the tentacles (Pl. VII, fig. 4 *d*). This muscular layer lies outside the relatively broad connective-tissue layer (Pl. VII, figs. 4 *e*, 5 *b*), in whose middle, strong, circular muscles forming compactly placed fasciculi are found (Pl. VII, figs. 4 *f*, 5 *c*). On the uppermost part of the body, as well as, also, on the oral disc, they are strongly developed, and collect together, around the mouth, in an annular sphincter (Pl. VII, fig. 5 *c*, *d*). The inner surface of the connective-tissue is clad with long flagelliform cells (Pl. VII, fig. 4 *g*).

The œsophagus is strongly folded, is rather long, and has two distinct gonidial-grooves which extend from the oral angles down to its extremity. There are, probably, 24 primary perfect septa (that is to say 12 pairs) which secure themselves to the œsophagus, mouth, and pedal disc, and several of which extend themselves out into the prolongated base; 3 pairs on each side so far as I could discover. Of secondary, imperfect septa I only found 21, and in a few sections neither did I find more than 21 primary perfect septa, consequently I am in some doubt whether the number 24 is, for these, quite correct. It was, however, certain that the inner series of tentacles opened into the intraseptal spaces, whilst the outer series opened into the interseptal spaces; it is, therefore, probable that the number 24 is correct.

The gastral filaments are richly beset with nematocysts, and in the reproductive organs ova are observable in early stages of development.

The parieto-basilar muscle is narrow, but thick, and extends itself a little way across the inner surface of the pedal disc.

Colour.

The body and base, pale rose-red, almost white, with strong mother-of-pearl lustre. The oral disc, a darker

med en lidt mørkere Ring omkring Munden. Tentaklerne noget mørkere rosenrød end Mundskiven.

Findested.

Station 35. 3 Exemplarer.
— 53. 2 voxne og 3—4 ganske smaa Exemplarer.
— 353. 1 voxent og nogle mindre,

alle siddende paa Stilker af Bathycrinus Carpenteri.

Slægtskarakter.

Fodskiven lancetformig udvidet, omklamrende saagodtsom ganske et tyndt, cylindrisk, fremmed Legeme (Stilken af Bathycrinus Carp.). Kroppen aflang, tærkt ribbet og forsynet med hule Papiller. Mundskiven blottet. Mange fuldstændige Septa; mesodermale Cirkulærmuskler. Tentaklerne faa, siddende i flere Rækker.

Artskarakter.

Den aflange Fodskive, der omklamrer Stilken af Bathycrinus Carpenteri, er indtil 25^{mm} lang og 5^{mm} bred. Kroppen (Kolumnen) er næsten ovoidformet, fast, næsten bruskagtig at føle paa, omtr. 10^{mm} høi; dens øverste Rand 10^{mm} lang, 7^{mm} bred; dens nederste Del er glat, dens øverste er forsynet med 24 stærke Ribber, som have efter Længden stillede smaa Papiller, paa hvis afrundede Ende en fin Aabning. Mundskiven hvælvet med 24 Folder, udstraalende fra Munden mod Kropsranden, og paa hvilke sees enkeltvis lignende Papiller som paa Kroppen. Mundaabningen aflang, 2 Rækker Tentakler, 24 i hver; de indre lidt større, end de i ydre Række. Farven: Foden og Kroppen bleg rosenrød, næsten hvid med stærk Perlemorsglands. Mundskiven mørkere rosenrød. Tentaklerne noget mørkere rosenrød end Mundskiven.

Kylindrosactis [1] elegans, n. g. et sp.

Tab. II, Fig. 8. Tab. VIII, Fig. 4, 5. Tab. IX, Fig. 5, 6, 7.

Fodskiven er rund, omtrent 80^{mm} bred, noget videre end Kolumnen med en tyk, undulerende Rand. Underfladen, som er lidt nedsænket, er foldet fra Centrum mod Peripherien. Folderne blive tykkere mod Randen, og imellem dem sees en fin Fure, der angiver Insertionerne af Septa. Fodskiven fæster sig stærkt til Stene; den er meget

[1] κύλινδρος = en Valse.

rose-red, with a slightly darker annulus round the mouth. The tentacles, a somewhat darker rose-red than the oral disc.

Habitat.

Station No. 35. Three specimens.
— „ 53. Two adult, and 3—4 quite small specimens.
— „ 353. One adult, and a few small specimens.

All seated on the stems of Bathycrinus Carpenteri.

Generic characteristics.

The pedal disc is lanceolately expanded, embraces, nearly completely, a thin, cylindrical, foreign body (the stem of Bathycrinus Carp.). The body oblong, strongly ribbed, and furnished with hollow papillæ. The oral disc exposed. Many perfect septa. Mesodermal circular muscles. Few tentacles, placed in several series.

Specific characteristics.

The oblong pedal disc, which embraces the stem of Bathycrinus Carpenteri, measures up to 25^{mm} in length and 5^{mm} in breadth. The body (the column) is almost oviform, firm, feels almost cartilaginous to the touch, measures about 10^{mm} in height. Its uppermost margin is 10^{mm} in length, and 7^{mm} in breadth. Its inferior portion is smooth. Its uppermost part is furnished with 24 strong ribs having papillæ placed longitudinally on them, and these have a minute opening in their rounded extremities. The oral disc arcuate, with 24 folds radiating from the mouth towards the body-margin, upon which a few papillæ similar to those of the body are seen. The oral aperture oblong. Two series of tentacles — 24 in each; those of the inner series being a little larger than those of the outer series. *Colour.* The base and body, pale rose-red, almost white, with strong mother-of-pearl lustre. The oral disc, a darker rose-red. The tentacles, somewhat darker rose-red than the oral disc.

Kylindrosactis [1] elegans, n. g. et sp.

Pl. II, fig. 8. Pl. VIII, figs. 4, 5. Pl. IX, figs. 5, 6, 7.

The pedal disc is round, about 80^{mm} in breadth, somewhat wider than the column, and has a thick undulating margin. The under surface, which is somewhat depressed, is folded from the centre towards the periphery. The folds become thicker towards the margin, and between them a slender groove is seen, which indicates the insertions of

[1] κύλινδρος = A roller.

muskulos, og naar den er sammentrukken, bliver den foldet baade paalangs og paatvers, hvilket især er stærkt fremtrædende, efterat Dyret er opbevaret paa Alkohol. Paa det eneste Exemplar, som haves, iagttages henimod Fodskivens Rand enkelte Acontier, der ved den stærke Kontraktion ere pressede igjennem Huden.

Kroppen er soileformet, cylindrisk, henved 70^{mm} bred strax ovenfor Fodskiven, men smalner lidt af op imod Mundskiven, og er ligesaa hoi som bred. I udstrakt Tilstand er Kroppens Væg glat, halvt gjennemskinnende og forsynet med fine, lidt fordybede Længdestriber, som angive Insertionerne af Septa. Den ydre Kropsflade har mange Sugevorter (Suckers), samt Cinclides. Sugevorterne sidde i Rækker imellem Længdestriberne, Tab. II, Fig. 8, og ere ikke meget fremtrædende. Cinclides sees hist og her som yderst fine Spalter imellem Sugevorterne. Hele Kroppens Overflade faar paa Grund af de gjennem Huden skinnende Septa et fint foldet Udseende. Under Kontraktionerne opstaa baade Længde- og Tverfolder, og i de derved fremkomne Gruber ligge Sugevorterne, der tildels kunne være dækkede af Slim, hvortil Ler er klæbet. Vaskes denne Slim væk, varer det ikke længe, førend Kroppen paany overtrækkes dermed. Kroppens øverste Rand er tentakulær.

Mundskiven er lidt bredere end Kroppens midterste Del, men ikke bredere end Fodskiven; den er næsten plan, stærkt foldet, og Folderne udbrede sig straaleformigt fra Munden mod Peripherien saaledes, at de ere smalest ved deres Udspring.

Tentaklerne sidde i 3 Rækker og ere meget retraktile. Den inderste Række har 6 meget tykke, lange Tentakler; den mellemste har 24, som ere noget mindre, og den yderste Række, der sidder lige i Randen, har ligeledes 24, omtrent af samme Størrelse som de midterste.

Munden er aflang med tykke, foldede Læber og 2 Gonidiegruber; i enhver saadan sees to smaa Gonidieknuder.

Farven: Fodskiven næsten melkehvid. Kroppen egentlig hvid, men stærkt opaliserende, hvorved den antager et dels gulagtigt, dels svagt violet Skjær. Sugevorterne have Kroppens Farve, kanske de ere lidt mørkere. Mundskiven er bleg brungul med mørkere Straaler, som udgaa fra Munden, omkring hvilken er en intensere, brunrød Ring, og strække sig hen til Tentaklerne. Noget udenfor denne brunrøde Ring findes atter en lignende, der dog er noget bredere. Gonidiegruberne ere næsten gule. Svælgrøret gulhvidt. De inderste 6 Tentakler ere brungule, men deres Grund er mørkere end den øvrige Del. De andre Tentakler ere blegere, Tab. II, Fig. 8.

septa. The pedal disc is firmly secured to stones, and is very muscular; when it is contracted, it becomes folded both longitudinally and transversally; this is especially noticeable when the animal has been preserved in alcohol. In the solitary specimen which was obtained, a few acontia may be observed in proximity to the margin of the pedal disc, and these are forced through the integument by the powerful contraction.

The body is columnar, cylindrical, and measures about 70^{mm} in breadth immediately above the pedal disc, but diminishes somewhat in breadth up towards the oral disc, and is the same in height as in breadth. In extended condition, the wall of the body is smooth, semi-transparent, and furnished with fine, slightly depressed, longitudinal stripes, which indicate the insertions of septa. The external surface of the body has numerous suckers, as well as cinclides. The suckers are seated in series, between the longitudinal stripes (Pl. II, fig. 8), and are not very prominent. The cinclides are, here and there, seen between the suckers, appearing as extremely fine fissures. The entire external surface of the body acquires a fine folded appearance, owing to the septa shining through the integument. Upon contraction, both longitudinal and transversal folds appear, and in the cavities thus formed the suckers are seated, appearing, sometimes, covered with mucous to which clay is adherent. If this mucous is washed off, it is not very long before the body is again covered with it. The uppermost margin of the body is tentacular.

The oral disc is a little broader than the medial part of the body, but not broader than the pedal disc. It is almost plane, strongly folded, and the folds distribute themselves, radially, from the mouth towards the periphery, in such manner that they are narrowest at their origin.

The tentacles are seated in 3 series, and are very retractile. The innermost series has 6, very thick, long tentacles; the intermediate series has 24, which are somewhat smaller; and the outermost series, which is seated quite in the margin, has also 24, of about the same size as the medial ones.

The mouth is oblong, with thick folded labiæ and 2 gonidial grooves, in each of which two small gonidial nodules are seen.

The colour. The pedal disc is almost milky-white, but strongly opalescent, and, owing to that, it assumes a partly yellow, partly faint-violet tinge. The suckers have same colour as the body, but, perhaps, a little darker in colour. The oral disc is pale brown-yellow, with darker coloured rays that issue from the mouth, round which there is a more intense-coloured brown-red annulus, and they extend themselves to the tentacles. A little outside of this brown-red annulus, there is yet another and similar one which, however, is somewhat broader. The gonidial grooves are almost yellow. The œsophagus is yellowish-white. The innermost 6 tentacles are brown-yellow, but their bases are darker than the remaining part. The other tentacles are paler in colour (Pl. II, fig. 8).

Hele Legemet er paa sin ydre Flade beklædt med et Epithel, der dannes af meget lange Cylinderceller, forsynede med Kjærne og Kjærnelegeme, samt særdeles lange Cilier, Tab. VIII, Fig. 4 *a*, 5 *a*. Imellem Cylindercellerne sees indleirede overalt encellede Slimkjertler og Nematocyster undtagen paa Fodskivens Underflade, hvor vel enkelte Slimkjertler iagttages, men ingen Nematocyster. Disse findes derimod i rigelig Mængde paa Mundskiven og Tentaklerne.

Indenfor Ectodermet er et fibrillært, ikke meget bredt Bindevævslag, Tab. VIII, Fig. 4 *b*, 5 *b*, Tab. IX, Fig. 5 *b*, 6 *a*; henimod dettes indre Flade er et bredt Belte af cirkulære Muskler, som beklædes af cylinderformede Endothelceller, Tab. VIII, Fig. 4 *c*, 5 *c*, Tab. IX, Fig. 5 *c*, 6 *b*, 7 *d*. De cirkulære Muskler dannes af stærke Fibriller; men om disse danne Bundter eller simpelthen ordne sig ved Siden af hinanden, er vanskeligt at afgjøre. Paa Tversnit ser det ud, som om det sidste er Tilfældet, Tab. IX, Fig. 5 *c*, 7 *d*, imedens Længdesnit giver Billedet af, at enkelte Fibriller lægge sig sammen til tynde Bundter, Tab. VIII, Fig. 4 *c*, Tab. IX, Fig. 6 *b*. Disse endodermale, cirkulære Muskler ere stærkt udviklede, saa at de ved at gjennemskjære Kropsvæggen viser sig for det blotte Øie som en gul, smal Stribe, imedens det tilstødende Bindevæv er ganske hvidt. Denne gule Stribe bliver bredere opimod Mundskiven, uden dog egentlig at rage ind i Gastralhulheden, saaledes som Tilfældet er med Slægten Tealia, Gosse, og som af Hertwig er fremhævet som et udpræget Karaktermærke for den af ham opstillede ny Familie: „Tealidæ".

De principale Septa ere 6 Par, hvoraf 2 Par udgjør Retningssepta. Det ene Par af disse danner en bred Spalte, da det ene Septum staar langt fra det andet. Paa Retningssepta ere de transverselle Muskler, der danne en tyk, foldet Lamel, fæstede til den indre Flade af hvert Septum og vende altsaa mod hverandre, imedens de longitudinelle Muskler, som danne tykke Buske, beklæde den ydre Flade. Paa de øvrige 4 Septapar fæste de longitudinelle Muskler sig paa de indre Flader, vende altsaa mod hverandre i det intraseptale Rum. De transverselle Muskler beklæde de ydre Flader, der vende til de interseptale Rum. Med Hensyn til de longitudinelle Muskler paa de principale Septa, er det at bemærke, at de synes at ophøre omtrent paa Midten, eller at aftage ganske betydeligt i Tykkelse, saa at den inderste Halvdel, der fæster sig paa Svælgroret, har en yderst ringe udviklet Muskulatur. De secundære Septa udgjøre 18 Par og have et stærkt Muskelapparat. Hos dem ere de longitudinelle Muskler placerede paa den indre Flade og vende saaledes mod hverandre i de intraseptale Rum; de transverselle Muskler beklæde den ydre Flade. De longitudinelle Muskler ere smukt buskformede og beklæde hele Fladen af Septum, dog saaledes, at Buskene ere tykkere, rigere og staa tættere til hinanden paa den Halvdel af Septum, der vender mod Gastralvæggen end paa den indre, som vender til Svælgroret.

The entire body is, upon its exterior surface, clad with an epithelium formed of very long cylinder-cells furnished with nuclei and nucleoli and, also, particularly long ciliæ (Pl. VIII, figs. 4 *a*, 5 *a*). Between the cylinder-cells, unicellular mucous glands and nemato-cysts are seen to be everywhere entrenched, except on the under-surface of the pedal disc, where indeed a few mucous glands are observable but no nematocysts. Those last are however found, in rich abundance, on the oral disc and the tentacles.

Inside of the ectoderm there is a fibrillar, not very broad, connective-tissue layer (Pl. VIII, figs. 4 *b*, 5 *b*, Pl. IX, figs. 5 *b*, 6 *a*). Towards its inner surface there is a broad belt of circular muscles, which are clad with cylindrical endothelial cells (Pl. VIII, figs. 4 *c*, 5 *c*, Pl. IX, figs. 5 *c*, 6 *b*, 7 *d*). The circular muscles are formed of strong fibrils, but whether these form fasciculi, or simply arrange themselves adnately it is difficult to decide. In transversal sections it appears as if the latter was the case (Pl. IX, figs. 5 *c*, 7 *d*), whilst longitudinal sections present the appearance as if some fibrils collect together into thin fasiculi (Pl. VIII, fig. 4 *c*, Pl. IX, fig. 6 *b*). These endodermal circular-muscles are strongly developed, so that on transsection of the wall of the body, they show themselves, to the naked eye, as a yellow, narrow stripe, whilst the adjacent connective-tissue is quite white. This yellow stripe becomes broader up towards the oral disc, without, however, extending into the gastric cavity, as is the case with the genus Tealia, Gosse, and which trait is accentuated by Hertwig as a distinct characteristic of the new family, Tealidæ, proposed by him.

There are 6 pairs of principal septa, of which 2 pairs compose the directive septa. The one of these pairs forms a broad fissure, as the one septum stands far apart from the other. On the directive septa, the transversal muscles, which form a thick, folded lamella, are secured to the inner surface of each septum, and face, therefore, towards each other; whilst the longitudinal muscles, which form thick frutici, clothe the external surface. On the other 4 pairs of septa the longitudinal muscles secure temselves to the inner surfaces, and, therefore, face towards each other in the intraseptal space. The transversal muscles clothe the external surfaces which face to the interseptal spaces. With regard to the longitudinal muscles on the principal septa, it is to be remarked that they appear to terminate at about the middle, or become quite reduced in thickness, so that the innermost half, which secures itself to the œsophagus, has an extremely little developed musculosity. The secondary septa consist of 18 pairs, and have a powerful muscular apparatus. In them, the longitudinal muscles are placed on the inner surface, and face, thus, towards each other in the intraseptal spaces. The transversal muscles clothe the outer surface. The longitudinal muscles are beautifully frutiform, and clothe the entire surface of the septum, but in such a manner that the frutici are thicker, richer, and placed more compactly in to each other

De transverselle Muskler ere temmelig udviklede og danne en foldet Lamel, der kan sees med blotte Øie. Saavel de primære som secundære Septa ere fuldstændige, — de inserere sig alle paa Svælgroret, men flere af de 18 Par secundære Septa smelte sammen, idet de ere komne nogle Millimeter fra Svælgroret, saaledes, at det her ser ud, som om der kun er et Septum og ikke et Par; samtlige ere golde. De tertiære Septa udgjor 72 Par; de ere ufuldstændige, fæste sig altsaa ikke paa Svælgroret, men ere dog saa lange, at de naa næsten hen til samme. Deres Muskulatur er omtrent lige saa stærkt udviklet som den paa de secundære Septa. Ogsaa her beklædes den indre Flade af ethvert Septum med de buskformede, longitudinelle Muskler, Tab. IX, Fig. 7 *a*, imedens de ydre Flader indtages af de transverselle Muskler. Alle disse Septa bære Generationsorganer, der ere fuldt udviklede, saa ikke alene Æg findes i alle Udviklingsstadier, men ogsaa mange Embryoner kunne iagttages, Tab. IX, Fig. 7 *b*. De kvaternære Septa udgjor ligeledes 72; men her ere de enkelte, danne ikke Par og ere meget korte, neppe halvt saa lange som de tertiære. De ere placerede imellem hvert 2 Par af de tertiære, ere vel forsynede baade med longitudinelle og transverselle Muskler og bære ligesom de tertiære Septa Generationsorganer, som ere fulde af Æg og Embryoner Tab. IX, Fig. 7 *c*

Testikler ere ikke at opdage, saa det sandsynligvis er en Hun, jeg har havt med at gjøre; derimod sees enkelte Acontier, der synes at være losrevne fra de tertiære Septa. Men i det Hele taget ere de Acontier, som ere iagttagne, meget faa.

Man har kaldt de golde Septa for Muskelsepta, fordi Muskulaturen hos dem skulde være langt mere udviklet end Tilfældet skulde være hos de ovrige Septa, der ere blevne kaldte Generationssepta. Ja, der er enkelte Forfattere, som endog benægte Tilstedeværelsen af Muskler paa de Septa, der bære Kjønsorganerne. Hos alle de Actinier, jeg har havt Anledning til at undersøge, har samtlige Septa, baade de golde og de kjønsbærende været forforsynede med Muskler; men hos enkelte Arter har Muskulaturen været mindre udviklet paa de Septa, der bære Generationsorganerne, end paa de golde.

Parieto-basilarmuskelen er tyk, stærk og strækker sig et godt Stykke op over Kroppens indre Flade, ligesom den udbreder sig over Fodskiven.

Findested.

Station 260. Et Exemplar.

on the half of the septum that faces the gastric wall, than on the inner half that faces the œsophagus.

The transversal muscles are pretty well developed, and form a folded lamella which is visible to the naked eye. Both the primary and the secondary septa are perfect. They are all inserted in the œsophagus, but several of the 18 pairs of secondary septa run together, at a point a few millimetres after they pass from the œsophagus, so that, here, it appears as if there was only one septum, and not a pair. They are all sterile. The tertiary septa consist of 72 pairs; they are imperfect, and therefore do not attach themselves to the œsophagus, but are, yet, so long that they almost extend to it. Their musculosity is about as powerfully developed as that of the secondary septa. Here, also, the inner surface of each septum is clothed with the frutiform longitudinal muscles (Pl. IX, fig. 7 *a*), whilst the outer surfaces are occupied by the transversal muscles. All these septa carry reproductive organs that are fully developed, so that not only are ova found in all stages of development, but also many embryons may be observed (Pl. IX, fig. 7 *b*). The quaternary septa consist, also, of 72, but here they are single and do not form pairs, and are very short, scarcely half the length of the tertiary. They are placed between each 2 pairs of the tertiary septa, and are well supplied with longitudinal and transversal muscles; and, like the tertiary septa, they also carry reproductive organs which are filled with ova and embryons (Pl. IX, fig. 7 *c*).

Testicles can not be observed, so that it probably is a female I have had under investigation. On the other hand a few acontia are seen, which appear to be sundered from the tertiary septa, but, altogether, the acontia which are observable are very few in number.

The sterile septa have been termed muscle-septa, because the musculosity in them is said to be much more fully developed than is the case with the other septa, which have been termed reproductive septa. Indeed, there are some writers who even deny the presence of muscles on the septa that carry the sexual organs. In all the Actinaria which I have had an opportunity of examining, the whole of the septa, both the sterile ones and the reproductive ones, have been furnished with muscles, but in some species the musculosity has been less developed on the septa carrying the reproductive organs than on the sterile ones.

The parieto-basilar muscle is thick and strong, and extends itself a considerable way up over the inner surface of the body, whilst it also distributes itself over the pedal disc.

Habitat.

Station No. 260. One specimen.

Slægtskarakter.

Fodskiven rund med tyk. bolget Rand. Kroppen cylindrisk, glat med fine Længdestriber, Sugevorter og Cinclides. Mundskiven rund, straalet. Tentaklerne retraktile, lange, faatallige og i faa Rækker. Cirkulære Muskler udpræget endodermale. De principale og secundære Septa fuldstændige, men golde. Mange tertiære og kvaternære ufuldstændige Septa, bærende Kjønsorganer og Acontier.

Artskarakter.

Fodskiven rund, noget videre end Kolumnen, med en tyk, undulerende Rand og en foldet Underflade. Kroppen cylindrisk, omtrent lige høi som bred, men smalner lidt af imod Mundskiven; i udstrakt Tilstand er dens ydre Væg glat, halvt gjennemsigtig og forsynet med Længdestriber, samt Sugevorter og Cinclides. Sugevorterne danne Længderækker. Under Kontraktionen opstaa baade Længde- og Tværfolder, og i de derved fremkomne Gruber sidde Sugevorterne, en i hver. Kroppens øverste Rand er tentakulær. Mundskiven lidt bredere end Kroppens midterste Del, næsten plan, stærkt foldet. Tentaklerne retraktile, sidde i 3 Rækker; den inderste Række har 6 meget tykke, lange Tentakler; den mellemste 24, der ere meget mindre, og den 3die Række har ligeledes 24, som sidde lige i Kropsranden og ere af Størrelse som de i 2den Række. Munden aflang med tykke, foldede Læber, 2 Gonidiegruber, og i enhver af disse 2 Gonidieknuder. Farven: Fodskiven næsten melkehvid; Kroppen hvid, opaliserende med et gult og svagt violet Skjær. Sugevorterne have Kroppens Farve. Mundskiven bleg brungul med mørkere Straaler. Omkring Munden to brunrøde Ringe, hvoraf den ydre er bredest. Gonidiegruberne gule. Svælgrøret gulhvidt. De indre 6 Tentakler brungule med en mørkere Grunddel. De øvrige Tentakler blegere.

Familie **Paractidæ**, Hertwig.

Kadosactis [1] **rosea**, n. g. et sp.

Tab. 1. Fig. 2. Tab. VII, Fig. 11. Tab. IX, Fig. 8.

Fodskiven, der er rund, 20^{mm} bred, skiveformigt udvidet, har temmelig brede Længdefolder og en lidt lappet Rand. Tab. VII. Fig. 11 *a*. Dens Underflade har fine

[1] κάδος = Urne.

Generic characteristics.

The pedal disc round, with thick undulating margin. The body cylindrical, smooth, with fine longitudinal stripes, suckers, and cinclides. Oral disc round, radiate. The tentacles retractile, long, not numerous, and in few series. Circular muscles distinctly endodermal. The principal and secondary septa perfect, but sterile. Numerous tertiary and quaternary imperfect septa, carrying reproductive organs and acontia.

Specific characteristics.

Pedal disc round, somewhat wider than the column, with a thick undulating margin and a folded under-surface. The body cylindrical, about as high as it is broad, but diminishing slightly in thickness towards the oral disc. In extended condition the outer wall is smooth, semi-transparent, and furnished with longitudinal stripes, as well as, also, suckers and cinclides. The suckers form longitudinal series. Upon contraction, both longitudinal and transversal folds appear, and in the cavities thus formed the suckers are seated, one in each cavity. The uppermost margin of the body is tentacular. The oral disc a little broader than the medial part of the body, almost plane, strongly folded. The tentacles retractile, placed in 3 series. The innermost series has 6 very thick long tentacles; the intermediate series 24, which are somewhat smaller; and the outermost series has also 24, placed quite in the margin of the body, and of similar size to those of the intermediate series. The mouth oblong, with thick folded labiæ and two gonidial grooves, in each of which two gonidial nodules. *Colour*: Pedal disc almost milk-white. The body white, opalescent, with a yellow and faint violet tinge. The suckers have the same colour as the body. The oral disc faint brown-yellow with darker coloured rays. Round the mouth two brown-red annuli, of which the outer one is the broadest. The gonidial grooves yellow. The œsophagus yellow-white. The inner 6 tentacles brown-yellow, with a darker base. The rest of the tentacles paler in colour.

Family **Paractidæ**, Hertwig.

Kadosactis [1], **rosea**, n. g. et sp.

Pl. I. Fig. 2. Pl. VII, Fig. 11. Pl. IX, Fig. 8.

The pedal disc, which is round, measures 20^{mm} in breadth, and is discoidally expanded. It has rather broad longitudinal folds, and a somewhat lobate margin (Pl. VII,

[1] κάδος = An urn.

Folder, der straale ud fra Centrum mod Peripherien og antyde Insertionerne af Septa.

Kroppen danner næsten en omvendt Kegle, er 22^{mm} hoi, 15^{mm} bred opimod Mundskiven, men kun $8—10^{mm}$ bred strax ovenfor Fodskiven. Tab. I, Fig. 2; Tab. VII, Fig. 11. Den har stærke og temmelig brede Tværfolder og en dyb Indsnøring strax ovenfor Fodskiven. Tab. I, Fig. 2; Tab. VII, Fig. 11. Det er denne Kroppens Form, der i Forening med Fodskiven giver hele Dyret nogen Lighed med en Urne. Kroppens udvendige Flade har et rut Udseende, er tæt besat med yderst smaa Vorter, som har en liden, rund Fordybning i Midten, Tab. VII, Fig. 11 *b* (Suckers), hvortil hist og her er fæstet fremmede Legemer; dens øverste Rand er noget ujævn.

Mundskiven er omtrent 20^{mm} bred, kun lidet hvælvet og forsynet med fine Folder, der udgaa vifteformigt fra den noget aflange Mund. Tab. VII, Fig. 11. Denne har tykke, foldede Læber og 2 temmelig brede Gonidiegruber.

Tentaklerne ere retraktile, indtage Mundskivens Peripheri og danne 2 Rækker, 36 i hver. Tab. VII, Fig. 11. I den yderste Række ere de kortere og tykkere end i den indre Række, hvor de ere næsten en halv Gang saa lange og temmelig smale. Naar Dyret trækker sig sammen, nedsænkes Mundskiven, og Kroppens øverste Rand trækker sig over den.

Farven. Fodskiven er næsten hvid med et svagt Rosenskjær. Kroppen er bleg rosenrød, noget mørkere i de Furer, som ere imellem Folderne. Mundskiven er smuk kastaniebrun med en mørkere Ring omkring Munden. Tentaklerne i den yderste Række have Kroppens Farve, imedens de i den indre Række have en noget intensere brun Farve end Mundskiven. Tab. I, Fig. 2.

Dyrets ydre Flade er beklædt med et Epithel, bestaaende af lange, cilierende Cylinderceller, Tab. IX, Fig. 8 *a*, hvorimellem sees en Mængde, dels Nematocyster, dels encellede Slimkjertler; Neldeorganerne ere dog i størst Mængde paa Tentaklerne. Indenfor Ectodermet er et ikke meget bredt, fibrillært Bindevæv, Tab. IX, Fig. 8 *b*, i hvis Midte er et bredt Belte af cirkulære Muskelfibre, der ligge i tykkere eller tyndere Bundter, Tab. IX, Fig. 8 *c*. Til begge Sider af de cirkulære Muskler er et smalt Baand af Bindevæv, hvori sees Bindevævslegemer, og som udad grændse til Ectodermet og indad til Endodermet, Tab. IX, Fig. 8 *b*. Dette er dannet af et Lag lange Cylinderceller, forsynede med en Pidske, Tab. IX, Fig. 8 *d'*, og den beklæder hele Dyrets indre Flade, Mavehulheden, den ydre Flade af Svælgroret og Skillevæggene; ogsaa imellem Endodermcellerne iagttages baade Nematocyster og encellede Slimkjertler.

Fig. 11 *a*). Its under surface has fine folds which radiate from the centre towards the periphery, and indicate the insertions of septa.

The body forms an almost inverted cone, is 22^{mm} in height, and 15^{mm} in breadth up towards the oral disc, but is only $8—10^{mm}$ in breadth immediately above the pedal disc (Pl. I, fig. 2, Pl. VII, fig. 11). It has strong, and rather broad, transversal folds, and a deep constriction immediately above the pedal disc (Pl. I, fig. 2, Pl. VII, fig. 11). It is this form of the body which, in conjunction with the pedal disc, gives to the complete animal somewhat the resemblance of an urn. The external surface of the body has a rough appearance, and is closely beset with extremely minute mammillæ having a small, round depression in the middle (Pl. VII, fig. 11 *b*) (suckers) to which foreign bodies are here and there attached. Its uppermost margin is somewhat uneven.

The oral disc is about 20^{mm} in breadth and only slightly arcuate; it is furnished with fine folds which issue, in flabelliform, from the somewhat oblong mouth (Pl. VII, fig. 11). This has thick, folded labiæ, and two rather broad gonidial grooves.

The tentacles are retractile; they occupy the periphery of the oral disc, and form two series, 36 tentacles in each (Pl. VII, fig. 11). In the outermost series they are shorter and thicker than in the inner series, where they are almost half again as long, and rather narrow. When the animal contracts itself the oral disc becomes depressed, and the uppermost margin of the body draws itself over it.

The colour. The oral disc is almost white, with a faint rosy tinge. The body is pale rose-red, which becomes somewhat darker in the grooves that appear between the folds. The oral disc is a beautiful chestnut-brown, with a darker annulus round the mouth. The tentacles of the outermost series have the colour of the body, whilst those of the inner series have a somewhat more intense brown colour than that of the oral disc (Pl. I, fig. 2).

The exterior surface of the animal is clad with an epithelium consisting of long ciliating cylinder-cells (Pl. IX, fig. 8 *a*) between which there are seen a multitude, partly of nematocysts, and partly of unicellular mucous glands. The nematocysts are, however, found in greatest abundance on the tentacles. Inside of the ectoderm there is a not very broad fibrillar connective-tissue (Pl. IX, fig. 8 *b*), in whose middle there is a broad belt of circular muscle-fibres, placed in thicker or thinner fasciculi (Pl. IX, fig. 8 *c*). On both sides of the circular muscles there is a narrow ribbon of connective-tissue, in which connective-tissue corpuscles are seen, and which, externally, borders the ectoderm, and, internally, borders the endoderm (Pl. IX, fig. 8 *b*). This endoderm is formed of a layer of long cylinder-cells furnished with a flagellum (Pl. IX, fig. 8 *d'*), and it clothes the entire inner surface of the animal, the gastric cavity, the external surface of the oesophagus and the divisional-walls. Between the cells of the endoderm, there are also, observed both nematocysts and unicellular mucous glands.

Der er omkring 18 Par fuldstændige Septa, som altsaa deler Gastralhulheden i 18 Hovedkamre. Disse Septa have saa stærkt udviklede Længdemuskler, at de saagodtsom ganske udfylde Kamrene. Længdemusklerne, der ligge paa den ene Side af hvert Septum (paa den indre Side, naar undtages de 2 Retningssepta, hvor de ligge paa den ydre Side) danne her en Samling af fine Folder, som fremkomme derved, at der fra Septum udgaar en Mængde fine, forgrenede Bindevævsforlængelser, Tab. IX, Fig. 8 *d*, paa hvilke Musklerne ere fæstede, Tab. IX, Fig. 8 *e*. Længdemusklerne paa Kroppens indvendige Væg ere ogsaa temmelig stærkt udviklede og bidrage sandsynligvis til at danne de for beskrevne, brede Folder. Tvermusklerne paa Septa ere mindre udviklede, Tab. IX, Fig. 8 *f*.

Det er mig ikke muligt med Bestemthed at angive, hvormange Par Septa af 2den Orden der findes, trods al anvendt Møie; men saavidt jeg har kunnet iagttage, er der 2 Par ufuldstændige Septa i hvert Hovedkammer, altsaa 36 i det Hele, hvilke ere yderst smale og temmelig korte. Om der er flere Septa, skal jeg ikke kunne sige, — jeg har ikke fundet flere.

Paa de principale, fuldstændige Septapar ere saavel Mesenterialfilamenter som Kjønsorganer fæstede. Disse sidste ere kun lidet udviklede, indeholde enkelte Æg og sees kun paa enkelte Septa næsten nede imod Bunden af Gastralhulheden. Parieto-basilarmuskelen er meget bred og bestaar af stærke Muskelbundter, som strække sig op til Midten af Kroppen og nedover den dybe Indsnøring, der findes strax ovenfor Fodskiven, hvor den bliver tyndere, for vifteformigt at udbrede sig paa den indre Flade af Fodskiven. Den paa Kroppens ydre Flade omtalte Indsnøring har paa den indre Flade et tilsvarende Fremspring, der gjør Mavehulheden trang paa dette Sted.

Svælgroret er meget langt, imellem 18—20^{mm}, har stærke Længdefolder og 2 forholdsvis brede Svælggruber. Udvendigt er det beklædt med Kamrenes Endothel, indenfor hvilket er et temmelig bredt Bindevæv, Tab. IX, Fig. 8 *g*. Fra dette udgaar listeformige Forlængelser, der ere beklædte med et bredt Lag lange, cilierende Cylinderceller, lig Ectodermcellerne, Tab. IX, Fig. 8 *l*. Imellem dem sees en Mængde Pigmentceller, som indeholde intens brune Pigmentkorn, der give hele den indre Svælgflade en mørk, kastaniebrun Farve, Tab. IX, Fig. 8 *h*; desforuden sees i Svælgepithelet en stor Mængde encellede, flaskeformede Slimkjertler, som dels ere ganske tomme, dels mere eller mindre fyldte med en finkornet Masse, der omgiver en temmelig stor Kjerne, Tab. IX, Fig. 8 *i*. Denne kommer først tilsyne, naar en stor Del af den kornede Masse er udtømt; endelig iagttages en Mængde Nematocyster, hvoraf de fleste ere kolbeformede med en sammenrullet Sprialtraad, imedens andre ere spydformede, Tab. IX, Fig. 8 *k*.

There are about 18 pairs of perfect septa, which consequently divide the gastric cavity into 18 principal chambers. These septa have such strongly developed longitudinal muscles that they almost entirely fill up the chambers. The longitudinal muscles which lie on the one side of each septum (on the inner side, except in the case of the 2 directive septa, where they lie on the outer side) form, here, a collection of fine folds, that are produced by the issuing from the septum of a multitude of fine, ramificated, connective-tissue prolongations (Pl. IX, fig. 8 *d*) on which the muscles are secured (Pl. IX, fig. 8 *e*). The longitudinal muscles on the interior wall of the body are also rather strongly developed, and probably contribute to form the previously described broad folds. The transversal muscles on the septa are less developed (Pl. IX, fig. 8 *f*).

It is not possible for me to say, definitely, how many pairs of septa of the 2nd order there are, notwithstanding all possible labour, but, so far as I have been able to observe, there are two pairs of imperfect septa in each principal chamber, therefore 36 altogether, which are extremely narrow and rather short. Whether there are additional septa, I cannot say; I can only say that I have not found more.

On the principal, perfect, pairs of septa, both the mesenterial filaments as well as also the reproductive organs are attached. These last are only little developed, contain few ova, and are observable only on some septa, almost quite at the bottom of the gastric cavity. The parieto-basilar muscle is very broad, and consists of strong musculous fasciculi that extend themselves up to the middle of the body and down the deep constriction found immediately above the pedal disc, where it becomes thinner and distributes itself, in flabelliform, on the inner surface of the pedal disc. The constriction on the exterior surface of the body, previously mentioned, has, on its inner surface, a corresponding projection, which makes the gastric cavity contracted at that spot.

The œsophagus is very long, between 18—20^{mm}, has strong longitudinal folds, and 2 relatively broad gullet-grooves. Externally it is clad with the endothelium of the chambers, inside of which there is a rather broad connective-tissue (Pl. IX, fig. 8 *g*). From this, fillet-formed prolongations issue, which are clad with a broad layer of long ciliating cylinder-cells resembling the ectoderm-cells (Pl. IX, fig. 8 *l*). Between them a multitude of pigment-cells are observed, containing intense-brown pigment-granules, which give the entire inner surface of the gullet a dark chestnut-brown colour (Pl. IX, fig. 8 *h*). There are also seen in the gullet epithelium, a great multitude of unicellular, bottle-shaped, mucous glands, which are partly quite empty, partly more or less filled with a minutely granular mass surrounding a rather large nucleus (Pl. IX, fig. 8 *i*). This becomes first visible after a large part of the granular mass is emptied out. Finally, a multitude of nematocysts are observed, of which the greater number are claviform, with a coiled up spiral thread, whilst others again are hastiform (Pl. IX, fig. 8 *k*).

Findested.

Station 40. Et Exemplar.

Slægtskarakter.

Fodskiven rund, skiveformigt udvidet. Kroppen urnedannet med brede Tverfolder og en udpræget Indsnoring strax ovenfor Fodskiven; paa dens ydre Flade en stor Mængde smaa Sugevorter. Tentaklerne i faa Rækker (2), korte og retraktile. De fuldstændige Septa mange. Cirkulærmusklerne mesodermale.

Artskarakter.

Fodskiven rund, tynd, skiveformet; 20^{mm} bred med brede Længdefolder og en lidt lappet Rand. Kroppen urnedannet, 22^{mm} hoi, 15^{mm} bred op imod Mundskiven, 8—10^{mm} bred strax ovenfor Fodskiven, med brede Tverfolder; en dyb Indsnoring lige ved Foden, og Kropsfladen tæt besat med Sugevorter. Mundskiven rund, næsten flad, 20^{mm} bred, forsynet med fine Folder, der straale ud fra den aflange Mund, som har tykke, foldede Læber med 2 Gonidiegruber. Tentaklerne i Mundskivens Peripheri, 2 Rækker, korte, 36 i hver Række; de i den inderste Række ere længst. Farven: Fodskiven næsten hvid med et svagt Rosenskjær. Kroppen bleg rosenrod, lidt morkere i Furerne, som ere imellem Folderne. Mundskiven smuk kastaniebrun med en morkere Ring om Munden. Tentaklerne i den yderste Række have Kroppens Farve, i den indre Række have de en intensere brun Farve, end Mundskiven.

Habitat.

Station No. 40. One specimen.

Generic characteristics.

The pedal disc round, discoidally expanded. The body shaped like an urn, with broad transverse folds, and a prominent constriction immediately above the pedal disc; on its exterior surface a great multitude of minute suckers. The tentacles in few series (2), short and retractile. Numerous perfect septa. Mesodermal circular-muscles.

Specific characteristics.

The pedal disc round, thin, discoidal, 20^{mm} in breadth; with broad longitudinal folds, and a somewhat lobate margin. The body urn-shaped, 22^{mm} in height, 15^{mm} in breadth up towards the oral disc, and 8—10^{mm} in breadth immediately above the pedal disc; has broad transversal folds, and a deep constriction just at the base. The surface of the body closely beset with suckers. The oral disc round, almost flat, 20^{mm} in breadth, furnished with fine folds that radiate from the oblong mouth, which has thick folded labiæ with 2 gonidial grooves. The tentacles in the periphery of the oral disc, in 2 series, short, 36 in each series. Those in the inner series are longest. *Colour.* The pedal disc almost white, with a faint rosy tinge. The body pale rose-red, somewhat darker in colour in the grooves between the folds. The oral disc a beautiful chestnut-brown colour, with a darker annulus round the mouth. The tentacles in the outer series have the colour of the body. In the inner series they have an intenser brown colour than the oral disc.

Kyathactis [1] hyalina, n. g. et sp.

Tab. I. Fig. 3. Tab. VII. Fig. 6—9.

Kyathactis hyalina har en temmelig udpræget Bægerform, er 12^{mm} hoi, 16^{mm} bred forneden, Tab. I. Fig. 3; Tab. VII. Fig. 6—9.

Fodskiven er lidt aflang, 16^{mm} bred, meget tynd med en noget indboiet Rand, der har 40 tykke Folder med ligesaamange Furer. Tab. VII, Fig. 8. Selve Skiven er lidt konkav og har til hver Side af den aflange Flade et halvmaaneformigt Indsnit, som hvert optager 2 af Randens Folder, Tab. VII, Fig. 8 *a*, og hvorved Randen ligesom deles saaledes, at der er 18 Folder paa hver af dens Sider

[1] κυλλος = et lidet Bæger.

Kyathactis [1] hyalina, n. g. et sp.

Pl. I, fig. 3. Pl. VII, figs. 6—9.

Kyathactis hyalina has a rather prominent crateriform: is 12^{mm} high, and 16^{mm} broad below (Pl. I, fig. 3, Pl. VII, figs. 6—9).

The pedal disc is somewhat oblong, 16^{mm} broad, very thin, and has a somewhat involved margin, with 40 thick folds and the same number of furrows (Pl. VII, fig. 8). The disc itself is slightly concave, and has, upon each side of its oblong surface, a semilunar incision; each of these incisions includes two of the marginal folds (Pl. VII, fig. 8 *a*) and they cause the margin to be divided,

[1] κυλλος = A small goblet.

og 4 i Indsnittene. Tab. VII. Fig. 8. Fra Randen udgaa straaleformigt mod Centrum 40 temmelig skarpe Linier, der svare til Randens Furer, og som antyde Insertionerne af Septa.

Kroppen bægerformigt udvidet mod Mundskiven, næsten vandklar, forsynet med 40 Ribber, der ere bredest paa Midten, men blive smalere saavel ned imod Fodranden som op imod Mundskiven. Paa disse Ribber sees i perpendikulære Rækker temmelig tæt staaende smaa, isolerede, hvide, runde Punkter, der ikke rage op over Hudens Niveau, men have en Fordybning (Sugehuler, Suckers?), hvortil fremmede Legemer hæfte sig. Tab. VII, Fig. 6, 7. Flere af disse Sugehuler syntes at være perforerede, saa at de korresponderede med Kamrene. Imellem hver 2 Ribber er en yderst fin Fure, der svarer til Insertionerne af Septa paa Kroppens indvendige Flade. Tab. I. Fig. 3. Tab. VII. Fig. 6, 7. Hele Kropsvæggen er saa gjennemsigtig, at ikke alene Septa, men Svælget, Mesenterialfilamenterne og Kjønsorganerne tydelig kunne sees.

Mundskiven er omtrent 45^{mm} bred, svagt hvælvet og fint foldet. Folderne udgaa som divergerende Straaler fra Mundaabningen til Peripherien og tiltage i Tykkelse successivt, idet de synes at gaa over i Kroppens Ribber. Tab. VII. Fig. 6, 7. Imellem disse Folder findes fine Furer, hvori tydeligt kan sees Insertionerne af Septa. Tab. VII, Fig. 6, 7. Munden er aflang, lidt konisk fremtrædende med en smal Gonidiefure paa hver Side: Læberne temmelig tykke, foldede. Tab I, Fig. 3; Tab. VII, Fig. 6. Mundvigene, hvorfra Gonidiefurerne udgaa, svare i Retning til de paa Fodskiven omtalte 2 halvmaaneformige Indsnit.

Tentaklerne sidde i to Rækker, 24 i hver. De ere retraktile, tykke og omtrent halvt saalange som Mundskivens Bredde. Den inderste Række indtager Mundskivens Peripheri og ere lidt længere end de, der danne yderste Række, og som sidde paa Kroppens overste Rand, der ikke kan trækkes over Mundskiven, Tab. I. Fig. 3; Tab. VII, Fig. 6. Naar Dyret er sammentrukket, danner det en glat Halvkugle, hvoraf Mundskiven udgjør det overste Hvælv.

Kroppens ydre Væg er som sædvanligt beklædt med et Ectoderm, bestaaende af lange Cylinderceller, forsynede med Cilier, Tab. VII, Fig. 9 *a*, og imellem hvilke sees aflange, encellede Slimkjertler. I det temmelig brede Bindevævslag sees vel udviklede, cirkulære Muskelfibre, Tab. VII, Fig. 9 *c*, der ligge nærmere den entodermale end ectodermale Side, saa at der imellem Entodermet og Muskelfibrene er kun et smalt Belte af Bindevævslaget, imedens dette er meget bredt mod Ectodermet, og i denne brede Del iagttages Bindevævslegemer med en eller flere Udløbere. Tab. VII, Fig. 9 *b*. Paa Bindevævets indre Flade er Endothelet med sine lange Pidskeceller. Tab. VII, Fig. 9 *d*.

as it were, in such manner, that there are 18 folds on each of its sides and 4 in the incisions (Pl. VII, fig. 8). From the margin their issue radially, towards the centre, 40 rather sharp lines which correspond to the furrows of the margin, and which indicate the insertions of the septa.

The body is expanded, in crateriform, towards the oral disc, is almost pellucid, and furnished with 40 ribs which are broadest at the middle, but become narrower both down towards the basal margin as well as up towards the oral disc. On these ribs, placed in vertical series and rather closely situated, small, isolated, white, round points are observed, which do not project beyond the integumental surface, but have a depression (loopholes, suckers) to which foreign bodies adhere (Pl. VII, figs. 6, 7). Several of these loopholes appeared to be perforated, so that they corresponded whith the chambers. Between each 2 ribs there is an extremely slender furrow which corresponds to the insertions of septa on the interior surface of the body (Pl. I, fig. 3. Pl. VII, figs. 6, 7). The entire body-wall is so transparent, that not only the septa, but also the œsophagus, mesenterial filaments and reproductive organs may be distinctly seen.

The oral disc is about 45^{mm} in breadth, faintly arcuate, and finely folded. The folds issue as diverging rays from the oral aperture to the periphery, and increase progressively in thickness, until they appear to pass over into the ribs of the body (Pl. VII, figs. 6, 7). Between these folds slender furrows are found, in which the insertions of septa can be distinctly seen (Pl. VII, fig. 6, 7). The mouth is oblong, a little conically projectant, with a narrow gonidial groove on each side. The labiæ are rather thick, and folded (Pl. I, fig. 3; Pl. VII, fig. 6); the oral angles from which the gonidial grooves issue, correspond in direction to the 2 semilunar incisions on the pedal disc previously mentioned.

The tentacles are placed in two series, 24 in each. They are retractile, thick, and about half the length of the breadth of the oral disc. The innermost series occupies the periphery of the oral disc, and these are a little longer than those that form the outermost series, and that are placed on the uppermost margin of the body, which is not capable of being drawn over the oral disc (Pl. I, fig. 3, pl. VII, fig. 6). When the animal is contracted it forms a smooth hemisphere whose arch is formed by the oral disc.

The exterior wall of the body is, as usual, clad with an ectoderm consisting of long cylinder-cells, furnished with ciliæ (Pl. VII, fig. 9 *a*) and between which oblong unicellular mucous-glands are observed. In the rather broad connective-tissue layer well developed circular muscle-fibres are seen, (Pl. VII, fig. 9 *c*) which lie closer to the endodermal than to the ectodermal side; so that between the endoderm and the muscle-fibres there is only a narrow belt of the connective-tissue layer, whilst it is very broad towards the ectoderm, and in this broad part connective-tissue corpuscles with one or more prolongations are observed (Pl. VII, fig. 9 *b*). On the inner surface of the connective-tissue,

Svælget er cylindrisk, indtager omtrent Halvdelen af Kroppens Høide og er paa sin indvendige Flade foldet og forsynet med to Svælggruber, som ere temmelig smale; paa dets ydre Flade fæster sig 40 (20 Par) fuldstændige Septa. Fra disse udgaa Mesenterialfilamenterne, imedens Generationsorganerne synes at være fæstede kun til enkelte Septa og da næsten nede ved Mavehulhedens Bund. I de intraseptale Rum aabne de indre Tentakler sig, imedens de ydre korrespondere med de interseptale Kamre. Mesenterialfilamenterne ere bedækkede med en overordentlig Mængde Nematocyster, der saagodtsom ganske skjule Epithelialbeklædningen. Antallet af de ufuldstændige Septa kan ikke angives med Sikkerhed, dog forekom de mig at være 40 Par, nemlig 2 Par i hvert primært interseptalt Rum.

Parieto-basilarmuskelen er overmaade tynd og strækker sig kun et lidet Stykke opover Kropsvæggen.

Naar Dyret vil flytte Sted, bliver Fodskiven næsten tapformig og bevæger sig sogende, forend den fæster sig. Farven bleg rosenrød. Fodskivens Rand gulrød; omkring Munden en gulrød Ring. Tentaklerne lidt mørkere rosenrøde end Fodskiven og Kroppen.

Findested.

Station 338. Et Exemplar.
— 359. Et sønderrevet Exemplar, der ikke lod sig konservere.

Slægtskarakter.

Fodskiven oval. Kroppen bægerformet med Længderibber, forsynede med Sugehuler (Suckers). Tentaklerne retraktile. Mange fuldstændige Septa. Mesodermale Cirkulærmuskler.

Artskarakter.

Fodskiven lidt aflang, 16^{mm} bred med 2 halvmaaneformige Indsnit og en lidt indboiet Rand, forsynet med 40 Folder. Kroppen bægerformet, 12^{mm} høi, 16^{mm} bred med 40 Længdefolder og ligesaa mange Furer, hvori Insertionerne af Septa sees. Paa Længdefolderne sees Rækker af Sugehuler. Mundskiven omtrent 45^{mm} bred, lidt hvælvet. Fra Mundaabningen, der er konisk fremtrædende med tykke, foldede Læber, udgaa divergerende mod Skivens Peripheri omtrent 40 Folder, som gaa over Kroppen, og imellem disse ligesaa mange Furer. 2 Rækker korte, retraktile Tentakler, 24 i hver; de i den indre Række ere længst; de i den ydre staa paa Kroppens øverste Rand. Farven:

the endothelium with its long flagelliform cells appears (Pl. VII, fig. 9 *d*).

The œsophagus is cylindrical, and occupies about half of the height of the body; on its interior surface it is folded, and furnished with two gullet-grooves which are rather narrow. On its exterior surface there are 40 (20 pairs) perfect septa attached. From these the mesenterial filaments issue, whilst the reproductive organs appear to be attached only to a few septa, and those almost at the bottom of the gastric cavity. The inner tentacles open into the intraseptal spaces, whilst the outer ones correspond with the interseptal chambers. The mesenterial filaments are covered with an extraordinary abundance of nematocysts, which almost entirely conceal the epithelial covering. The number of the imperfect septa cannot be stated with certainty, but it appeared to me that there were 40 pairs, viz. 2 pairs in every primary interseptal space.

The parieto-basilar muscle is extremely thin, and extends only a short way up the wall of the body.

When the animal wishes to change its situation, the pedal disc becomes almost cone-formed, and moves itself seekingly before it attaches itself. *The colour:* pale rosy-red. The margin of the pedal disc yellowish-red; round the mouth a yellowish-red annulus. The tentacles a somewhat darker rosy-red than the pedal disc and the body.

Habitat.

Station No. 338. One specimen.
— „ 359. A torn specimen, which could not be preserved.

Generic characteristics.

The pedal disc oval. The body crateriform with longitudinal ribs furnished with perforations (suckers). The tentacles retractile. Numerous perfect septa. Mesodermal circular muscles.

Specific characteristics.

The pedal disc somewhat oblong, 16^{mm} in breadth, with two semilunar incisions, and a somewhat involved margin furnished with 40 folds. The body crateriform, 12^{mm} in height, and 16^{mm} broad; has 40 longitudinal folds and the same number of furrows, in which are seen the insertions of septa. On the longitudinal folds series of perforations (suckers) are observed. The oral disc about 45^{mm} in breadth, and slightly arcuate. From the oral aperture, which is conically projectant and has thick folded labiæ, about 40 folds issue, diverging towards the periphery of the disc and passing over into the body. Between the folds there are the same number of furrows. 2 series of short,

Bleg rosenrod. Fodens Rand gulrod; omkring Munden en gulrod Ring. Tentaklerne lidt morkere rosenrode end Fodskiven og Kroppen.

retractile tentacles, 24 in each; those in the inner series are the longest, and those in the outer series are seated on the uppermost margin of the body. *Colour:* pale rosy-red; the pedal margin yellowish-red; round the mouth a yellowish-red annulus. The tentacles a somewhat darker rosy-red than the pedal disc and body.

Familie Sideractidæ, mihi.

Actinaria med mange fuldstændige Septa. Faa Rækker korte, ikke retraktile Tentakler, hvoraf den inderste Række har 8. Mesodermale Cirkulærmuskler.

Family Sideractidæ, mihi.

Actinaria with numerous perfect septa. Few series of short non-retractile tentacles, of which the innermost series contains 8. Mesodermal circular muscles.

Sideractis glacialis, n. g. et sp.

Tab. I. Fig. 1; Tab. VII, Fig. 10, 12.

Jeg har fundet det nodvendigt at grunde en ny Familie for den Actinie, jeg nu er ifærd med at beskrive. I enkelte Henseender nærmer den sig vistnok til Slægten Bolocera, Gosse, som er underordnet Familien Bunodidæ; men den adskiller sig dog saa væsentlig fra denne, at den ikke godt kan henføres dertil.

Fodskiven er rund, tynd, membranos, halv gjennemsigtig, henved 20^{mm} i Gjennemsnit med en undulerende Rand. Fra denne udgaa paa Underfladen radiære Linier henimod Midten, hvilke angive Insertionerne af Septa.

Kolumnen er yderst lav, knap 5^{mm} hoi, og noget smalere end Fodskiven. Dens Væg er tynd og saa gjennemsigtig, at Svælgror, Septa og Mesenterialfilamenter kunne sees, og paa den udvendige Flade iagttages 16 fine Længdelinier, Insertioner af Septa, samt smaa, runde, hvide Papiller, der staa temmelig tæt, men uregelmæssigt.

Mundskiven er noget bredere end den overste Rand af Kroppen; men ikke fuldt saa bred som Fodskiven. Den er lidt hvælvet, har lignende hvide Papiller som Kroppen og paa Midten en aflang Mund med 8 koniske, hule Lapper, hvoraf 2 danne Mundvigene (Gonidiegruber), der føre ned til Svælggruberne, og de øvrige danne Læberne, nemlig 3 paa hver Læbe, Tab. I, Fig. 1; Tab. VII, Fig. 12. Fra Munden udgaa straaleformigt henimod Skivens Rand 16 Linier, 2 fra hver Mundlap, hvilke antyde Septainsertionerne.

Tentaklerne ere ikke retraktile og danne 3 Rækker; de ere korte, tykke, konisk tilspidsede og synes at have en Aabning paa deres yderste Ende. Tab. I. Fig. 1, Tab. VII, Fig. 12. I den inderste Række, der er stillet lidt ind paa Skiven, er der 8 Tentakler; disse ere størst, baade tykkest og længst. Imellem dem og lidt udenfor dem, nærmere

Sideractis glacialis, n. g. et sp.

Pl. I. fig. 1. Pl. VII. figs. 10, 12.

I have found it necessary to establish a new family for the Actinia which I am now about to describe. In some respects, it is true, it approaches to the genus Bolocera, Gosse, which is ranged under the family Bunodidæ, but yet it differs so materially from that, that it cannot well be assigned to it.

The pedal disc is round, thin, membranous, semitransparent; measures about 20^{mm} from side to side, and has an undulating margin. On its under surface lines issue, radiating towards the middle, and indicating the insertions of septa.

The column is exceedingly low, scarcely 5^{mm} in height, and somewhat narrower than the pedal disc. Its wall is thin, and so transparent that the œsophagus, septa, and mesenterial filaments may be seen; and upon its exterior surface 16 slender longitudinal lines may be observed — insertions of septa — and, also, small round white papillæ, which are placed rather compactly, but irregularly.

The oral disc is somewhat broader than the uppermost margin of the body, but not quite so broad as the pedal disc. It is slightly arcuate, has the same kind of white papillæ as the body, and in its middle it has an oblong mouth with 8, conical, hollow lobes, of which two form the oral angles and lead down to the gullet-grooves, whilst the others form the labiæ, viz. 3 on each lobe (Pl. I, fig. 1, Pl. VII, fig. 12). Sixteen lines issue from the mouth and radiate towards the margin of the disc, 2 from each oral lobe, and they indicate the insertions of the septa.

The tentacles are non-retractile and form 3 series: they are short, thick, conically acuminated, and appear to have an aperture on their outermost extremity (Pl. I, fig. 1, Pl. VII, fig. 12). In the innermost series, which is placed somewhat back from the margin of the disc, there are 8 tentacles; these are the largest, being both the

Randen, er den 2den Række, der ligeledes har 8, men noget mindre end de foregaaende, og endelig er den 3die Række stillet imellem den 2den Række og Kroppens overste Rand, hvilken har 16 Tentakler, som ere meget mindre end de ovrige. Tentaklerne have paa hele deres ydre Væg tætstaaende, yderst smaa, hvidagtige Papiller, der dog kunne iagttages med blotte Oie og ere lig dem, som ovenfor ere omtalte ved Beskrivelsen af Kroppen og Skiven, Tab. VII. Fig. 12.

Kroppens udvendige Væg er beklædt med et Epithel, bestaaende af lange Cylinderceller, forsynet med Cilier, Tab. VII. Fig. 10 *a*, samt en stor Mængde Nematocyster, der staa i Grupper og danne de tidligere beskrevne smaa, hvide Papiller, Fig. 10 *b*. Nematocysterne synes kun at bestaa af et Slags, nemlig elliptiske, klare Kapsler, der indeslutte en stærk, spiralbunden Traad. Imellem Epithelcellerne findes encellede, flaskeformede Slimkjertler, som ikke synes at være i nogen stor Mængde tilstede. Indenfor Ectodermet er et bredt, hyalint Bindevævslag, i hvis Midte findes udbredte, cirkulære Muskler. Disse danne paa Tversnit eller rettere paa Skraasnit stjerneformige Figurer, der fremstille de enkelte Fibriller, og som nok kunne forvexles med Bindevævslegemer, rige paa Udlobere, men hvorfra de adskilles baade ved Farvningen og ved deres fibrillære Natur, Fig. 10 *c*, som dog tydeligst viser sig paa Længdesnit. Henimod Endothelbeklædningen er der et hyalint Belte, hvori ingen Muskelfibre findes, men hvor spindelformede Bindevævsceller med Udlobere sees hist og her, Fig. 10 *d*. Den indre Vægflade er tapetseret med et Endothel, der bestaar af meget lange Cylinderceller, forsynede med en aflang Kjerne og en lang Pidske, Fig. 10 *e*.

Der er 16 Par fuldstændige Septa, som ere yderst tynde og paa mange Steder perforerede; de gaa alle fra Fodskiven og den indre Kropsvæg og fæste sig paa Mundskiven og Svælgroret. Disse Septa bære Mesenterialfilamenter og paa enkelte af dem sees længst ned imod Bunden af Gastralhulheden Generationsorganer. Imellem hver 2 Par af de fuldstændige, primære Septa iagttages 2 Par secundære, ufuldstændige Septa, der tage deres Udspring ved Randen af Fodskiven og danne ved deres Udspring et virkeligt Par, idet de bestaa af 2 Blade, men synes længere op paa Kroppen at smelte sammen til et Septum, der strækker sig et Stykke ind i Gastralhulheden uden at naa Svælgroret. Ogsaa disse Septa synes at bære Generationsorganer.

Med Bestemthed kan dette ikke angives; thi Undersogelserne have været yderst vanskelige, da der kun havdes 1 Exemplar, som ikke maatte synderlig sonderlemmes.

Tver- og Længdemusklerne paa Septa ere ordnede paa den for Actinierne sædvanlige Maade. Muskellaget er

thickest and longest. Between them, and a little to the outside of them, nearer to the margin, the second series is placed, and also contains 8 tentacles, but somewhat smaller than the preceding ones; and, finally, the third series is placed between the second series and the uppermost margin of the body; it contains 16 tentacles of much smaller size than the others. The tentacles have, upon their entire exterior wall, compactly placed, extremely minute, whitish papillæ, which can, however, be observed with the naked eye, and resemble those spoken of above in connection with the body and the disc (Pl. VII, fig. 12).

The external wall of the body is clad with an epithelium consisting of long cylinder-cells furnished with ciliæ (Pl. VII, fig. 10 *a*); also a great multitude of nematocysts, which are situated in groups and form the previously described small white papillæ (Pl. VII, fig. 10 *b*). The nematocysts appear to consist of only one kind, viz. elliptical, pellucid capsules that enclose a strong, spirally coiled filament. Between the epithelial cells, unicellular, bottle-shaped mucous-glands are observed, but these do not appear to be present in any great abundance. Inside of the ectoderm, there is a broad hyaline connective-tissue layer, in whose middle circular muscles are found distributed. These, in transverse sections, or more correctly in diagonal sections, form stellate figures that represent the individual fibrils, and which, easily enough, might be mistaken for connective-tissue corpuscles rich in prolongations, but from which they may be distinguished both by the colouring and by their fibrillar nature (Pl. VII, fig. 10 *c*), which last, however, is most distinctly seen in longitudinal sections. Towards the endothelial covering there is a hyaline belt in which no muscle-fibres are found, but where fusiform connective-tissue cells with prolongations are here and there seen (Pl. VII, fig. 10 *d*). The inner mural surface is lined with an endothelium that consists of very long cylinder-cells, furnished with an oblong nucleus and a long flagellum (Pl. VII, fig. 10 *e*).

There are 16 pairs of perfect septa, which are extremely thin and in many places perforated. They all proceed from the pedal disc and wall of the body, and attach themselves to the oral disc and the œsophagus. These septa carry mesenterial filaments, and on a few of them reproductive organs are visible, placed far down near the bottom of the gastric cavity. Between every two pairs of the perfect, primary septa two pairs of secondary, imperfect septa are observed, having their origin in the margin of the pedal disc, but which form at their origin a real pair, as they are composed of 2 laminæ, but appear farther up the body to merge into one septum that extends itself a little way into the gastric cavity, without however reaching to the œsophagus.

These septa also appear to carry reproductive organs. That can, however, not be said with certainty, as the investigations have been exceedingly difficult, there having only been a single specimen, which I dared not much dismember.

The transversal and longitudinal muscles on the septa are arranged in the manner common to the Actiniæ. The

tyndt og glat, bekl\u00e6dt med Endothel, imellem hvis Celler sees Nematocyster. Parieto-basilarmuskelen er baade smal og tynd og str\u00e6kker sig kun lidet op paa Kropsv\u00e6ggen; i det Hele taget er Muskulaturen kun lidet udviklet.

Tentaklernes Ectoderm afviger ikke v\u00e6sentligt fra Kroppens og have lignende Nematocystegrupper. Imellem de lange, cylinderformede Ectodermceller sees hist og her encellede Slimkjertler, men langt sparsommere end paa Kroppen.

Svælgroret er temmelig kort og forsynet med 2 Svælggruber.

Farven. Hele Dyret er næsten vandklart. Kroppen og Tentaklerne spille yderst svagt i det Grønlige og Mundskiven lidt i det Blegrøde; yderst paa Enden af Tentaklerne er en hvid Ring. Svælgroret og Gastralfilamenterne blegrøde.

Findested.

Station 237. Et Exemplar.

muscular layer is thin and smooth, and is clad with endothelium between whose cells nematocysts are observed. The parieto-basilar muscle is both narrow and thin, and extends itself only a little way up the wall of the body. Altogether the musculosity is but slightly developed.

The ectoderm of the tentacles does not materially differ from that of the body, and has similar groups of nematocysts. Between the long cylindric ectoderm-cells, unicellular mucous glands are here and there visible, but far more scantily than on the body.

The œsophagus is rather short, and furnished with 2 gullet-grooves.

The colour. The entire animal is almost pellucid. The body and tentacles are very faintly, greenish tinged; and the oral disc is tinged slightly, pale red. At the outermost extremity of the tentacles there is a white annulus. The œsophagus and gastral filaments are pale red.

Habitat.

Station No. 237. One specimen.

Slægtskarakter.

Fodskiven bred, forsynet med yderst fine Længdestriber. Kroppen glat med fine Længdefurer. Tentaklerne ikke retraktile, i flere Rækker. 1ste indre Række 8. 16 Par fuldstændige Septa. Mesodermale Cirkulærmuskler.

Generic characteristics.

The pedal disc broad, furnished with extremely fine longitudinal stripes. The body smooth, with fine longitudinal furrows. The tentacles non-retractile, in few series. The first inner series contains 8 tentacles. 16 pairs of perfect septa. Mesodermal circular muscles.

Artskarakter.

Fodskiven bred. 20^{mm} i Gjennemsnit, membranos med undulerende Rand. Kroppen omtrent 5^{mm} høi, smalere end Fodskiven og paa dens udvendige Væg 16 fine Længdefurer for Insertionerne af Septa, samt en Mængde Nematocyster, grupperede i smaa, hvide Papiller. Mundskiven næsten plan, bredere end Kroppen, men smalere end Fodskiven. Munden aflang, ottelappet. Tentaklerne korte, koniske, ikke retraktile, i 3 Rækker. I den inderste Række 8, der ere de største; i den mellemste Række ogsaa 8, som ere lidt mindre, og i den ydre Række 16, der ere meget mindre. Paa Tentaklernes ydre Flade en Mængde smaa, hvide, uregelmæssigt stillede Papiller (Nematocystegrupper). Hele Dyret temmelig gjennemsigtigt, spillende yderst svagt i det Grønlige. Mundskiven spillende lidt i det Blegrøde og paa Enden af Tentaklerne en lille, hvidagtig Ring. Svælgroret og Gastralfilamenterne blegrøde. Septa vandklare.

Specific characteristics.

The pedal disc broad; measures 20^{mm} from side to side; membranous, with undulating margin. The body about 5^{mm} in height, narrower than the pedal disc, and has, on its exterior wall, 16 fine longitudinal grooves for the insertions of septa, also a multitude of nematocysts grouped in small white papillæ. The oral disc almost plane, broader than the body but narrower than the pedal disc. The mouth oblong, octo-lobate. The tentacles short, conical, non-retractile, placed in 3 series. In the innermost series 8 tentacles, which are the largest in size; in the intermediate series also 8, which are somewhat less in size, and in the outer series 16, which are much smaller. On the exterior surface of the tentacles there are a multitude of small, white, irregularly placed papillæ (groups of nematocysts). The entire animal is rather transparent, very faintly greenish tinged. The oral disc tinged slightly, pale-red, and upon the extremity of the tentacles there is a small whitish annulus. The œsophagus and gastral filament pale red. Septa pellucid.

Familie Sagartidæ.

Stelidiactis [1] Mopsiæ n. g. et sp.

Tab. II. Fig. 4. 5; Tab. VIII. Fig. 7—11.

Fodskiven er aflang, 34^{mm} lang, tyk og omklamrer næsten ganske en Gren af Mopsia borealis, saa at der kun er en Spalte af et Par Millimeters Bredde, hvori Grenen ligger blottet, Tab. II. Fig. 4, 5. Den omboiede Rand er foldet, og Folderne udgjør 12 paa hver Side af Grenen, Tab. VIII. Fig. 9. Imellem denne og Fodskivens Underflade er et tyndt, membranost, stærkt klæbende Hudlag, der er afsondret af Fodskiven og omgiver endogsaa Størstedelen af den blottede Del af Grenen, som ligger i Foden.

Kroppen er omtrent 12^{mm} hoi, cylindrisk; den har en fast Konsistens, er glat og glindsende med 24 stærke Længderibber, hvorimellem ligesaa mange dybe Furer, Tab. II, 4, 5; Tab. VIII, Fig. 7. I disse Furer sees hist og her uden nogen Regelmæssighed smaa, aflange Spalter, Cinclides, Tab. VIII, Fig. 8. Kroppen antager stundom en næsten elliptisk Form ved Dyrets Kontraktioner, og dens overste Rand er tyk og tentakulær.

Mundskiven er 12^{mm} i Gjennemsnit, rund, stærkt hvælvet, saa at den til enkelte Tider danner en Konus, paa hvis Ende den aflange Mundaabning sees, Tab. II, Fig. 5. Mundlæberne ere foldede og Mundvigene glatte, temmelig brede. Fra Munden og hen til Tentaklerne udgaa straaleformigt 24 Folder, hvorimellem ligesaa mange Furer, Tab. II. Fig. 4; Tab. VIII. Fig. 7. Ogsaa Mundskivens Hud er tyk, fast og uigjennemsigtig.

Tentaklerne ere 24, retraktile, sidde i en Række paa Kroppens overste Rand, ere korte, konisk tilspidsede og tykke ved Grunden. Kroppens Rand kan trække sig over Mundskiven og skjule denne ganske.

Kolumnens Væg er temmelig tyk; dens ydre Flade har sit sædvanlige Cylinderepithel med Cilier, og imellem Cellerne findes flaskeformede, encellede Slimkjertler, samt Nematocyster. Indenfor Ectodermet er et fast, fibrillært Bindevæv, i hvis Midte sees cirkulære Muskelfibre, som ligge i Bundter, der paa Tversnit frembyde et smukt, netformigt Udseende. Paa Bindevævets indre Flade sees Længdemuskler, som strax gaa over paa Septa og ere beklædte med et Endothel, der ikke frembyder noget særegent.

De principale Septa, der fæste sig paa Svælget, ere 6 Par, imedens de secundære, ufuldstændige Septa ere

[1] στηλί'διον = en liden Søile.

Family Sagartidæ.

Stelidiactis [1] Mopsiæ, n. g. et sp.

Pl. II. figs. 4. 5; Pl. VIII. figs. 7—11.

The pedal disc is oblong, 34^{mm} in length, and almost completely enclasps a branch of Mopsia borealis, so much so that there is only a fissure of a couple of millimetres in breadth in which the branch is left exposed (Pl. II. figs. 4, 5). The bent margin is folded, and there are 12 folds on each side of the branch (Pl. VIII. fig. 9). Between it and the under-surface of the pedal disc there is a thin, membranous, strongly glutinous, integumental layer, which is deposited from the pedal disc, and even surrounds the greater part of the exposed portion of the branch contained in the base.

The body measures about 12^{mm} in height, and is cylindrical. It has a firm consistency, is smooth and shining, and has 24 strong longitudinal ribs between which there are a similar number of deep furrows (Pl. II. figs. 4, 5; Pl. VIII. fig. 7). In these furrows, but without any regularity, there are seen, here and there, small oblong fissures, cinclides (Pl. VIII. fig. 8). The body sometimes assumes an almost elliptical form during the animals contractions. Its uppermost margin is thick and tentacular.

The oral disc measures 12^{mm} from side to side, is round, strongly arcuate, so that it sometimes forms a cone, on whose extremity the oblong oral aperture is seen (Pl. II, fig. 5). The oral labiæ are folded, and the oral angles are smooth and rather broad. From the mouth, 24 folds radiate to the tentacles, and between them there are the same number of furrows (Pl. II. fig. 4; Pl. VIII. fig. 7). The integument of the oral disc is also thick, firm, and opaque.

The tentacles are 24 in number, and retractile; they are placed in one series on the uppermost margin of the body, are short, conically acuminated, and thick at the base. The margin of the body can draw itself over the oral disc and completely conceal it.

The wall of the column is rather thick; its exterior surface has the usual cylinder-epithelium with ciliæ; and between the cells, bottle-shaped, unicellular mucous glands, as well as nematocysts, are found. Inside of the ectoderm, there is a firm fibrillar connective-tissue, in whose middle circular muscle-fibres are observed lying in fasciculi; in transverse sections these present a beautiful reticulated appearance. On the inner surface of the connective-tissue, longitudinal muscles are seen passing immediately over to the septa, and clad with an endothelium that does not present anything remarkable.

The principal septa, which are attached to the œsophagus, consist of 6 pairs; whilst the secondary imperfect

[1] στηλί'διον = A little pillar or column.

mange, og paa disse ere Kjønsorganerne fæstede, som ere mere eller mindre udviklede Æggestokke. Disse indtage paa Septum et aflangt Rum imellem Længdemuskelens fri Rand og Mesenterialfilamentet og danne en temmelig fast, halvgjennemsigtig Membran, egentlig Forlængelse af Septums Bindevæv, hvori Æggene sees indleirede, Tab. VIII, Fig. 11. De ere næsten runde, have en noget excentrisk liggende Kimblære, som er omgiven af et temmelig tykt Lag Blommekorn. Men i de fleste Æg er der foregaaet en Differentiering, som er ganske mærkelig, idet Blommen er omgiven af et protoplasmatisk Net, der kun fremtræder tydeligt paa yderst tynde Tversnit, Tab. VIII, Fig. 10. Senere former dette Net sig i stavformige Legemer, der ligge parallelt ved Siden af hverandre, men udbrede sig som en Vifte over Blommen og skjuler den ganske. Disse Protoplasmastave ere smalest der, hvor Ægget hviler i Ovariallamellen, men bliver bredere og tykkere, jo længere de strække sig opover Ægget, Tab. VIII, Fig. 11 *a*; de farves stærkt af Boraxkarmin, uden at det er muligt at opdage nogensomhelst Cellestruktur. Et lignende Forhold omtales i Brødrene Hertwigs Afhandling over Actinierne [1].

Farven: Kroppen og Fodskiven er perlemorglindsende hvid, spillende svagt i det Rosenrøde. Mundskiven smuk laxerød med lidt mørkere Straaler, der udgaa fra Mundaabningen. Tentaklerne lidt lysere end Mundskiven.

septa are numerous, and on them the reproductive organs are attached, and consist of more or less developed ovaries. These occupy an oblong space on the septum, between the free margin of the longitudinal muscle and the mesenterial filament, and form a rather firm, semitransparent membrane, really a prolongation of the septal connective-tissue, in which the ova are seen to be embedded (Pl. VIII, fig. 11). They are almost round, have a somewhat eccentrically placed germinative-sac surrounded by a pretty thick layer of yoke-granules. But in most of the ova a differentiation has taken place which is quite remarkable, as the yoke is seen to be surrounded by a protoplasmic reticulation, which, however, only appears distinctly in extremely thin transverse sections (Pl. VIII, fig. 10). This reticulation subsequently grows into rod-like bodies that lie adnately to each other, but distribute themselves in flabelliform over the yoke and completely conceal it. These protoplasmic staves are narrowest at the point where the ovum rests in the ovarial lamella, but become broader and thicker the farther they extend up over the ovum (Pl. VIII, fig. 11 *a*). They are strongly colourable by Borax-carmine, without it being possible to detect any cellular structure whatsoever. Similar relations are mentioned in the Brothers Hertwig's Memoir on the Actinaria [1].

The colour: The body and the pedal disc have a shining mother-of-pearl white colour, tinged faintly with rose-red. The oral disc has a beautiful salmon-red colour, with somewhat darker rays issuing from the oral aperture. The tentacles are a little lighter in colour than the oral disc.

Findested.

Station 255. Et Exemplar.

Habitat.

Station No. 255. One specimen.

Slægtskarakter.

Fodskiven bladformet udvidet, omfattende tynde, runde Gjenstande (Grene af Mopsia borealis). Kroppen dannende en rund Søile, ribbet paalangs og forsynet med Cinclides. Mundskiven dækkes af Kroppens Rand. Tentaklerne korte, retraktile, faatallige, stillede i 1 eller 2 Rækker. 6 Par fuldstændige Septa. Mesodermale Cirkulærmuskler.

Generic characteristics.

The pedal disc membranaceously expanded, enclasps thin, round objects (branches of Mopsia borealis). The body forms a round pillar, is longitudinally ribbed, and furnished with cinclides. The oral disc covered by the margin of the body. The tentacles short, retractile, not numerous, placed in 1 or 2 series. 6 pairs of perfect septa Mesodermal circular muscles.

Artskarakter.

Fodskiven aflang, 34^{mm} lang, omfattende en Green af Mopsia borealis; dens Rand har 24 temmelig udprægede Folder. Kroppen er cylindrisk, ribbet paalangs med 24 Folder; imellem disse ligesaamange Furer, hvori hist og her Cinclides; dens øverste Rand er tyk, tentakulær og

Specific characteristics.

The pedal disc oblong, 34^{mm} in length, enclasps a branch of Mopsia borealis; its margin has 24 rather prominent folds. The body is cylindrical, longitudinally ribbed, has 24 folds; between these a similar number of furrows in which, here and there, cinclides observable; its uppermost

[1] Oscar und Richard Hertwig. Die Actinien. Jenaische Zeitschrift für Naturwissenschaft 13 B. pag. 551. Jena 1879.

[1] Oscar und Richard Hertwig. Die Actinien. Jenaische Zeitschrift für Naturwissenschaft 13 B. pag. 551. Jena 1879.

kan trækkes over Mundskiven. Denne er stærkt hvælvet og forsynet med 24 Folder, der udgaa straaleformigt fra Mundaabningen til Tentakelranden. Tentaklerne 24, retraktile, korte, sidde i en Række paa Kroppens overste Rand. Farven: Krop og Fod næsten hvid med et blegt Rosenskjær. Mundskiven smuk laxerod med lidt mørkere Straaler, der udgaa fra Mundaabningen. Tentaklerne lidt lysere end Mundskiven.

margin is thick, tentacular, and may be drawn over the oral disc. The latter strongly arcuate, and furnished with 24 folds issuing, radially, from the oral aperture to the tentacular margin. 24 tentacles, retractile, short, seated in one series on the uppermost margin of the body. *Colour*. Body and base almost white, with a pale rose tinge. The oral disc a beautiful salmon-red colour, with slightly darker rays issuing from the oral aperture. The tentacles somewhat lighter in colour than the oral disc.

Stelidiactis Tubulariæ, n. sp.

Tab. II, Fig. 6, 7; Tab. VIII, Fig. 12.

Fodskiven er aflang, 25^{mm} lang, temmelig tynd med en lappet Rand og siddende paa et uddødt Rør af Tubularia imperialis saaledes, at en stor Del af Fodskivens Underflade sees, Tab. II, Fig. 6, 7; Tab. VIII, Fig. 12. Den omfatter ikke som den foregaaende Art ganske Gjenstanden, hvorpaa den sidder, og den er heller ikke limet til denne ved en afsondret, klæbende Masse, saa at Dyret med temmelig Lethed kan bevæge sig paa Roret, hvilket jo ikke er Tilfældet med Stelidiactis Mopsiæ.

Kroppen er cylindrisk, 20^{mm} høi, glat, glindsende og lidt indsnoret paa Midten, hvorved den nærmer sig noget Timeglasformen, Tab. II, Fig. 6, 7; Tab. VIII, Fig. 12; paa dens nederste Del sees nogle faa, yderst smaa, lidt aflange Fordybninger (Spalter, Cinclides?), der synes at perforere Huden.

Mundskiven er rund, 20^{mm} bred, stærkt hvælvet, forsynet med 48 fine Folder, der udstraale fra Munden, og hvoraf 24 strække sig lige hen til den indre Tentakelrække, imedens de andre 24 naa kun halvt paa Skiven. Munden er næsten rund, stærkt fremspringende med tykke Læber og i hver Mundvig en stor Gonidialknude, Tab. VIII, Fig. 12.

Tentaklerne ere retraktile, sidde i Mundskivens Periferi og danne 2 afvexlende Rækker, 24 i hver. De ere temmelig korte, og de i den indre Række ere baade lidt tykkere og længere, end de i den ydre Række. Mundskiven med de indtrukne Tentakler kan ganske dækkes af Kropsranden. Saavel Kroppen som Mundskiven er temmelig gjennemsigtig. Farven: Perlemorglindsende rosenrød. Tentaklerne, især de i den indre Række, ere noget mørkere og omgivne af en høirød Ring.

Stelidiactis Tubulariæ, n. sp.

Pl. II, figs. 6, 7; Pl. VIII, fig. 12.

The pedal disc oblong, measures 25^{mm} in length, is rather thin, has a lobate margin, and is seated on a lifeless tube of Tubularia imperialis in such manner that a large part of the under-surface of the pedal disc is visible (Pl. II, figs. 6, 7, Pl. VIII, fig. 12). It does not, like the preceding species, quite enclasp the object upon which it is seated, neither is it glued to it by a deposited glutinous mass, so that the animal can, with considerable ease, move itself upon the tube, which is certainly not the case with Stelidiactis Mopsiæ.

The body is cylindrical, 20^{mm} in height, smooth, shining, and somewhat constricted at the middle, which imparts to it somewhat the form of a sand-glass (Pl. II, figs. 6, 7; Pl. VIII, fig. 12); upon its lowest part, there are seen a few extremely minute, slightly oblong depressions (fissures, cinclides?) which appear to perforate the integument.

The oral disc is round, 20^{mm} in breadth, strongly arcuate, furnished with 48 fine folds that radiate from the mouth, and of which 24 extend themselves right up to the inner tentacular series, whilst the other 24 reach only half way on to the disc. The mouth is almost round, strongly protuberant, with thick labiæ, and in each oral angle there is a large gonidial knot (Pl. VIII, fig. 12).

The tentacles are retractile, are seated on the periphery of the oral disc, and form 2 alternating series, 24 tentacles in each. They are rather short, and those of the innermost series are both somewhat thicker and longer than the tentacles of the outer series. The oral disc with the retracted tentacles, is capable of being quite covered by the margin of the body. Both the body and the oral disc are pretty transparent. *The colour*. Rosy-red, with mother-of-pearl lustre. The tentacles, especially those of the inner series, are somewhat darker in colour and are surrounded by a bright-red annulus.

Findested.

Station 79. Et Exemplar, der ved en Feiltagelse blev saa slet konserveret, at det ved Hjemkomsten befandtes i en næsten oplost Tilstand og ubrugeligt til videre Undersogelse.

Habitat.

Station No. 79. One specimen, which by an accident was so badly preserved, that on arrival home it was found be in almost decomposed condition, and useless for any particular examination.

Artskarakter.

Fodskiven aflang, 25^{mm} lang, siddende paa et Rør af Tubularia imperialis, som den kun i ringe Grad omfatter med en lappet Rand. Kolumnen 20^{mm} hoi, cylindrisk, glat, glindsende og temmelig indsnoret paa Midten, saa at baade Fod- og Mundskive er betydelig bredere end denne. Nederst paa Kolumnen enkelte utydelige Cinclides. Mundskiven er rund, 20^{mm} bred, forsynet med 48 fine Folder, hvoraf de 24 indtage kun Skivens halve Bredde. Munden aflang med en stærk Gonidialknude i hver Mundvig. 2 Rækker korte Tentakler, 24 i hver Række, hvoraf de i indre Række ere tykkest og længst. Farven: Krop og Fod perlemorglindsende rosenrod. Tentaklerne noget morkere med hoirod Ring omkring Grunden.

Specific characteristics.

The pedal disc oblong, 25^{mm} in length, seated on a tube of Tubularia imperialis, which it only in slight degree enclasps with a lobate margin. The column 20^{mm} in height, cylindrical, smooth, shining, and considerably constricted at the middle, so that both the pedal and oral disc are considerably broader than the middle part of the column. At the lowest part of the column, a few indistinct cinclides. The oral disc is round, 20^{mm} broad, furnished with 48 fine folds, of which 24 occupy only half the breadth of the disc. The mouth oblong, with a prominent gonidial knot in each oral angle. 2 series of short tentacles, 24 in each series; the tentacles of the inner series being thickest and longest. *Colour.* Body and base rose-red, with mother-of-pearl lustre. The tentacles somewhat darker, with a bright-red annulus round the base.

Allantactis[1] **parasitica**, n. g. et sp.

Tab. II, Fig. 3; Tab. IX, Fig. 1—4.

Fodskiven er rund, omtrent 35^{mm} i Tversnit; men da Dyret altid lever paa en Fusus (Neptunia curta Jeffr. Friele) og omfatter temmelig noie dennes Skal, antager den en aflang Form; paa unge Exemplarer viser det sig bedst, at den er rund. Selve Skiven er tynd og har yderst fine Linier, der straale vifteformigt ud fra Centrum til Peripherien og antyde Insertionerne af Septa. Randen er overordentlig tyk og stærkt omboiet indad, hvorved Skiven faar Udseende af at være nedsænket.

Kolumnen, der er cylindrisk, er lige saa bred som hoi, henved 30^{mm}, og temmelig stærkt foldet paatvers. Folderne ere brede, naar Dyret er udstrakt og i fuld Vigor, men blive smalere og smalere, alt eftersom det sammentrækker sig, Tab. II, Fig. 3. Overalt paa den udvendige Flade er der mange Cinclides, der dog staa temmelig spredte imellem Folderne. Den overste Rand danner en tyk, fremstaaende, krenuleret Vold (Parapet), og imellem denne og Tentaklerne er en dyb Fure (Fossa), Tab. II, Fig. 3.

Mundskiven rund, næsten flad med fine Folder, der straale ud fra Munden henimod Tentaklerne, og som antyde Skillevæggenes Tilheftning. Munden aflang, foldet paalangs.

[1] ἀλλᾶς = en Polse.

Allantactis[1] **parasitica**, n. g. et sp.

Pl. II, fig. 3; Pl. IX, figs. 1—4.

The pedal disc is round, measures nearly 35^{mm} across, but as the animal is always seated upon a Fusus (Neptunia curta Jeffr. (Friele) and embraces its shell rather closely, it acquires, thus, an oblong form. Its round form is best observed in young specimens. The disc itself is thin, and has extremely fine lines which radiate, in flabelliform, from the centre to the periphery, and indicate the insertions of septa. The margin is exceedingly thick, and strongly bent inwards, giving to the disc the appearance of being depressed.

The column, which is cylindrical, is as broad as it is high — about 30^{mm} — and is rather strongly folded transversally. The folds are broad when the animal is extended in full vigour, but become narrower and narrower accordingly as the animal contracts itself (Pl. II, fig. 3). On the exterior surface there are, everywhere, numerous cinclides which are, however, placed rather dispersedly between the folds. The uppermost margin forms a thick protuberant crenate wall, (parapet) and between it and the tentacles there is a deep furrow (fosse) (Pl. II, fig. 3).

The oral disc is round, almost flat, with fine folds that radiate from the mouth towards the tentacles, and indicate the attachments of the divisional walls. The mouth is

[1] ἀλλᾶς = A sausage.

Læberne ere tykke, trelappede. Mundvigene ere halvmaaneformige med en næsten brusket, glat Rand. Svælggruberne ere vide.

Tentaklerne ere forholdsvis korte, fuldstændig retraktile og indtage Skivens Peripheri; de sidde i 2 Rækker, 24 i hver. De i inderste Række ere de længste og tykkeste. Mundskiven kan nedsænkes, og Kroppens Rand hvælver sig ganske over den, naar Dyret er sammentrukket.

Farven: Kroppen er gul, spillende lidt i det Brune; paa dens overste Rand ligesom paa Mundskiven er den smuk laxerød. Omkring Munden er en næsten purpurrod, aflang Ring, ligesom Folderne paa Skiven ere mørkere farvede, end denne. Tentaklerne bleg violette.

Kroppens ydre Beklædning bestaar som sædvanligt af et Epithel, dannet af lange, cilierende Cylinderceller, hvorimellem findes Nematocyster og encellede Slimkjertler, især opimod Mundskiven. Tab. IX. Fig. 2 *a*. Indenfor Ectodermet er et bredt, fast, fibrillært Bindevævslag, i hvis Midte sees et udbredt Lag af Cirkulærmuskler. Tab. IX. Fig. 2 *b*, imedens dets indre Flade er beklædt af Endothelet med sine Pidskeceller, Tab. IX. Fig. 2 *c*.

Der er 6 Par principale, fuldstændige Septa, som altsaa fæste sig paa Svælget, og hvoraf 2 Par ere de saakaldte Retningssepta (directive Septa), det ene Par svarende til Bugsiden, Tab. IX. Fig. 1 *a*, og det andet til Rygsiden, Tab. IX. Fig. 1 *b*. Disse 2 Par Septa af 1ste Orden dele Mavehulheden i 6 Hovedkamre eller 6 interseptale Rum, Tab. IX, Fig. 1. I ethvert af disse er der 3 Par Septa af 2den Orden, Tab. IX. Fig. 4, hvoraf ingen fæste sig paa Svælget; det midterste Par af disse er længst, Tab. IX, Fig. 4 *a*, de 2 til Siderne ere kortere, Tab. IX, Fig. 4 *b*. Herved dannes 4 Kamre af 2den Orden. Tab. IX. Fig. 4 *c*. I ethvert af disse 4 Kamre er der et Par Septa af 3die Orden, hvilke er omtrent halvt saa lange som Septa af 2den Orden, og som dele det interseptale Rum af 2den Orden i 2 Kamre, Tab. IX. Fig. 4 *d*.

Der er altsaa i det Hele 48 Par Skillevægge. Ethvert saadant er forsynet med særdeles stærke Længdemuskler, Tab. IX. Fig. 2 *d*, imedens Tværmusklerne ere svagere. Samtlige Septa bære Gastralfilamenter; men imedens de 6 Par fuldstændige Septa ere golde, udvikle Generationsorganerne sig paa de fleste af de øvrige Skillevægge ned imod Gastralhulhedens Bund. Dyret er hermaphroditisk.

Æggestokkene ere oprullede, baandformige Legemer, der ligge indenfor Længdemusklerne paa Septum, noie fæstede til dette. Tab. IX. Fig. 2 *e*. De indeholde temmelig udviklede Æg og ere forøvrigt væsentlig forskjellig i Bygning fra dem, der af Brødrene Hertwig [1] ere beskrevne

[1] Jenaische Zeitschrift f. Naturwissenschaft 30 B. pag. 548. Jena 1879.

oblong, and longitudinally folded. The labiæ are thick and trilobate. The oral angles are semilunar in form, with an almost cartilaginous smooth margin. The gullet-grooves are wide.

The tentacles are relatively short, completely retractile, and occupy the periphery of the disc. They are placed in 2 series, 24 tentacles in each. Those in the innermost series are the longest and thickest. The oral disc is capable of being depressed, and the margin of the body curves inwards, quite over it, when the animal is contracted.

The colour. The body is yellow, shading a little to brown; on its uppermost margin, as also on the oral disc, it is a beautiful salmon-red colour. Around the mouth there is an almost purple-red oblong annulus, whilst also the folds of the disc are darker coloured than it is. The tentacles pale violet.

The external covering of the body consists, as usual, of an epithelium formed of long ciliating cylinder-cells, amongst which nematocysts and unicellular mucous-glands are found, especially adjoining the oral disc (Pl. IX. fig. 2 *a*). Inside of the ectoderm, there is a broad, firm, fibrillar, connective-tissue layer, in whose middle a layer of circular muscles is seen to be distributed (Pl. IX, fig. 2 *b*) whilst its inner surface is clad by the endothelium with its flagelliform cells (Pl. IX. fig. 2 *c*).

There are 6 pairs of principal, perfect septa, which thus secure themselves to the œsophagus, and of these, 2 pairs are the so-called directive septa, the one pair corresponding to the ventral side (Pl. IX, fig. 1 *a*), and the other to the dorsal side (Pl. IX. fig. 1 *b*). These 2 pairs of septa of the 1st order, divide the gastric cavity into 6 principal chambers or 6 interseptal spaces (Pl. IX. fig. 1). In each of these there are 3 pairs of septa of the 2nd order (Pl. IX, fig. 4), none of which secure themselves to the œsophagus. The intermediate one of these pairs is the longest (Pl. IX. fig. 4 *a*), the 2 pairs to the sides being shorter (Pl. IX. fig. 4 *b*). In this way 4 chambers of the 2nd order are formed (Pl. IX, fig. 4 *c*). In each of these 4 chambers, there is a pair of septa of the 3rd order, which are about half the length of the septa of the 2nd order, and divide the interseptal space of the 2nd order into 2 chambers (Pl. IX, fig. 4 *d*).

There are, thus, 48 pairs of divisional walls altogether. Each of these is furnished with exceedingly powerful longitudinal muscles (Pl. IX, fig. 2 *d*), whilst the transversal muscles are weaker. All the septa carry gastral-filaments; but whilst the 6 pairs of perfect septa are sterile, the reproductive organs develope themselves on most of the remaining divisional walls, down towards the bottom of the gastral cavity. The animal is hermaphroditic.

The ovaries are coiled, ribbon-shaped bodies, placed on the inside of the longitudinal muscles of the septum, and closely adherent to it (Pl. IX. fig. 2 *e*). They contain pretty well-developed ova, and are, otherwise, materially different in structure from those described by the Brothers Hertwig [1]

[1] Jenaische Zeitschrift f. Naturwissenschaft 30 B. pag. 548. Jena 1879.

hos Sagartia parasitica, Adamsia diaphana, Tealia crassicornis og Anthea cereus, hvilke alle havde særskilt Kjøn saaledes, at de undersøgte Exemplarer af Anthea og Adamsia vare Hunner, imedens de af Tealia og Sagartia vare Hanner. Testiklerne hos disse sidste ere ifølge de nævnte Forfattere byggede efter samme System som Æggestokkene; men saaledes forholder det sig ikke ganske hos Allantactis parasitica, der som ovenfor nævnt er Hermaphrodit.

Imedens Æggestokkene ere i stor Mængde tilstede, ere Testiklerne vistnok meget sjeldnere. Kun paa et Septum af 2den Orden fandtes fuldt udviklede Testikler, der udfyldte ganske Kammeret af 2den Orden. De indtog omtrent samme Plads paa Septum som Æggestokkene, men vare ikke som disse saa intimt fæstede til dette. De vare dannede af en stor Mængde større og mindre, slangeformige Rør, der vare leirede i et Mesenterium, som var tykt og temmelig fast ved Tilhæftningsstedet paa Septum, men som forøvrigt var yderst tyndt, men bredt. Rørene, der egentlig vare Blindsække, dannede Bundter. Tab. IX, Fig. 3, og havde en hvid Farve; de bestode af en tynd, gjennemsigtig Bindevævsmembran, paa hvis ydre Flade var et Epithel, der dog var saa sønderrevet, at det ikke nærmere lod sig bestemme. Den indre Flade af Sækken var beklædt med et Endothel, der bestod af temmelig store, næsten runde Celler med en rund Kjerne omgiven af finkornet Protoplasma. Endel af disse Blindsække syntes at være tomme, imedens de fleste vare mere eller mindre udfyldte af yderst smaa, næsten runde, glindsende Organer, der ved let Tryk spredte sig udover hele Synsfeldtet. Jeg anser disse Smaalegemer for endnu ikke fuldt udviklede Spermatozoer; nogen Hale var ikke at opdage.

En Stund var jeg i Tvivl om, hvorvidt denne Samling af Blindsække var virkelige Testikler, eller om de ikke muligens kunde være Acontier, hvoraf jeg hidtil ei havde fundet Spor, trods nøiagtig Undersøgelse af 2 vel konserverede Exemplarer; men Tvivlen svandt snart ved Hjælp af Mikroskopet. Acontierne ere jo lange, næsten runde, spiralformigt oprullede Legemer, uden noget egentligt Indhold, men rigt besatte med Nematocyster og kan betragtes som traadformige Neldebatterier, altsaa ganske anderledes byggede end de ovenfor beskrevne Blindsække, der vare aldeles fri for Neldeceller. Den reiste Tvivl var jo temmelig naturlig, da de hidtil kjendte Testikler hos Actinierne have en Bygning i Overensstemmelse med Æggestokkene, imedens de hos Allantactis parasitica optræde under en meget forskjellig Form, som mere nærmer sig den, der er fælles for en hel Del Holothurideslægter. Men ogsaa herfra adskille Testiklerne hos Allant. par. sig blandt andet derved, at de slangeformede Blindsække ikke ere delte eller forgrenede. At jeg kun fandt Testikler paa et Septum, tor have sin Grund deri, at de her havde naaet en vis Udvikling, imedens de paa andre Septa endnu var i sin Vorden; thi jeg saa paa enkelte Septa af 2den Orden en liden, aflang Fortykkelse, som muligens var den begyndende Testikel. Imidlertid er der jo ogsaa en Mulighed

in Sagartia parasitica, Adamsia diaphana, Tealia crassicornis and Anthea cereus, all of which had separate sexes; the specimens of Anthea and Adamsia examined being females, whilst those of Tealia and Sagartia were males. The testicles in these last are, according to the writers named, constructed on the same system as the ovaries; but this is not quite the case in Allantactis parasitica, which, as above stated, is hermaphroditic.

Whilst the ovaries are present in great abundance, the tentacles are, assuredly, less frequent. Only on a septum of the 2nd order were fully developed testicles observed, completely filling the chamber of the 2nd order. They occupied about the same position on the septum as the ovaries, but, unlike these, were not so closely attached to it. They were formed of a great multitude of larger and smaller sinuous tubes, embedded in a mesentery that was thick and rather firm at the point of attachment to the septum, but which otherwise was extremely thin, but broad. The tubes, which really were cæca, formed fasciculi (Pl. IX, fig. 3) and had a white colour; they consisted of a thin, transparent, connective-tissue membrane, on whose exterior surface there was an epithelium which was, however, so torn asunder that it was not possible to clearly determine it; the inner surface of the cæcum was clad with an endothelium that consisted of rather large, almost round cells, containing a round nucleus surrounded by a minutely granular protoplasm. Some of these cæca appeared to be empty, whilst most of them, however, were more or less filled with extremely small, almost round, shining organs, which upon a slight pressure spread themselves out over the entire area of observation. I consider these small bodies to be not yet fully developed spermatozoa; a tail was not observable.

For some time I was in doubt whether this collection of cæca were really testicles, or whether they were not perhaps acontia, of which I had hitherto found no trace in spite of the closest investigation of two well-preserved specimens, but the dubiety soon disappeared on obtaining the aid of the microscope. The acontia are, it is known, long, almost round, spiral-formed, coiled up bodies, without any real contents, but richly beset with nematocysts, and may be considered to be filamentous stinging batteries, consequently quite differently constructed from the above described cæca, which were perfectly devoid of nematocysts. The dubiety which I had was, indeed, quite natural, because the testicles hitherto known, pertaining to the Actinaria, have a structure conforming to that of the ovaries, whilst in Allantactis parasitica they appear under a very different form, more resembling that which is common for the entire genus of the Holothuridæ. But also from that, the testicles in Allant. par. distinguish themselves; amongst other things in this, that the sinuous cæca are not divided or ramified. The fact that I found testicles on only one septum may be owing to this, that there they had attained a particular development, whilst in the other septa they were in their gemmation only; because I observed on a few septa of the 2nd order, a small oblong swelling which was

for, at kun et Septum frembringer Testikler, da disse, der bestaa af en Mangfoldighed af Blindsække, nok ere istand til at producere en tilstrækkelig Mængde Spermatozoer til Æggenes Befrugtning. Som bekjendt korrespondere jo alle Kamre med hverandre, saa at der egentlig ingen Hindring er, for at Spermatozoerne kunne vandre rundt om og fuldføre sit Befrugtningsarbeide.

Paa Kroppens indre Væg, ligesom paa Septa, ere Længdemusklerne langt mere udviklede end Tværmusklerne; kun opimod den øverste Rand tiltage disse sidste betydeligt i Tykkelse og bidrage til at danne den fremstaaende, krenulerede Kropsrand.

Parieto-basilarmuskelen er tyk, strækker sig et temmelig langt Stykke op paa Kropsvæggen, hvor den bliver meget tyndere, ligesom den næsten membranagtig udbreder sig noget paa Fodskiven. Paa dennes indre Flade, der danner Bunden af Gastralhulheden, sees de fuldstændige Septa, saavelsom de af 2den Orden, at tage deres Begyndelse fra Centrum med to adskilte Blade, imedens Septa af 3die Orden langtfra naa hen til Centrum af Fodskiven.

possibly the rudimentary testicle. There is, however, of course, the possibility that only one septum produces testicles, as these consist of a multitude of cæca, and are certainly capable of producing a sufficient abundance of spermatozoa for the fructification of the ova. As is already known, all the chambers correspond with each other, so that there is really no obstacle to prevent the spermatozoa from circulating round about and completing their work of fructification.

On the inner wall of the body, as also on the septa, the longitudinal muscles are far more developed than the transversal muscles; only up towards the uppermost margin do these last increase considerably in thickness, and contribute to the formation of the crenate, protuberant margin of the body.

The parieto-basilar muscle is thick, and extends itself rather a long way up the wall of the body, where it becomes much thinner, whilst, also, it almost membranaceously distributes itself somewhat on the pedal disc. On the inner surface of the pedal disc, which forms the bottom of the gastral cavity, the perfect septa, as well as also those of the 2nd order, are seen to issue from the centre with two separate lamellæ, whilst the septa of the 3rd order, do not at all approach to the centre of the pedal disc.

Findested.

Station 33. 4 Exemplarer, der alle sad paa levende Exemplarer af Neptunia curta. Jeffr. (Friele).

Habitat.

Station No. 33. Four specimens, all which were seated on living specimens of Neptunia curta, Jeffr. (Friele).

Slægtskarakter.

Fodskiven omfattende store Gjenstande, saasom Neptunia curta, Jeffr., med en tyk, omboiet Rand. Kolumnen cylindrisk, foldet paatvers med en fritstaaende, øverste Rand (Parapet) og spredte Cinclides. Tentaklerne faatallige, korte, retraktile, i faa Rækker. Sex fuldstændige golde Septa. Ingen Acontier. Udprægede mesodermale Cirkulærmuskler. Hermaphroditer.

Jeg har henført denne Slægt til Familien Sagartidæ, ihvorvel den mangler Acontier, som ifølge Rich. Hertwig er en af de to væsentligste Karakterer for Familien. Men da den forresten har saa meget tilfælles med Sagartiderne, og da andre Forfattere, især Dr. Angelo Andres, ikke lægge saa overordentlig Vægt i systematisk Henseende paa Acontiernes Tilstedeværelse, har jeg troet mig berettiget dertil. Skulde det senere vise sig, at Acontierne ere et uundværligt Familiemærke for Sagartiderne, faar man flytte den over i en anden Familie, eller lade den danne en ny.

Generic characteristics.

The pedal disc embracing large objects, such as Neptunia curta (Jeffr.), with a thick margin bent inwards. The column cylindrical, folded transversally, has a free erect superior margin (Parapet), and scattered cinclides. The tentacles not numerous, short, retractile, in few series. Six perfect, sterile septa. No acontia. Prominent mesodermal circular muscles. Hermaphroditic.

I have assigned this genus to the family Sagartidæ although it is deficient in acontia which, according to Rich. Hertwig, is one of the two most distinctive characteristics of the family. But as it, otherwise, has so much in common with the Sagartidæ, and as other writers, especially Dr. Angelo Andres, do not lay such great systematic stress on the presence of the acontia, I have considered myself warranted in so assigning it. If it should, subsequently, appear that the acontia are an indispensable family characteristic for the Sagartidæ, then it can be transferred to another family, or a new one can be formed for it.

Artskarakter.

Fodskiven rund, 35^{mm} i Tversnit, med tyk, indboiet Rand, omfattende levende Exemplarer af Neptunia curta, Jeffr. (Friele), og antager derved en aflang Form. Skiven tynd, med fine, fra Centrum udstraalende Linier. Kroppen cylindrisk, omtrent lige hoi som bred og stærkt foldet paatvers, overalt forsynet med spredte Cinclides imellem Folderne. Dens overste Rand danner en fritstaaende, krenuleret Vold (Parapet); imellem denne og Tentaklerne en dyb Grube (Fossa). Mundskiven rund, flad, med fine Folder straalende ud fra Munden imod Tentaklerne. Munden aflang, foldet paalangs. Læberne tykke, trelappede. Mundvigene halvmaaneformige med en haard Rand. Tentaklerne korte, retraktile, sidde i 2 Rækker, 24 i hverj; de inderste ere længst og tykkest. Mundskiven kan skjules af Kropsranden. Farven: Kroppen gul, spillende lidt i det Brune; paa dens overste Rand, ligesom paa Mundskiven, smuk rosenrod. Omkring Munden en purpurrod, aflang Ring. Folderne paa Skiven ere morkere farvede end denne. Tentaklerne bleg violette.

Specific characteristics.

The pedal disc round, 35^{mm} from side to side, with thick involved margin, embraces living specimens of Neptunia curta, Jeffr. (Friele) and acquires, thus, an oblong form. The disc thin, with fine lines radiating from the centre. The body cylindrical, about as high as it is broad, and strongly folded transversally, furnished, everywhere between the folds, with scattered cinclides. Its uppermost margin forms a free, erect, crenate wall (Parapet), and between that and the tentacles there is a deep cavity (fosse). The oral disc, round, flat, with fine folds radiating from the mouth towards the tentacles. The mouth oblong, folded longitudinally. The labiæ thick and trilobate. The oral angles semilunate, with a hard margin. The tentacles short, retractile, seated in 2 series, 24 in each; the tentacles of the innermost series are the longest and thickest. The oral disc capable of being concealed by the margin of the body. *Colour:* Body yellow, shading a little to brown; on its uppermost margin, and also on the oral disc, a beautiful rose-red. Around the mouth, a purple-red, oblong annulus. The folds on the disc are darker coloured than the disc itself. The tentacles pale violet.

Anthosactis[1] **Jan Mayeni**, n. g. et sp.

Tab. II, Fig. 1; Tab. X, Fig. 1.

Fodskiven er rund, noget videre end Kolumnen, omtrent 50^{mm} i Tversnit, med en tyk, lidt undulerende Rand. Den undre Flade er lidt udhulet, især i Centrum, hvorfra udgaa, divergerende mod Randen, en stor Mængde Folder, imellem hvilke der er ligesaa mange Furer, som svare til Skillevæggenes Insertioner.

Kroppen er cylindrisk, henved 40^{mm} bred et Stykke ovenfor Fodskiven, men bliver noget bredere op imod Mundskiven; den er omtrent halvt saa hoi som Skivens Bredde, naar denne med Tentaklerne er fuldt udslaaet; dens overste Rand er temmelig tynd, lidt undulerét og dens ydre Flade glat, glindsende, forsynet med svagt fremstaaende, brede Længdefolder, der især ere tydelige opimod Randen, og imellem hvilke sees Cinclides, Tab. II, Fig. 1. Disse Længdefolder forsvinde saagodtsom ganske, naar Dyret er helt udstrakt, og da sees kun fine Længdelinier, som omgive Insertionerne af Skillevæggene. Imellem disse Linier sees temmelig tydelig Længdemusklerne, der ere omtrent 0,5^{mm} brede. Kroppens Hud er tynd, fast, næsten membranos og halv gjennemsigtig i udspændt Tilstand.

[1] ανθος = en Blomst.

Anthosactis[1] **Jan Mayeni**, n. g. et sp.

Pl. II, fig. 1; Pl. X, fig. 1.

The pedal disc is round, somewhat wider than the column, measures about 50^{mm} across, has a thick, somewhat undulating margin. The under surface is a little concave, especially in the centre, from which proceed a great number of folds, diverging towards the margin and having between them the same number of furrows, corresponding to the insertions of the divisional walls.

The body is cylindrical; it is, a little way above the pedal disc, about 40^{mm} in breadth, but increases somewhat in breadth up towards the oral disc; it is about half as high as the breadth of the disc, when that and the tentacles are fully extended. Its uppermost margin is rather thin and somewhat undulated, and the external surface is smooth, shining, and furnished with faintly projecting, broad longitudinal folds which are especially distinct up towards the margin; between the folds cinclides are observed (Pl. II, fig. 1). These longitudinal folds almost quite disappear when the animal is entirely extended, and then only fine longitudinal lines are seen, which indicate the insertions of the divisional walls. Between these lines rather distinct longitudinal muscles are observed, measuring about 0.5^{mm} in breadth. The integument of the body is thin, firm, almost membranous, and semi-transparent when in expanded condition.

[1] ανθος = A flower.

Mundskiven er lidt hvælvet, henved 40^{mm} bred og fint foldet. Folderne ere under lidt Kontraktion noget ophoiede, smalere ved Munden, hvorfra de udgaa, og bredere udad mod den 1ste Tentakelrække. Tab. II. Fig. 1. Munden er aflang, foldet og forsynet med 2 dybe Gonidiefurer, som ere temmelig brede udad, saa de have en næsten triangulær Form, og i disse triangulære Mundvige sees 2 aflange, næsten koniske Knuder (Gonidietuberkler). Tab. II, Fig 1.

Tentaklerne sidde i 3 Rækker indenfor Kroppens Rand. De ere retraktile, temmelig korte, tykke ved Grunden, men udlobe konisk mod den tilspidsede Ende, som er perforeret. I den 1ste, inderste, Række, er der 16; i den 2den er der ligeledes 16, men i den 3die, yderste, Række er der 32, idet nemlig 2 staa imellem hver 2 af 2den Række, Tab. II. Fig. 1. Alle Tentakler ere omtrent lige store. Saavel Tentaklerne som Mundskiven kan fuldkommen dækkes af Kropsranden, og naar Dyret paa denne Maade sammentrækker sig, danner det en Halvkugle.

Kroppens Farve er bleg, rodlig-hvid, men faar paa Grund af det rode Svælg, der skinner igjennem, et rodligt Skjær, imedens dog den overste Rand er hvid. Tentaklerne ere rosenrode, spillende lidt i det Gule. Mundskiven er morkere, gulrod, med lysere, gulhvide Straaler, som gaa fra Munden henimod Midten af Skiven. Gonidiefuren er gulhvid, begrændset af en morkerod Stribe til hver Side; Gonidietuberklerne ere gulhvide. Paa hver Side af Gonidiefuren har Munden 16 stærke Folder, hvoraf 8 ere gulhvide og danne en Straalekrands om Munden; de andre 8 have en morkerod Farve. Disse Folder paa Mundranden (Læberne) forlænge sig nedover i det morkerode, stærkt foldede Svælg. Fodskivens undre Flade havde en morkerod, lidt i det Brune spillende Farve og var fæstet til Lavabrokker, hvorfra den dog med Lethed losnedes. Naar Dyret blev sat paa Spiritus, farvedes denne intenst brunviolet, ligesom selve Dyret antog en stærk violet Farve.

Indenfor den ectodermale Bekkædning, der som sædvanligt bestaar af lange, cilierende Cylinderceller, hvorimellem sees en Mængde encellede, flaskeformede Slimceller samt Nematocyster, findes et bredt, fibrillært Bindevæv med sine Bindevævslegemer, Tab. X. Fig. 1 *a*. I Midten af dette iagttages, som et Belte, cirkulære Muskler, der danne større eller mindre Bundter, hvori Muskelfibrillerne ere samlede, og som ligge saaledes indleirede i Bindevævet, at dette omgiver Bundterne som en Skede. Disse Muskelbundter ligge tildels noget fra hverandre og kunne have indtil et halvt Hundrede Fibriller; tildels bestaa de kun af nogle faa Fibriller og kunne ligge tættere sammen, Tab. X. Fig. 1 *b*; men overalt indtage de Midten af Bindevævslaget, saa at dette til begge Sider danner brede Længde-

The oral disc is slightly arcuate, measures about 40^{mm} in breadth and is finely folded. Under slight contraction the folds are somewhat elevated, and are narrowest at the mouth, from whence they issue, and broadest outwardly, towards the 1st tentacular series (Pl. II, fig. 1). The mouth is oblong, folded, and furnished with 2 deep gonidial grooves which are rather broad outwardly, so that they acquire an almost triangular form, and in these triangular gonidial grooves 2 oblong, almost conical knobs (gonidial tubercles) are observed (Pl. II, fig. 1).

The tentacles are seated in 3 series inside of the margin of the body; they are retractile, rather short, thick at the base, but project conically towards the acuminate extremity, which is perforated. In the innermost, 1st series, there an 16 tentacles; in the 2nd series there are also 16 tentacles; but in the 3rd, outermost series, there are 32 tentacles, as in it 2 tentacles are placed between every two of the 2nd series (Pl. II, fig. 1). All the tentacles are about the same size. The tentacles as well as the oral disc, are capable of being completely covered by the margin of the body, and when the animal, in that manner, contracts itself, it forms a hemisphere.

The colour of the body is pale reddish white, but owing to the red œsophagus which shines through, it acquires a reddish tinge, whilst the uppermost margin is white. The tentacles have a beautiful rose-red colour, shading a little to yellow. The oral disc is a darker yellowish-red, with lighter coloured yellowish-white rays issuing from the mouth towards the middle of the disc. The gonidial groove is yellowish-white, bordered by a dark-red stripe on each side. The gonidial tubercles are yellowish-white. On each side of the gonidial groove the mouth has 16 strong folds, of which 8 are yellowish white and form a radial wreath round the mouth; the remaining 8 folds have a dark-red colour. These folds on the oral margin (labiæ) prolong themselves downwards, into the dark-red strongly folded œsophagus. The inferior surface of the pedal disc has a dark-red, shading to brown, colour, and was adherent to fragments of lava from which it was, however, easily detached. When the animal was placed in alcohol, the fluid become coloured a bright brown-violet, while, also, the animal itself acquired a strong violet colour.

Inside of the ectodermal covering which, as usual, consists of long ciliating cylinder-cells between which a multitude of unicellular, bottle-shaped mucous glands and nematocysts are seen, there is found a broad fibrillar connective-tissue with its connective-tissue corpuscles (Pl. X, fig. 1 *a*). In the middle of this, circular muscles appearing like a belt are observed, which form larger or smaller fasciculi in which the muscle fibrils are collected, and lie embedded in the connective-tissue in such a manner, that it encloses the fasciculi like a sheath. These muscular fasciculi are separated, somewhat, from each other, and may contain as many as half a hundred fibrils. They consist sometimes of only a few fibrils, and may then lie more compactly together (Pl. X, fig. 1 *b*) but they,

felter, hvori sees en Mængde Bindevævskjerner og Ernæringskanaler, Tab. X, Fig. 1 *c*.

Der er 6 Par principale Septa, der tillige ere fuldstændige, forsaavidt de fæste sig paa Svælget, og disse Septa ere meget tykke, brede og faste, men golde; de ere forsynede med baade Længde- og Tværmuskler, af hvilke de første danne udprægede, foldede Lameller, Tab. X, Fig. 1 *d*, *e*. Der er altsaa 6 principale Kamre; i ethvert af disse er der et Par secundære Septa, der ikke fæste sig paa Svælget, men naa næsten lige hen til dette, ere langtfra saa tykke og brede, som de principale, og bære foruden Mesenterialfilamenter, Kjønsorganerne, der ere fuldt udviklede og indeholde Æg i næsten alle Udviklingsstadier. Kjønnet synes at være adskilt; thi kun Æg fandtes overalt; det kan dog hænde, at en eller anden Testikel kan have skjult sig, trods den omhyggeligste Undersøgelse.

Ingen Acontier; begge de fundne Exemplarer ere med Hensyn hertil paa det samvittighedsfuldeste undersøgte; men intet Spor deraf var at opdage. Det er ikke forbunden med synderlige Vanskeligheder at finde Acontierne, hvor de ere tilstede, saa man kan være forvisset om, at Acontier mangler her.

De tertiære Septa ere meget korte, men temmelig tykke og udgjøre 12 Par; der er altsaa i det Hele 24 Par Septa. Parieto-basilarmuskelen er ikke meget tyk og strækker sig membranagtigt et Stykke opover paa Kropsvæggen og nedover paa den indvendige Flade af Fodskiven. Her sees Insertionerne af Septa særdeles godt, og det viser sig, at de primære og secundære Septa naa lige hen til Skivens Centrum, imedens de tertiære Septa ikke naa halvt saa langt.

Findested.

Station 226. 2 Exemplarer.

Slægtskarakter.

Fodskiven rund med tyk Rand. Kolumnen cylindrisk, tyndvægget, glat med Længdefolder og Cinclides. Mundskiven rund. Tentaklerne retraktile, alle af omtrent samme Størrelse, korte, faatallige, i faa Rækker. Mesodermale Cirkulærmuskler. 6 Par fuldstændige, golde Septa. Ingen Acontier.

Artskarakter.

Fodskiven rund med tyk, undulered Rand og stærkt foldet Underflade. Kroppen cylindrisk, lidt smalere nedad end Fodskiven, udvidende sig noget opad mod den øverste, temmelig tynde, lidt undulerende Rand, med en glat ydre

everywhere, occupy the middle of the connective-tissue layer, so that it forms, on both the sides, broad longitudinal folds in which a multitude of connective-tissue nuclei and nutritory ducts are visible (Pl. X, fig. 1 *c*).

There are 6 pairs of principal septa, which are perfect as well in so far that they adhere to the œsophagus; these septa are very thick, broad and firm, but sterile; they are furnished with both longitudinal and transversal muscles, of which the first-named form prominent folded lamellæ (Pl. X, fig. 1 *d*, *e*). There are, thus, 6 principal chambers, and in each of them there is a pair of secondary septa which do not adhere to the œsophagus but extend almost up to it; they are not nearly so thick or so broad as the principal septa, and they carry, besides mesenterial filaments, the reproductive organs, which are fully developed and contain ova in nearly all stages of development. The sexes appear to be separated, as, everywhere, ova only were observed; it may however be, that one or other testicle has lain concealed in spite of the closest investigation.

No acontia; both the specimens found have been submitted to the most scarching examination in this respect, but no trace of acontia could be detected. There is no very great difficulty in detecting acontia when they are present, so that we may be quite certain that acontia are awanting here.

The tertiary septa are very short but rather thick, and consist of 12 pairs; there are thus 24 pairs of septa altogether. The parieto-basilar muscle is not very thick, and extends itself, membranaceously, a little way up, over the wall of the body and down on the internal surface of the pedal disc. Here the insertions of the septa are particularly well seen, and it is apparent that the primary and secondary septa reach right to the centre of the disc, while the tertiary septa do not reach half so far.

Habitat.

Station No. 226. Two specimens.

Generic characteristics.

Pedal disc round with thick margin, the column cylindrical, wall membranous, smooth, with longitudinal folds and cinclides. The oral disc round. The tentacles retractile, about uniform in size, short, few in number, in few series. Mesodermal circular muscles. 6 pairs of completely sterile septa. No acontia.

Specific characteristics.

The pedal disc round, with thick undulating margin and strongly folded under-surface. The body cylindrical, somewhat narrower, below, than the pedal disc, but expanding somewhat in width, upwards, towards the uppermost, rather

Flade, der er svagt foldet paalangs; imellem Længdefolderne Cinclides. Kroppens Væg tynd, halvt gjennemsigtig i udspændt Tilstand. Mundskiven omtrent 40^{mm} bred, lidt hvælvet og fint foldet. Munden aflang, foldet, forsynet med to dybe, næsten triangulære Gonidiefurer, samt en konisk Gonidieknude i hver Mundvig. Tentaklerne omtrent lige lange, korte, tilspidsede mod Enden, der er perforeret, siddende i 3 Rækker: 16 i første og anden Række, 32 i tredie Række. Tentakler og Mundskive kunne dækkes fuldkommen af Kroppens Rand under Dyrets Sammentrækning. Farven: Kroppen bleg, rødlig-hvid. Tentaklerne rosenrøde, spillende i det Gule. Mundskiven mørkere gulrød med lysere, gulhvide Straaler. Gonidiefuren gulhvid, ligesaa Gonidieknuderne. Paa hver Side af Gonidiefuren (Mundvigen) har Munden 16 stærke Folder, hvoraf de 8 ere gulhvide, de andre 8 have en mørkerød Farve. Fodskivens undre Flade er mørkerød, spillende lidt i det Gule.

Ogsaa denne Slægt har jeg henført til Sagartiderne, uagtet den ingen Acontier har: men da den forresten har Sagartidebygningen, har jeg ikke fundet det nødvendigt, at danne en ny Familie for den.

thin, slightly undulating margin, has a smooth external surface, which is faintly folded longitudinally; between the longitudinal folds cinclides visible. The wall of the body thin; in expanded condition semi-transparent. The oral disc about 40^{mm} in breadth, a little arcuate and finely folded. The mouth oblong, folded, furnished with 2 deep, almost triangular gonidial grooves, and also with a conical gonidial knob in each oral angle. The tentacles about equal in length, short, acuminated towards the extremity, which is perforated; seated in 3 series, 16 in the first and second series, and 32 in the third series. The tentacles and oral disc can be completely covered by the margin of the body when the animal contracts itself. *The colour:* the body pale reddish-white; the tentacles rose-red, shading to yellow; the oral disc a darker yellowish-red, with lighter yellowish-white rays; the gonidial groove, and also the gonidial knobs yellowish-white. On each side of the gonidial groove (oral angle) the mouth has 16 strong folds, of which 8 are yellowish-white; the other 8 have a dark-red colour. The under-surface of the pedal disc is dark-red, shading a little to yellow.

This genus I have also assigned to the Sagartidæ although it has no acontia, but as it has, otherwise, the same structure as the Sagartidæ. I have not found it necessary to form a new family for it.

Sagartia repens, n. sp.

Tab. I, Fig. 6. Tab. X, Fig. 2, 3.

Fodskiven, som ikke er synderlig bredere end Kroppen, er rund med en tyk, lidt unduleret Rand, der med stor Lethed trænges opad og udad; dens Underflade er lidt fordybet mod Centrum, hvorfra udgaa vifteformigt Folder mod Randen, men forresten er den glat.

Kolumnen er cylindrisk, 50^{mm} høi og 40^{mm} bred ved Foden, men smalner noget af op imod den øverste Rand, som er tentakulær. Dens ydre Flade er glat, halvt gjennemsigtig, saa Insertionerne for Skillevæggene kunne tydelig sees som fine Linier, imellem hvilke findes i næsten regelmæssige Længderækker smaa, runde, isolerede Vorter med en Fordybning i Midten (Suckers), hvortil Ler og andre fremmede Legemer, saasom Skiælstumper, ere fæstede. Foruden disse Sugevorter iagttages ogsaa hist og her Cinclides, som især fremtræde tydeligt, naar Dyret er udspændt: derimod er det yderst vanskeligt at opdage dem under dets Sammentrækning, imedens Sugevorterne da blive tydeligere, Tab. I, Fig. 6.

Sagartia repens, n. sp.

Pl. I, fig. 6. Pl. X, figs. 2, 3.

The pedal disc, which is not much broader than the body, is round, and has a thick, slightly undulating margin, that can with perfect ease be careened upwards and outwards; its under-surface is a little depressed towards the centre, from which folds issue in flabelliform towards the margin, but it is smooth otherwise.

The column is cylindrical, measures 50^{mm} in height, and 40^{mm} in breadth at the base, becoming somewhat narrower up towards the uppermost margin, which is tentacular. Its exterior surface is smooth and semitransparent, so that the insertions of the divisional walls may be distinctly seen, appearing as fine lines between which, arranged in almost regular longitudinal series, small round, isolated mammillæ with a small depression (suckers) in the middle are found, to which clay and other foreign bodies, such as fragments of shells, are adherent. Besides these suckers, cinclides are also seen here and there; these become especially prominent when the animal is expanded, while, on the other hand, it is extremely difficult to detect them when the animal is contracted, as the suckers then become more prominent (Pl. I, fig. 6).

Mundskiven, der er noget hvælvet henimod Munden, er lidt videre end Kolumnen og forsynet med Folder, som straale ud fra den aflange Mund. Dennes Læber ere tykke, foldede og gaa til hver Side over i en temmelig smal Gonidiefure. Stundom skydes Munden op, saa den danner en Konus, og da sees de foldede Læber mere fremspringende.

Tentaklerne ere retraktile, temmelig lange og sidde i 4 Rækker. I den 1ste, inderste, Række, er der 12, som baade ere de længste og tykkeste; i den 2den Række er der ligeledes 12, som afvexle med de i den 1ste Række; den 3die Række har 24, der ere mindre og betydelig tyndere end de 2 foregaaende Rækkers og sidde saaledes, at to tage Plads imellem to af 2den Række; den 4de Række sidder lige i Randen og har ogsaa 24, der ere af samme Storrelse som de i 3die Række.

Farven: Fodskiven er hvid, dens Underflade er svag gulhvid. Kolumnen melkehvid, skinnende yderst svagt i det Violette, og Sugevorterne ere bleg violette. Mundskiven er næsten chamoisfarvet med lidt lysere Straaler. Tentaklerne lidt morkere end Mundskiven, især ved deres Grund.

Dyret synes ikke at fæste sig, som Actinierne i Almindelighed, til noget andet Legeme, men spadserer paa sin Fod med megen Lethed omkring. Saaledes var det yderst vanskeligt at holde det paa Bunden af Observationskarret, da det stadig gik op over Væggene og det endog temmelig hurtigt. Naar Dyret trækker sig sammen, skjules Mundskiven og Tentaklerne ganske.

Ectodermet er temmelig tyndt og dannet af de hos Actinierne sædvanlige lange, cilierende Cylinderceller, imellem hvilke findes i stor Mængde encellede, kolbeformede Slimkjertler og Nematocyster. Tab. X, Fig. 2, 3 *a*. Indenfor Ectodermet er et bredt, fibrillært Bindevævslag, i hvis Midte sees et bredt Belte af cirkulære Muskelfibre, der ligge dels i tynde Bundter, dels enkeltvis, Tab. X, Fig. 2, 3 *b*; til hver Side af dette Muskelbelte er et bredt, fibrillært Bindevævslag, hvori sees Bindevævslegemer og fine Ernæringskanaler, Tab. X, 2, 3 *c*.

Der er 6 Par principale, fuldstændige Septa (1ste Orden), der ere golde, og som dele Gastralhulheden i 6 Hovedkamre. I ethvert af disse er der 4 Par Septa af 2den Orden, som naa hen til Osophagus uden at fæste sig paa samme; og som bære foruden Mesenterialfilamenter tildels Kjonsorganer. Baade Septa af 1ste og 2den Orden strække sig hen til Fodskivens Centrum. Af Septa, tilhorende 3die Orden, er der 24 Par, som baade ere kortere og tyndere og kun halvt saalange som de af 2den Orden, samt naa omtrent halvt ind paa Fodskiven; de bære alle Kjonsorganer og Acontier. Septa af 4de Orden ere meget korte, men temmelig tykke og bære ligeledes Kjonsorganer.

The oral disc, which is somewhat arcuate towards the mouth, is a little wider than the column, and is furnished with folds which radiate outwards from the oblong mouth. The oral labiæ are thick, folded, and on each side pass over into a rather narrow gonidial groove. Sometimes the mouth is projected upwards, so as to form a cone, in which case the folded labiæ are seen more prominently.

The tentacles are retractile, rather long, and are seated in 4 series. In the innermost, 1st series, there are 12 tentacles, which are both the longest and the thickest; in the second series there are also 12 tentacles, which alternate wich those of the 1st series; the 3rd series has 24 tentacles, which are smaller and much thinner than those of the 2 preceding series, and they are placed in such manner that 2 of them are seated between 2 of the 2nd series; the 4th series of tentacles is seated quite in the margin, and also contains 24, which are of the same size as those in the 3rd series.

The colour: the pedal disc is white; its under-surface is faint yellowish-white. The column is milky-white, with an extremely faint violet-tinge, and the suckers are pale violet. The oral disc is almost light buff colour, with slightly lighter-coloured rays. The tentacles are a little darker than the oral disc, especially at their base.

The animal does not appear to attach itself — as is usual with the Actinaria — to any other object, but perambulates upon its base with much ease. It was consequently extremely difficult to retain it at the bottom of the glass vessel, as it constantly passed up the sides, even with considerable speed. When the animal contracts itself, the oral disc and the tentacles are completely concealed.

The ectoderm is rather thin, and is formed of the long ciliating cylinder-cells usual in the Actinaria, between which a great multitude of unicellular claviform mucous glands and nematocysts are observed (Pl. X, figs. 2, 3 *a*). Inside of the ectoderm there is a broad fibrillar layer of connective-tissue, in whose middle a broad belt of circular muscle-fibres is seen, which are situated, partly in thin fasciculi, partly singly (Pl. X, figs. 2, 3 *b*); upon each side of this muscle-belt there is a broad fibrillar layer of connective-tissue, in which connective-tissue corpuscles and slender nutritory ducts are observed (Pl. X, figs. 2, 3 *c*).

There are 6 pairs of principal, perfect septa (1st order) which are sterile, and divide the gastral cavity into 6 principal chambers. In each of these chambers there are 4 pairs of septa of the 2nd order, which extend to the œsophagus without, however, attaching themselves to it, and that partly carry, besides mesenterial filaments, also reproductive organs. Both the septa of 1st and 2nd order extend to the centre of the pedal disc. There are 24 pairs of septa pertaining to the 3rd order, which are both shorter and thinner and only half the length of those of the 2nd order, and they also extend, only half way on to the pedal disc; they all carry reproductive organs and acontia.

Den Mangfoldighed af interseptale Kamre, der opstaa ved de mange Septapar, ere alle opfyldte af Kjønsorganerne, som ere meget udviklede og indeholde Masser af Æg.

Foruden Septalaabningerne (orale Stomata) ved Mundranden er der ogsaa en Aabning paa Septa af 1ste og 2den Orden lige ved deres Befæstning paa den nederste Trediedel af Kropsvæggen (pedale Stomata). Disse Aabninger give Anledning til en rigere Kommunikation imellem Kamrene indbyrdes, hvorved Ernæringsvædsken med Lethed kan overskylle de i Kamrene hvilende Organer.

Parieto-basilarmuskelen er meget tyk og udbreder sig saavel opad som nedad i stor Udstrækning, og Muskulaturen i selve Fodskiven er særdeles stærkt udviklet.

Findested.

Station 275. Et Exemplar.

Artskarakter.

Fodskiven rund med en tyk, undulerende Rand og en stærkt foldet Underflade. Kolumnen cylindrisk, 50^{mm} hoi, 40^{mm} bred ved Foden, men smalner af mod den overste Rand, som er tentakulær. Den ydre Flade glat, halvt gjennemsigtig, naar Kroppen er udspændt, og forsynet med fine Længdelinier, imellem hvilke sees smaa, runde, isolerede Sugevorter (suckers), der især fremtræde paa den overste Del, hvor de næsten ere stillede i Længderækker. Hist og her Cinclides. Mundskiven fint foldet, hvælvet henimod den foldede Mund, der hyppig danner en Konus og har to Gonidiefurer. Tentaklerne retraktile, lange, siddende i 4 Rækker: i 1ste 12, som ere de længste og tykkeste; i 2den ogsaa 12, noget mindre; i 3die og 4de Række 24 i hver og betydelig mindre end de i 2den. Farven: Fodskiven hvid, dens Underflade svag gulrod. Kroppen melkehvid, skinnende yderst svagt i det Violette. Sugevorterne bleg violette. Mundskiven chamoisfarvet med lidt lysere Straaler. Tentaklerne lidt morkere end Skiven, især ved deres Grund.

Dyret spadserer frit om med stor Lethed uden Tilboielighed til at fæste sig.

The septa of the 4th order are very short, but rather thick, and also carry reproductive organs. The multiplicity of interseptal chambers which arise in consequence of the numerous pairs of septa, are all filled with reproductive organs which are well developed and contain masses of ova.

Besides the septal apertures (oral stomata) at the oral margin, there is also an opening on the septa of the 1st and 2nd order, exactly at their attachment on the lowest third-part of the wall of the body (pedal stomata). These apertures permit of greater freedom of communication between the chambers, with each other, so that the nutritory fluids can flow freely over the organs lying in the chambers.

The parieto-basilar muscle is very thick, and distributes itself both upwards and downwards to a great extent, and the musculosity of the pedal disc itself is particularly strongly developed.

Habitat.

Station No. 275. One specimen.

Specific characteristics.

The pedal disc round, with a thick undulating margin, and a strongly folded under-surface. The column cylindrical, 50^{mm} in height, 40^{mm} in breadth at the base, but becomes narrower towards the uppermost margin, which is tentacular. The exterior surface smooth, semi-transparent when the body is expanded, furnished with slender longitudinal lines between which, small, round, isolated suckers are observed, appearing especially on the uppermost part, where they are placed in almost longitudinal series. Cinclides are here and there observable. The oral disc finely folded and arched towards the folded mouth, which frequently forms a cone and has two gonidial grooves. The tentacles retractile, long, seated in 4 series; 12 tentacles in the 1st series, which are the longest and thickest ones; 12 tentacles in the 2nd series, somewhat smaller in size; in the 3rd and 4th series, 24 tentacles in each, but considerably smaller than those of the 2nd series. *Colour.* Pedal disc white, its under-surface faint yellowish-red. The body milky-white, shining with an extremely faint violet tinge. The suckers pale violet. The oral disc light buff colour, with somewhat lighter-coloured rays. The tentacles a little darker than the disc, especially at their base.

The animal perambulates freely, with great ease, without any tendency to attach itself to foreign bodies.

Sagartia abyssicola (Phellia) Kor. et Dan.

Tab. III, Fig. 1, 2. Tab. X, Fig. 4—7.

Syn. Phellia abyssicola. Kor. et Dan. — Fauna littoralis Norvegiæ. Heft. 3. 1877. Pag. 78. Pl. IX, Fig. 3. 4.

Sagartia abyssicola, Verrill. Americ. Journ. Sienc. Vol. XXIII. 1882, Pag. 314.

Sagartia abyssicola. Verrill. Bulletin of the Mus. of compar. Zoology. Vol. XI. 1883—85, Pag. 45. Pl. VI, Fig. 1. 1 *b*. 1 *c*.

Fodskiven snart rund, snart aflang, antagende altid Formen efter den Gjenstand, den har fæstet sig til eller omfattet; hyppigst træffes den paa Conchylier af dels døde, dels levende Fususarter, og den omfatter da saa intimt Skallen, at der er tydeligt Aftryk af denne paa Fodskivens Underflade, Tab. III, Fig. 2. Imellem denne og Skallen eller den Gjenstand, hvortil den ellers er fæstet, findes hyppigt afsat en brun, chitinagtig Membran, som bidrager til at fæste Dyret end stærkere til Gjenstanden. Fodskivens Rand er snart meget tynd og bugtet paa mange Slags Maader, snart tyk og næsten lige, uden Indbugtninger, og dens Flade er ofte papirtynd, saa at Septalinsertionerne skinne igjennem.

Kolumnen er indtil 60^{mm} høi, omkring 50^{mm} bred, rund, tildels soileformig og noget indkneben paa Midten hos mange Exemplarer, imedens andre ere ganske jævnt cylinderformede, og dens nederste 4 Femtedele har en brun, blød, slimet Skede, der væsentlig bestaar af grønbrunt Lerslam, og hvori Dyret trækker sig ind, Tab. III, Fig. 2. Skedens Rand er lidt ujævn og tynd. Den nogne Del af Kroppen er næsten glat, yderst smal og forsynet med en Mængde Cinclides. Paa yngre Dyr er den omtalte Skede bestandig tilstede, Tab. III, Fig. 1, og de nærme sig saaledes stærkt Slægten Phellia; men paa fuldvoxne Dyr mangler enten ganske denne slimede, med Ler inkrusterede, Overhud, Tab. X, Fig. 4, eller findes kun delvis, Tab. III, Fig. 2; ligesom Dyret ved at leve i Observationskarret i nogle Dage skilte sig saagodtsom aldeles ved denne Overhud. Kroppen viser sig da svagt foldet paalangs, halvt gjennemsigtig, saa Insertionerne af Septa sees, og paa Foldernes hele Længde findes en stor Mængde tætstaaende, aflange Cinclides, hvorigjennem paa mange Steder udkastedes lange, spiralformede Acontier, Tab. III, Fig. 2; Tab. X, Fig. 4.

Paa unge Dyr er Overhuden stærkere, og naar de kontrahere sig, faar Kroppens Overflade et stærkt knudet Udseende; det er da yderst vanskeligt at iagttage Cinclides, som forøvrigt ikke synes at være tilstede i saa overordentlig stor Mængde som hos de voxne Dyr, hvor den letteste Irritation, især paa Mundskiven, foranlediger, at Acontier i hundredevis udslynges med Lynets Hurtighed; Inddragningen foregaar ikke med samme Hurtighed, og det synes, som om mange Acontier, efterat være ud-

Sagartia abyssicola (Phellia) Kor. et Dan.

Pl. III, figs. 1, 2. Pl. X, fig. 4—7.

Syn. Phellia abyssicola. Kor. et Dan. — Fauna littoralis Norwegiæ. Heft. 3. 1877. Pag. 78. Pl. IX. Fig. 3. 4.

Sagartia abyssicola. Verill. Americ. Journ. Scien. Vol. XXIII. 1882. Pag. 314.

Sagartia abyssicola. Verill. Bullitin of the Mus. of compar. Zoology. Vol. XI. 1883—1885, Pag. 45. Pl. VI. Fig. 1. 1 *b*. 1 *c*.

The pedal disc is sometimes round, sometimes oblong, always assuming the same form as the object to which it has attached itself or embraced. It is met with most frequently on the shells of inanimate, or animate members of the fusus species, and it then embraces the shell so intimately, that a distinct impression of it appears on the under-surface of the pedal disc (Pl. III, fig. 2). Between that and the shell, or the object otherwise to which it is attached, there is generally found deposited a brown, chitinous membrane, which contributes to attach the animal still firmer to the object. The margin of the pedal disc is sometimes very thin, and is undulated in many ways; sometimes it is thick and almost even, without undulations, and its surface is often as thin as a paper sheet, so that the septal insertions shine through.

The column measures up to 60^{mm} in height, and about 50^{mm} in breadth; it is round, sometimes columnar, and in many specimens is somewhat constricted at the middle, while others are quite uniformly cylindrical, and the lowest four-fifths-part has a soft, brown, slimy sheath, consisting principally of greenish-brown clay-slime, into which the animal retracts itself (Pl. III, fig. 2). The margin of the sheath is slightly uneven, and thin. The exposed portion of the body is almost smooth, extremely narrow, and is furnished with a multitude of cinclides. In young animals the sheath mentioned is invariably present (Pl. III, fig. 1), and they consequently approach much to the genus Phellia, but in full-grown animals this slimy, with clay encrusted, external covering, is either entirely absent, or is only partially present (Pl. III, fig. 2), whilst, also, the animal after living a few days in the glass vessel, almost completely divests itself of this external covering. The body then appears faintly folded, longitudinally, and semi-transparent, so that the insertions of septa can be seen, and on the entire length of the folds a great multitude of compactly-placed oblong cinclides are found, through which, in many places, long spiral-formed acontia are projected (Pl. III, fig. 2. Pl. X, fig. 4).

In young animals the external covering is stronger, and when they contract themselves the external surface of the body acquires a strongly nodulous appearance. It then becomes extremely difficult to observe cinclides, which, besides, do not appear to be present in such extraordinary abundance as in the adult animals, where the slightest irritation, especially on the oral disc, causes hundreds of acontia to be projected with lightning-speed. Their retraction does not take place so rapidly, and it seems

slyngede, tabe deres Kontraktionsevne, idet de i udstrakt Tilstand blive hængende langs Kroppens Overflade, Tab. X, Fig. 4. Kroppens overste Rand er tentakulær.

Mundskiven er lidt hvælvet og rigt foldet; Folderne udstraale vifteformigt fra Munden, ere overalt rigt forsynede med Cinclides, hvorigjennem Acontier udslynges. Disse ere i stor Mængde tilstede paa den Del af Skiven, der nærmest omgiver Mundaabningen. Denne er aflang og har en bred Gonidiegrube med to smaa Gonidieknuder paa hver Side. Mundlæberne ere sexlappede, hvorved Mundaabningen faar Udseende af at være omgiven af en Krands, Tab. III, Fig. 1, 2.

Tentaklerne ere meget lange og staa i 3 Rækker; i den indre er der 12, som ere de længste og meget længere end Mundskivens Bredde; i den mellemste Række er 24, der ere meget kortere, end de indre, og i den ydre Række, som indtager Kroppens overste Rand, er der ligeledes 24, af omtrent samme Længde og Tykkelse som de i 2den Række. Tentaklerne ere retraktile, og saavel disse som Mundskiven kunne ganske skjules af Kroppens overste Rand, naar Dyret kontraherer sig, Tab. X, Fig. 4.

Farven. Skeden er brun; Kroppens Hud er rosenrod med blaalige Længdestriber, men dens overste Rand er næsten kastaniebrun. Mundskiven er smuk rodbrun; Læberne bleg rosenrode, Gonidiefurerne blegere. De indre Tentakler ere mork kastaniebrune; de mellemste ere lysere, og de ydre ere laxerode; forovrigt varierer Farven ganske betydeligt hos Individer fra forskjellige Lokaliteter, fra hvide til rode, ja næsten brune over det Hele.

Ved den mikroskopiske Undersogelse viser paa Tversnit den omtalte Overhud sig at bestaa kun af Ler, fin Sand og Slim; ingen histologisk Bygning findes i den. Er den fjernet, sees det sædvanlige Ectoderm, bestaaende af lange, cilierende Cylinderceller, encellede Slimkjertler og Nematocyster, Tab. X, Fig. 5 *a*, 6 *a*. Indenfor Ectodermet er et temmelig smalt, fibrillært Bindevæv, hvori sees foruden Bindevævslegemer og fine Ernæringskanaler, cirkulære Muskler, som indtage omtrent Midtpartiet af Bindevævslaget, dog nærmere Ectodermet, Tab. X, Fig. 5 *b*, 6 *b*, ja paa enkelte Tversnit ser det ud, som om disse Muskler lægge sig lige hen til Ectodermet. De ligge neppe i Bundter; det synes snarere, som hver Fibrille er isoleret. Paa Længdesnit sees imidlertid, at Fibrillerne ligge tæt til og paa hverandre og synes at anastomosere med hinanden, Tab. X, Fig. 5 *b*.

Der er 6 Par principale, fuldstændige Septa, hvoraf 2 Par ere Retningssepta. Disse ere temmelig iøinefaldende derved, at de ere meget vide, det vil sige, at det intrasep-

as if many acontia after being projected, lose their power of contracting, as they remain pendulous, in the extended condition, along the external surface of the body (Pl. X, fig. 4). The uppermost margin of the body is tentacular.

The oral disc is a little arcuate and richly folded. The folds radiate in flabelliform, from the mouth, and are everywhere richly furnished with cinclides through which acontia are projected. These are present in great abundance on the portion of the disc which in closest proximity surrounds the oral aperture. This is oblong, and has a broad gonidial groove with two small gonidial knobs on each side. The oral labiæ are six-lobate, which gives to the oral aperture the appearance of being surrounded by a wreath (Pl. III, fig. 1, 2).

The tentacles are very long, and are placed in 3 series; in the innermost series there are 12 tentacles and these are the longest, being much longer than the breadth of the oral disc; in the intermediate series there are 24 tentacles, which are much shorter than those of the inner series; and in the outer series, which occupies the uppermost margin of the body, there are likewise 24, of about the same length and thickness as those of the 2nd series. The tentacles are retractile, and both these and the oral disc may be completely concealed by the uppermost margin of the body when the animal contracts itself (Pl. X, fig. 4).

The colour. The sheath is brown; the integument of the body is rosy-red, with bluish longitudinal stripes, but its uppermost margin is almost chestnut-brown; the oral disc is beautiful reddish-brown; the labiæ are pale rose-red with the gonidial grooves paler in colour; the innermost tentacles are dark chestnut-brown, the intermediate are lighter in colour, and the outer ones salmon-red. The colour varies however, quite considerably in individuals from different localities, from white to red, even almost to brown over the whole animal.

Upon microscopical examination of transversal sections, the external integument spoken of, shows itself to consist of clay, fine sand and slime only; no histological structure is found in it. When it is removed the usual ectoderm is found, consisting of long, ciliating cylinder-cells, unicellular mucous-glands and nematocysts (Pl. X, fig. 5 *a*, 6 *a*). Inside of the ectoderm, there is a rather narrow, fibrillar connective-tissue in which, besides connective-tissue corpuscles and fine nutritory ducts, circular muscles are also found occupying the mesial portion, nearly, of the layer of connective-tissue, but lying closest to the ectoderm (Pl. X, fig. 5 *b*, 6 *b*), indeed in some transversal sections it appears as if these muscles lay themselves close in to the ectoderm. They scarcely lie in fasciculi, but appear rather as if each fibril was isolated. In longitudinal sections it is, however, apparent, that the fibrils lie close to and upon each other, and appear, as it were, to anastomose with each other (Pl. X, fig. 5 *b*).

There are 6 pairs of principal, perfect septa, of which 2 pairs are directive septa. These are rather prominent, owing to there being very wide, that is to say,

tale Rum er meget vidt; de transverselle Muskler ligge som en fint foldet Lamelle paa den indre Flade af Septumet saaledes, at de vende mod hinanden, imedens de longitudinelle Muskler ere fæstede paa den ydre Flade og vende til det interseptale Rum. De 4 ovrige principale Septapar have Musklerne saaledes ordnede, at de longitudinelle vende mod det intraseptale Rum og danne tykke Buske, der henimod Svælgroret ere saa fremspringende, at de udfylde Rummet: de transverselle Muskler vende mod det interseptale Rum. De 6 Par fuldstændige Septa ere golde.

I det principale Kammer, som opstaar imellem 2 principale Septapar, er der 3 Par Septa af 2den Orden, hvorved hvert Hovedkammer deles i 4 secundære Kamre, og i ethvert saadant Kammer er der 1 Par Septa af 3die Orden. Af de 3 Par secundære Septa er det midterste længst og naar næsten lige hen til Svælgroret; de 2 ovrige ere meget kortere, bære Generationsorganer, som ere opfyldte af Æg i forskjellige Udviklingsstadier, samt en Mængde Acontier og Mesenterialfilamenter. Musklerne ere temmelig udviklede paa disse secundære Septa; saaledes danne de longitudinelle Muskler, der ligge paa den indre Flade imod det intraseptale Rum, tykke Buske, der næsten ganske udfylde Rummet, imedens de transverselle Muskler ligge paa den modsatte Side og vende mod det interseptale Rum. De 4 Par tertiære Septa ere meget korte, knap halvt saa lange som de secundære, have Musklerne placerede som disse og bære i rigelig Mængde Kjønsorganer, hvori Æg af alle Storrelser, samt tildels Acontier. Disse korte, tertiære Septapar staa temmelig gabende, idet Musklerne ere lidet udviklede. Parieto-basilarmuskelen er tynd og udbreder sig opad paa den nederste Trediedel af Kropsvæggen og nedad et Stykke udover Fodskiven.

the intraseptal space is very wide; the transversal muscles lie like a finely folded lamella on the inner surface of the septum, in such manner that they face towards each other, while the longitudinal muscles are adherent to the outer surface, and face the interseptal space. The 4 remaining pairs of principal septa have muscles arranged in such manner, that the longitudinal ones face towards the intraseptal space and form thick frutici, which are, in proximity to the œsophagus, so protuberant, that they fill the space; the transversal muscles face towards the interseptal space. The 6 pairs of perfect septa are sterile.

In the principal chamber which arises between 2 pairs of principal septa, there are 3 pairs of septa of the 2nd order, causing each principal chamber to be divided into 4 secondary chambers, and in each of these chambers there is a pair of septa of the 3rd order. Of the 3 pairs of secondary septa, the intermediate pair is the longest one, and extends almost quite to the œsophagus; the two others are much shorter, and carry reproductive organs which are filled with ova in various stages of development, also a multitude of acontia and mesenterial filaments. The muscles are pretty well developed on these secondary septa: the longitudinal muscles, which lie upon the inner surface facing towards the intraseptal space, form, thus, thick frutici which almost completely fill the space, while the transversal muscles lie on the opposite side and face towards the interseptal space. The 4 pairs of tertiary septa are very short, scarcely half the length of the secondary ones, but they have the muscles placed like them, and they carry in rich abundance reproductive organs, in which are ova of all sizes, and also, to some extent, acontia. Those short pairs of tertiary septa stand rather gapingly apart as the muscles are only little developed. The parieto-basilar muscle is thin, and distributes itself upwards on the lowest third-part of the wall of the body and downwards a little way over the pedal disc.

Findested.

Station 323. Flere Exemplarer, hvoraf kun enkelte havde det hudagtige Overtræk i større eller mindre Udstrækning.

— 326. Mange Exemplarer, hvoraf de fleste vare forsynede med Overtrækket.

Habitat.

Station No. 323. Several specimens, of which only a few had the integumental outer covering, in greater or lesser extent.

— „ 326. Many specimens of which most were furnished with the integumental covering.

Artskarakter.

Fodskiven dels rund, dels dannet efter den Gjenstand, hvortil den er fæstet, med en tynd, ujævn Rand. Kroppen cylinderformet, indkneben paa Midten, indtil 60^{mm} hoi, omkring 50^{mm} bred; de nederste 4 Femtedele ere omgivne af et rut, hudet Overtræk (coating), sammensat af Ler, Sand og Slim. Den overste Femtedel nogen, glat, rig paa

Specific characteristics.

The pedal disc is partly round, partly formed according to the object to which it is attached, and has a thin, uneven margin. The body cylindrical, constricted at the middle, measures about 60^{mm} in height and about 50^{mm} in breadth. The lowest four-fifths-part is surrounded by a rough integumental coating, composed of clay, sand,

Cinclides. Den hudede Klædning mangler hyppigt paa ældre Dyr. Hele Kroppens Overflade indenfor det hudede Overtræk er foldet; paa Folderne tætstaaende Cinclides, hvorigjennem Acontier overalt fremspringe. Skiven lidt hvælvet, foldet, rig paa Cinclides og Acontier. Tentaklerne meget lange, i 2—5 forskjellige Rækker; almindeligst i 3: i 1ste Række 12, der ere de længste: i 2den og 3die Række 24 i hver. Farven: Det hudede Overtræk brunt. Kroppen laxerod med blaalige Længdestriber; dens overste Rand næsten kastaniebrun. Mundskiven smuk rodbrun. Læberne bleg kjodrode. Gonidiegruberne blegere. De indre Tentakler mork-kastaniebrune, de mellemste lysere, de ydre kjodrode; forresten variere Farverne ganske betydeligt paa de forskjellige Individer.

Verrill har med Spørgsmaalstegn opfort den af Koren og mig beskrevne Phellia abyssicola som Synonym med hans Sagartia abyssicola, og heri har han visselig gjort ret. Ved at undersoge Originalexemplarerne paanyt finder jeg, at de ikke kunne henfores til Slægten Phellia, men at de aabenbart ere identiske med de paa Nordhavsexpeditionen fundne og ovenfor under Navnet Sagartia abyssicola beskrevne Exemplarer og upaatvivlelig falder sammen med Verrill's under samme Navn beskrevne Actinie.

Naar jeg nu har opfort Verrill's Sagartia abyssicola i Synonymrækken, saa er det fordi, vor Beskrivelse er omtrent 5 Aar ældre end hans.

Sagartia splendens. n. sp.

Tab. IV, Fig. 12. Tab. X, Fig. 10—13.

Fodskiven er meget udvidet og har en temmelig tyk, lappet Rand. Tab. IV, Fig. 12; Tab. X, Fig. 10. Dens Underflade er ujævn og har tildels Formen af de Gjenstande, hvortil den er fæstet; saaledes har den paa de Exemplarer, der ere fæstede paa Stylaster gemmaceus mange Forhoininger og Fordybninger, svarende til Grenene, som den omfatter, imedens den paa det Exemplar, der er fæstet paa en Sten, er temmelig jævn og fint foldet fra Centrum mod Peripherien. En brunlig, chitinagtig Masse er afsat paa Underfladen og tjener til yderligere Befæstning. Denne Chitinmasse er saa fast adhæreret til Fodsaalen, at den kun vanskelig kan skilles fra denne.

Kroppen er fra 20—25^{mm} hoi, cylindrisk, med en fast, læderagtig Hud og noget indkneben paa Midten, imedens den udvider sig temmelig meget op imod Mundskiven, Tab. IV, Fig. 12; Tab. X, Fig. 10. Den har en glat, perlemorglindsende Overflade, og dens overste Rand

and slime. The uppermost fifth part is exposed, smooth, and rich in cinclides. The integumental coating is generally absent in the older animals. The entire surface of the body, inside the integumental coating, is folded; on the folds there are compactly-situated cinclides, through which acontia everywhere project. The disc is slightly arcuate, folded, and rich in cinclides and acontia. The tentacles very long, in several series — 2—5 series — but most commonly 3 series. The 1st series contains 12 tentacles, which are also the longest ones: the 2rd and 3rd series contain 24 tentacles in each. *The colour.* The integumental coating brown. The body salmon-red colour with bluish longitudinal stripes: its uppermost margin almost chestnut brown. The oral disc beautiful reddish-brown. The labiæ pale flesh-colour, the gonidial grooves paler in colour. The inner tentacles dark chestnut brown; the intermediate ones lighter coloured, and the outer ones flesh-coloured. The colour varies however, quite considerably, in the different individuals.

Verrill has, with a mark of interrogation attached, related the Phellia abyssicola described by Koren and myself, as synonymous with his Sagartia abyssicola, and in this he has certainly acted correctly. On examining the original specimens afresh, I find that they ought not to have been assigned to the genus Phellia, and that they are evidently identical whith the specimens found on the Norwegian North-Atlantic Expedition, and now described under the designation Sagartia abyssicola; they, indubitably, coincide with Verrill's Actinia described under the same name.

My reason for now placing Verrill's Sagartia Abyssicola in the synonym-series is, because Koren's and my description is about 5 years earlier in date than his.

Sagartia splendens. n. sp.

Pl. IV, fig. 12. Pl. X, fig. 10—13.

The pedal disc is much dilated, and has a rather thick, lobate margin (Pl. IV, fig. 12. Pl. X, fig. 10). Its under-surface is uneven, and has partly the shape of the object to which it is adherent: it has thus, in those specimens which adhere to Stylaster gemmaceus, numerous projections and depressions corresponding to the branches which it embraces, while in the specimens adherent to a stone, the under-surface is pretty even and is finely folded from the centre towards the periphery. A brownish chitinous mass is deposited on the under-surface, and serves still further to secure it. This chitinous mass is so firmly adherent to the pedal sole, that it is only with difficulty that it can be separated from it.

The body measures from 20—25^{mm} in height, is cylindrical, and has a firm coriaceous integument; it is somewhat constricted at the middle, whilst it expands itself considerably, upwards in proximity to the oral disc (Pl. IV, fig. 12. Pl. X, fig. 10). It has a smooth,

er afrundet, jævn og kan trækkes over Mundskiven, som den da skjuler.

Mundskiven er rund, lidt hvælvet og forsynet med fine Folder, der straale ud fra Munden mod Peripherien. Munden er aflang med foldede Læber og to Gonidiegruber. Tab. X, Fig. 10. Tentaklerne ere retraktile, sidde i 3 Rækker, ere temmelig korte, men tykke og forsynede med en fin Aabning i Spidsen. Den første — inderste — Række har 18, som ere de tykkeste og længste; den anden — mellemste — Række, der alternerer med den første, har ligeledes 18, som ere lidt tyndere og kortere, end de i inderste; men den tredie — yderste — Række har 18—20, der staa lige ved Kroppens overste Rand, Tab. IV, Fig. 12; Tab. X, Fig. 10. Som nysnævnt ere Tentaklerne vel retraktile, men Retraktionen sker ualmindeligt langsomt; som oftest boies de kun ind mod Mundaabningen, idet Kropsranden trækker sig over Mundskiven og skjuler saavel denne som Tentaklerne. Tab. X, Fig. 10 *a*.

Farven. Kroppen er bleg rosenrød, men stærkt iriserende; dens overste Rand er noget mørkere rød. Mundskiven er ligeledes rosenrød, spillende lidt i det Gule. Omkring Munden er en hoirød Ring, hvorfra udstraale hoirøde Striber til Tentaklerne. Disse ere hoirøde. Tab. IV, Fig. 12.

Hele Legemet er udvendigt beklædt med et Ectoderm, der bestaar af lange, cilierende Cylinderceller med Kjerne og Protoplasmaindhold, Tab. X, Fig. 12 *c*. Imellem Cylindercellerne findes en Mængde spredte, encellede Slimkjertler, der ere rigest paa Mundskiven, samt Nematocyster. Disse ere i størst Mængde paa Tentaklerne. Indenfor Ectodermet er et meget bredt, fibrillært Bindevæv, forsynet med Bindevævslegemer med og uden Udløbere, samt fine Ernæringskanaler, Tab. X, Fig. 12 *a*. Omtrent i Midten af dette Bindevæv sees cirkulære Muskelfibre, der danne Bundter og ligge ligesom i 3 Belter med Bindevæv imellem; Forbindelsen imellem disse 3 Belter synes at være yderst sparsom; men fra det inderste Belte udgaa enkelte Fibre henimod Bindevævets indre Flade, der dækkes af Endothelet, Tab. X, Fig. 12 *d*. Paa et andet Præparat ere disse 3 Belter smeltede sammen til et, Tab. X, Fig. 12 *b*. De radiære Muskler ere især udviklede paa Mundskiven, hvor de sees i tætte Bundter, temmelig nær Ectodermet. Paa Tentaklerne ere de longitudinelle Muskler fuldstændig ectodermale.

Der er 8 Par fuldstændige Septa, hvoraf de 6 Par ere principale og golde med 2 Par Retningssepta, Tab. X, Fig. 11, R. R, og to Par secundære, bærende Acontier. Der er kun liden Forskjel paa disse Septa, som samtlige bære Mesenterialfilamenter; men imedens de antagelig principale Septa synes at have en stærkere Muskulatur og ere forresten nogne, Tab. X, Fig. 11, 1, iagttages paa de to Par sekundære Septa, Tab. X, Fig. 11, 2, mindre

mother-of-pearl lustrous external surface, and its uppermost margin is rounded, even, and capable of being drawn over the oral disc, which is then concealed by it.

The oral disc is round, a little arcuate, and furnished with fine folds which radiate from the mouth towards the periphery. The mouth is oblong with folded labiæ and 2 gonidial grooves (Pl. X, fig. 10). The tentacles are retractile, placed in 3 series, are rather short, but thick, and are furnished with a minute orifice at the point. The innermost (first) series contains 18 tentacles, these are the thickest and longest ones; the intermediate (second) series has also 18 tentacles which alternate with those of the first series, and are a little thinner and shorter than those of the first series; but the outermost (third) series contains 18—20 tentacles, placed exactly at the uppermost margin of the body (Pl. IV, fig. 12. Pl. X, fig. 10). As just stated, the tentacles are indeed retractile, but their retraction proceeds extremely slowly; most frequently they only involve towards the oral aperture, as the margin of the body draws itself over the oral disc and conceals both it and the tentacles (Pl. X, fig. 10 *a*).

The colour. The body is pale rose-red but strongly irridescent; its uppermost margin is somewhat darker red. The oral disc is likewise rose-red, shading a little to yellow. Round the mouth there is a bright red annulus from which bright red stripes radiate to the tentacles. The latter are bright red. (Pl. IV, fig. 12).

The entire body is covered, exteriorly, with an ectoderm, consisting of long, ciliating cylinder-cells with nucleus and protoplasmic contents (Pl. X, fig. 12 *c*). Between the cylinder-cells, a multitude of scattered, unicellular mucous glands are found, which are most abundant on the oral disc, also nematocysts. These are found in greatest abundance on the tentacles. Inside of the ectoderm there is a very broad, fibrillar, connective tissue furnished with connective-tissue corpuscles with and without prolongations, also minute nutritory ducts (Pl. X, fig. 12 *a*). At about the middle of this connective tissue, circular muscle-fibres are seen, forming fasciculi, and lying as if in 3 belts, with connective-tissue between them; any connection between those 3 belts appears to be extremely slight, but from the innermost belt a few fibres issue towards the inner surface of the connective-tissue which is covered by the endothelium (Pl. X, fig. 12 *d*). In another prepared specimen those 3 belts appear merged into one (Pl. X, fig. 12 *b*). The radiary muscles on the oral disc are especially well developed, and are seen lying in compact fasciculi rather close to the ectoderm. On the tentacles, the longitudinal muscles are perfectly ectodermal.

There are 8 pairs of perfect septa, of which 6 pairs are principal ones and sterile, and 2 pairs are directive septa (Pl. X, fig. 11 R. R.); there are also two pairs of secondary septa, carrying acontia. There is not much difference between those septa, as all of them carry mesenterial filaments; but whilst the presumably principal septa appear to have a more powerful musculosity, and are, besides, bare (Pl. X, fig. 11, 1), there are seen on

udviklede Længdemuskler, ligesom de ere forsynede med Acontier og, som det forekom mig, paa et enkelt Septum svagt udviklede Kjønsorganer. Som sædvanligt ere Tvermusklerne paa Retningssepta fæstede til den indre Flade og vende mod det intraseptale Rum, imedens Længdemusklerne sidde paa den ydre Flade i det interseptale Rum i Form af meget tynde Buske, der opnaa henimod Svælgroret den største Tykkelse; paa de øvrige fuldstændige Septa ere Længdemusklerne fæstede til den indre Flade og vende mod hverandre i det intraseptale Rum, som de dog paa langt nær ikke udfylde. — især gjælder dette de to sekundære Septapar, hvilket tyder hen paa, at Længdemusklerne paa disse ere meget tyndere. De to sekundære Septapar ere placerede paa hver Side af det ene Par Retningssepta, Tab. X, Fig. 11, 2, som svarer til Svælgrorets Bugside, og som kjendes paa den brede Svælggrube.

Imellem hvert to Par af de principale Septa er der 3 Par ufuldstændige, tertiære Septa, Tab. X, Fig. 11, 3, der rage et langt Stykke ind i Gastralhulheden uden at naa Svælgroret, Tab. X, Fig. 11, 5. Disse Septa af tredie Orden bære baade Acontier og Generationsorganer, Tab. X, Fig. 11, 3 *a*, *b*; de første i stor Mængde, de sidste liggende nedenfor Acontierne og indeholdende Æg i forskjellige Udviklingsstadier. Længdemusklerne ere placerede paa den indre Flade af disse Septa, og Tvermusklerne paa den ydre; samtlige ere noget mindre udviklede end de paa Septa af anden Orden.

Imellem de 3 Par lange, ufuldstændige Septa er der 1 Par smaa Septa af fjerde Orden, Tab. X, Fig. 11, 4. Der er altsaa 7 Septapar i hvert af de interseptale Rum, som de 6 Par fuldstændige, principale Septa danne. Derimod synes der kun at være 3 Septapar i hvert af de interseptale Rum, som dannes imellem det ene Par Retningssepta og det fuldstændige, sekundære Septapar, nemlig 1 Par af tredie Orden, bærende Acontier og Kjønsorganer, og 2 Par af fjerde Orden. Ogsaa Septa af fjerde Orden ere forsynede med Længde- og Tvermuskler. Ialt er der 54 Septapar. Parieto-basilarmuskelen er stærk og strækker sig et godt Stykke opover Kropsvæggen, ligesom den udbreder sig over en stor Del af Fodskivens indre Flade.

Findested.

Husøen — Sognefjorden — . Nogle Exemplarer, siddende paa Stylaster gemmaceus. Et Exemplar sad fæstet til en Sten.

the two pairs of secondary septa (Pl. X, fig. 11), two less-developed longitudinal muscles, and these are also furnished with acontia; and, as it appeared to me also, upon a solitary septum, with faintly developed reproductive organs. As usual, the transversal muscles on the directive septa are secured to the inner surface, and face towards the intraseptal space, while the longitudinal muscles are seated on the exterior surface in the interseptal space, in the form of very thin frutici which attain their greatest thickness in proximity to the œsophagus; on the remaining perfect septa, the longitudinal muscles are secured to the inner surface, and face towards each other in the intraseptal space, but they do not nearly fill it; this is especially the case with the two secondary pairs of septa, which would appear to indicate that the longitudinal muscles in them are much thinner. The two secondary pairs of septa are seated on each side of the one pair of directive septa (Pl. X, fig. 11, 2) which corresponds to the ventral side of the œsophagus, and is recognised by the broad gullet-groove.

Between each two pairs of the principal septa, there are 3 pairs of imperfect, tertiary septa (Pl. X, fig. 11, 3) that extend a long way into the gastral cavity without reaching to the œsophagus (Pl. X, fig. 11, 5). These septa of the 3rd order carry, both acontia and reproductive organs (Pl. X, fig. 11, 3 *a*, *b*); the first in great abundance, and the last-named seated below the acontia and containing ova in various stages of development. The longitudinal muscles are placed on the inner surface of those septa, and the transversal muscles on the outer surface; all of them are less developed than those on the septa of second order.

Between the 3 pairs of long, imperfect, septa, there is 1 pair of small septa of the fourth order (Pl. X, fig. 11, 4). There are thus 7 pairs of septa in each of the interseptal spaces which the 6 pairs of perfect, principal septa form. On the other hand there appear to be only 3 pairs of septa in each of the interseptal spaces which are formed between the one pair of directive septa and the perfect pairs of secondary septa, viz. one pair of the third order, carrying acontia and reproductive organs, and two pairs of the fourth order. The septa of the fourth order are also furnished with longitudinal and transversal muscles. Altogether there are 54 pairs of septa. The parieto-basilar muscle is strong, and extends itself a good way up the wall of the body, while it, at same time, distributes itself over a large part of the inner surface of the pedal disc.

Habitat.

Husøen, — Sognefjord. — A few specimens, seated on Stylaster gemmaceus. One specimen was adherent to a stone.

Artskarakter.

Fodskiven meget udvidet, med en tyk, lappet Rand. Underfladen ujævn, tildels formet efter Gjenstanden, hvorpaa den sidder, og belagt med en chitinagtig Masse. Kolumnen 20—25^{mm} høi, cylindrisk, noget indkneben paa Midten, med en glat, perlemorglindsende Overflade og en afrundet overste Rand, der kan trækkes over Mundskiven. Denne er rund, lidt hvælvet med fine Folder udstraalende fra Munden, der er aflang med foldede Læber og to Gonidiefurer. 3 Rækker retraktile, temmelig korte Tentakler med en rund Aabning i Spidsen; 18 i inderste og mellemste Række, 18—20 i yderste Række. Farven: Kroppen bleg rosenrød, men stærkt iriserende; den overste Rand noget mørkere. Mundskiven rosenrød, spillende i det Gule. Omkring Munden en hoirød Ring, hvorfra udstraale hoirøde Striber til Tentaklerne. Disse hoirøde.

Jeg har henført denne Art til Slægten Sagartia, uagtet den har 8 Par fuldstændige Septa; men da de 6 Par ere golde og maa ansees for principale, og forresten hele Organisationen er overensstemmende med det Karakteristiske for Slægten Sagartia, har jeg ikke fundet det rigtigt eller nødvendigt at drage den bort fra denne.

Specific characteristics.

The pedal disc much expanded, has a thick, lobate margin. The under-surface uneven, partly formed according to the object upon which it is seated, and coated with a chitinous mass. The column 20—25^{mm} in height, cylindrical, somewhat constricted at the middle; its surface smooth, with a mother-of-pearl lustre, has a rounded uppermost margin which can be drawn over the oral disc. The oral disc round, somewhat arcuate, has fine folds radiating from the mouth; the latter oblong, with folded labiæ and two grooves. Three series of retractile, rather short tentacles, with a round orifice at the point; 18 tentacles in the innermost and intermediate series, 18—20 tentacles in the outermost series. *The colour.* The body pale rose-red, but strongly irrideseent. The uppermost margin somewhat darker. The oral disc rose-red, shading to yellow. Round the mouth a bright-red annulus from which bright-red stripes radiate to the tentacles. The tentacles bright-red.

I have assigned this species to the genus Sagartia although it has 8 pairs of perfect septa, but as the 6 pairs are sterile and must be considered to be principal ones, and as the entire organisation, otherwise, accords with that characteristic of the genus Sagartia, I have not found it right, or necessary, to withdraw it from that genus.

Calliactis Krøyeri, n. sp.

Tab. II. Fig. 2. Tab. VIII. Fig. 6, 13, 14.

Fodskiven paa ganske unge Exemplarer er rund, men paa voxne Dyr meget irregulær aflang, omfattende næsten ganske Conchylien af Fusus Krøyeri, saa at paa flere Exemplarer kun Aabningen og en liden Del af Spiret er ubedækket, Tab. II, Fig. 2, imedens paa andre ogsaa Spiret er omsluttet, og da er kun Aabningen fri, Tab. VIII, Fig. 13, saa at den iboende Fusus kan trække sig frit ud og ind og spasere med stor Lethed omkring, dragende paa Actinien. Fodskivens Rand er temmelig tynd og undulereet, og paa dens Underflade, der er overmaade konkav og har antaget Formen af Conchylien, er afsat en brun, chitinagtig Membran, som binder Foden til denne.

Kroppen er næsten dobbelt saa høi som tyk (omkring 100^{mm}), cylinderformet, men ikke lige tyk overalt. Ved Fodskiven er den smalest, udvider sig paa Midten og bliver buget; længere op aftager den noget i Tykkelse for atter at udvide sig mod Mundskiven, Tab. II, Fig. 2. Under Dyrets Kontraktioner antager Kroppen forresten forskjellige Former; men er det i fuld Vigor, antager det altid den før omtalte Urneform, hvorunder det er afbildet. Kolumnens Overflade er glat, forsynet med brede, svagt ophøiede Længdefolder, paa hvilke sees, især paa den

Calliactis Krøyeri, n. sp.

Pl. II. Fig. 2. Pl. VIII, fig. 6, 13, 14.

The pedal disc is, in young specimens, round, but in adult animals very irregularly oblong, and almost completely embraces the shell of Fusus Krøyeri so that, in many specimens, only the aperture and a small part of the spire are left exposed (Pl. II, fig. 2), while in others the spire is also enclosed, and then only the aperture is free (Pl. VIII, fig. 13), thus permitting the resident Fusus to freely project and retract itself, and to perambulate with great ease, carrying the actinia with it. The margin of the pedal disc is rather thin and undulating, and on its under-surface, which is exceedingly concave and has assumed the form of the shell, there is deposited a brown chitinous membrane which secures the base to the mollusc.

The body is almost twice as high as it is thick (about 100^{mm}), cylindrical, but not uniformly thick in all parts. It is narrowest at the pedal disc, becomes wider at the middle and bulges out; a little farther up it diminishes somewhat in thickness, and again increases in thickness towards the oral disc (Pl. II, fig. 2). During the animals contractions, the body assumes, however, various forms but, when in full vigour, it always assumes the urn-shape previously mentioned, and in which shape it is illustrated. The surface of the column is smooth, furnished with broad, faintly elevated

nederste Halvdel, uregelmæssigt ordnede Cinclides; dens øverste Rand er fri, ikke meget tyk og lidt undulereret (en svag Parapet); ingen Fossa.

Mundskiven er bredere end Kolumnen, lidt hvælvet, temmelig stærkt foldet og forsynet i sin Peripheri med 3 Rækker Tentakler. Munden er meget fremstaaende, aflang, med 2 brede Gonidiegruber, der hver har 2 smaa Gonidieknuder. Læberne danne 4 tykke Folder paa hver Side af Gonidiegruberne, Tab. II. Fig. 2.

Tentaklerne ere retraktile, korte, tynde og perforerede i Enden, i hver Række 48, som staa alternerende. Tentaklerne i den inderste Række ere de længste og tykkeste, dog knap saa lange som Skivens halve Bredde; i den yderste Række staa de strax indenfor Kolumnens Rand og ere noget kortere.

Kroppens Væg er kjodet, og naar Dyret er udspændt, sees de straagule Mesenterialfilamenter meget tydeligt.

Farven. Kroppen er karmosinrod med lyserode Længdestriber; Mundskiven ligesom Tentaklerne bleg chamoisfarvet; Folderne paa Mundskiven synes at være lidt blegere, forresten er det noget afhængigt af, hvorvidt denne er helt udfoldet eller ikke. I det Hele taget varierer Farven noget paa de forskjellige Individer, fra Lakfarve til Karmin; selv det samme Individ forandrer Farve fra Lak til Karmin, eftersom det er mere eller mindre udstrakt. Gonidiegruberne ere lidt intensere rode end Læberne.

Naar Dyret er kontraheret, er som oftest baade Mundskiver og Tentakler skjulte; det danner da en Halvkugle, hvis ydre Flade er stærkt rynket baade paatvers og paalangs; paa enkelte Exemplarer er Kontraktionen ikke fuldstændig, og da er der en lille Aabning, hvorigjennem enkelte Tentakler stikke frem, samt en Del lange Acontier, Tab. VIII, Fig. 13.

Kroppens ydre Flade har sin sædvanlige ectodermale Beklædning, Tab. VIII, Fig. 6 *a*, 14 *a*, indenfor hvilken er et bredt, fibrillært Bindevævslag, hvori sees Bindevævslegemer med deres Kjerne, samt Aabninger for Ernæringskanalerne, Tab. VIII, Fig. 6 *b*, 14 *b*. I omtrent Midten af dette Bindevævslag, noget nærmere Ectodermet, sees en Samling af cirkulære Muskler, der danne et bredt Belte, og hvis enkelte Fibriller tildels anastomosere med hverandre, Tab. VIII, Fig. 6 *c*, 14 *c*. Paa Tversnit ere disse Anastomoser temmelig tydelige, ligesom mange Fibriller ere saa tykke, at de sandsynligvis bestaa af flere finere saadanne, Tab. VIII, Fig. 6 *c*; thi paa Længdesnit, hvor Musklerne ere afskaarne paatvers, fremkommer et Billede, der end yderligere synes at antyde dette, Tab. VIII, Fig. 14 *c*. Musklerne ligge her nemlig ligesom i Slyngninger, og hver Slyngning bestaar af mange Fibriller. Paa enkelte Steder ligge disse mesodermale Cirkulærmuskler temmelig nær Ectodermet, og enkelte strække sig endog

longitudinal folds, on which are observed, especially upon its lowest half, irregularly placed cinclides; its uppermost margin is free, not very thick, and slightly undulating (a faint parapet), without fosse.

The oral disc is broader than the column, a little arcuated, rather strongly folded, and furnished on its periphery with 3 series of tentacles. The mouth is very protuberant, oblong, has 2 broad gonidial grooves, each of which has 2 small gonidial nodules. The labiæ form 4 thick folds on each side of the gonidial grooves (Pl. II, fig. 2).

The tentacles are retractile, short and thin, and are perforated at the extremity; there are 48 tentacles in each series, placed alternatingly. The tentacles in the innermost series are the longest and thickest, but are not quite so long as the half of the breadth of the disc; the outermost series is placed immediately inside of the margin of the column, and in it the tentacles are somewhat shorter.

The wall of the body is fleshy, and when the animal is expanded the straw-yellow coloured mesenterial filaments are very distinctly seen.

The colour. The body carmine-red, with light-red longitudinal stripes. The oral disc, as also the tentacles, pale buff colour. The folds on the oral disc appear to be somewhat paler, but there colour depends, however, somewhat, upon whether the disc is entirely unfolded or not. Altogether, the colour varies somewhat in the different individuals, from scarlet to carmine colour; even the same individual shifts colour from scarlet to carmine, according as it is more or less extended. The gonidial grooves have a little brighter red colour than the labiæ.

When the animal is contracted, both the oral disc and the tentacles are most frequently concealed. It then forms a hemisphere whose outer surface is strongly wrinkled, both transversally and longitudinally; in a few specimens the contraction is incomplete, and then there is a small orifice through which a few tentacles project, and also a number of long acontiæ (Pl. VIII, fig. 13).

The exterior surface of the body has the usual ectodermal covering (Pl. VIII, fig. 6 *a*, 14 *a*), inside of which there is a broad fibrillar layer of connective-tissue, in which connective-tissue corpuscles with their nuclei are observed, as well as, also, orifices for nutritory ducts (Pl. VIII, fig 6 *b*, 14 *b*). At about the middle of this connective-tissue layer, but somewhat closest to the ectoderm, a collection of circular muscles is observed, which form a broad belt and whose individual fibrils partly anastomose with each other (Pl. VIII, fig. 6 *c*, 14 *c*). In transverse sections those anastomoses appear pretty distinctly, whilst, also, many fibrils are so thick, that they, presumably, are formed of several together (Pl. VIII, fig. 6 *c*); because in longitudinal sections, where the muscles are transsected transversally, there is presented a picture which appears still more to substantiate that (Pl. VIII, fig. 14 *c*). The muscles lie here as if in windings, and each such winding consists of many fibrils. In a few places those mesodermal muscles

ligesom ind i samme, saa det ser ud, som de her ere udgaaede fra Ectodermet.

Der er 6 Par principale, fuldstændige Septa, som ere tykkere og fastere end alle de ovrige; de fæste sig meget stærkt paa Svælgroret (Osophagus) og ere golde. Af disse principale Septapar er der 2 Par Retningssepta, hvoraf det ene Par er noget bredere end det andet, det vil sige, Septa staa længere fra hinanden, hvorved det intraseptale Rum bliver bredere. De indre Flader af Retningssepta ere beklædte med transverselle Muskler, der altsaa vende mod hverandre, medens de ydre Flader have longitudinelle Muskler, som vende fra hverandre. De ovrige 4 Par Septa adskille sig fra Retningssepta ved en forskjellig Anordning af Musklerne, idet de longitudinelle Muskler beklæde de indre Flader, vende mod hverandre og vise sig som foldede Blade, der ganske udfylde de intraseptale Rum: de transverselle Muskler sidde paa den ydre Flade, ere ikke saa stærkt udviklede og vende mod det interseptale Rum.

De sekundære Septapar ere 18, fæste sig ikke paa Svælgroret, men naa næsten hen til samme. De ere paa deres indre Flader beklædte med stærke, longitudinelle Muskler, som vende mod hverandre, imedens de ydre Flader ere forsynede med transverselle Muskler. Disse have Udseende af en foldet Lamel, som er temmelig tyk, imedens de longitudinelle Muskler danne Buske, der for en Del udfylde det intraseptale Rum af de sekundære Septa. Disse bære Mesenterialfilamenter og muligens Acontier, men ere forresten golde. De fleste Acontier fandtes paa de Exemplarer, hvor Svælgroret var noget udkrænget, og udfyldte Mundaabningen; i Kamrene saaes kun enkelte.

De tertiære Septa udgjøre 24 Par: de ere korte, neppe halvt saa lange som de sekundære og bære Generationsorganerne, hvori sees en Mængde forskjelligt udviklede Æg. Paa deres indre Flade sees de transverselle Muskler, som en tynd, foldet Lamel, hvorfor de intraseptale Rum her ere temmelig vide, Tab. VIII, Fig. 6 d: den ydre Flade er beklædt med de longitudinelle Muskler, som ere vel udviklede, Tab. VIII, Fig. 6 e. Kjønnene synes at være adskilte; idetmindste har jeg ikke fundet Testikler der, hvor jeg har fundet Ovarier.

lie rather close to the ectoderm, and some even, extend themselves as if into it, so that it almost appears here as if they issued from the ectoderm.

There are 6 pairs of principal, perfect septa, which are thicker and firmer than all the rest: they attach themselves very firmly to the œsophagus and are sterile. Of these pairs of principal septa, 2 pairs are directive septa, of which the one pair is somewhat broader than the other; that is to say, each septum stands farther apart from the other, so that the intraseptal space is broader. The inner surfaces of the directive-septa are clad with transversal muscles, which consequently face towards each other, whilst the outer surfaces have longitudinal muscles and face from each other. The remaining 4 pairs of septa are distinguished from the directive septa by a different arrangement of the muscles; thus the longitudinal muscles clothe the inner surfaces, face towards each other, and appear as folded laminæ which quite fill the intraseptal spaces; the transversal muscles are placed on the exterior surface, are not so strongly developed, and face towards the interseptal space.

The secondary pairs of septa are 18 in number, and do not secure themselves to the œsophagus but reach almost to it. On their inner surfaces, they are clad with strong longitudinal muscles which face towards each other, while the outer surfaces are furnished with transversal muscles. These have the appearance of a folded lamella which is rather thick, while the longitudinal muscles form frutici that to a certain extent fill the intraseptal spaces of the secondary septa. These carry mesenterial filaments, and possibly also acontia, but are sterile. Most of the acontia were found on those specimens where the œsophagus was somewhat everted and filled the oral aperture; in the chambers only few were seen.

The tertiary septa consist of 24 pairs; they are short, scarcely half the length of the secondary septa, and carry the reproductive organs, in which a multitude of variously developed ova were observed. On their inner surfaces, the transversal muscles are seen like a thin folded lamella, for which reason the intraseptal spaces are, here, rather wide (Pl. VIII, fig. 6 d). The exterior surface is clad with the longitudinal muscles, which are well developed (Pl. VIII, fig. 6 e). The sexes seem to be separated: at all events, I have not observed testicles where I found ovaries.

Findested.

Station 370. 3 Exemplarer, der alle sad paa Fusus Kroyeri, og hvoraf 1 var særdeles stort.

Station 374 ligeledes 3 Exemplarer, som ogsaa sad paa samme Mollusk's Conchylie, og hvoraf 1 havde samme Størrelse som det største paa Stationen 370. Samtlige Mollusker vare levende og spadserede noksaa hurtigt omkring i Observationskarret, dragende paa Actinien.

Habitat.

Station No. 370. Three specimens; all of which were seated upon Fusus Kroyeri, and one of which was particularly large.

Station No. 374. Also three specimens here; seated on the same mollusc's shell, and one of them was of the same size as the largest one from station No. 370; all the molluscs were alive, and perambulated quite actively about the glass vessel, hauling the actinia along with them;

der ikke lod sig genere, men syntes at befinde sig ret vel ved sine Kjoreture, idet den udfoldede baade Krop og Tentakler i fuld Vigor, saa Afbildningen foregik uden synderlige Hindringer.

Artskarakter.

Fodskiven omfatter Storstedelen af Conchylien af Fusus Kroyeri, har en tynd, uregelmæssig og lidt undulerende Rand. Paa Fodskivens Underflade afsondres en chitinagtig Membran, der binder Foden til Conchylien. Kroppen urneformet, næsten dobbelt saa hoi som tyk og smalest strax ovenfor Fodskiven; dens Overflade glat med brede, lidt ophoiede Længdefolder, hvor der, især paa den nederste Halvdel, sees Cinclides, uregelmæssigt ordnede. Mundskiven bredere end Kolumnen, lidt hvælvet og foldet. Munden fremstaaende, ottelæbet, aflang, med 2 brede Gonidiegruber, og i hver af dem 2 smaa Gonidieknuder. Tentaklerne retraktile, korte, tynde og perforerede i Spidsen; de staa i 3 alternerende Rækker, 48 i hver Række. Kroppens Væg halv gjennemsigtig, saa Mesenterialfilamenterne sees. Farven: Kroppen karmosinrod med lyserode Længdestriber. Mundskiven, ligesom Tentaklerne, bleg chamois. Folderne paa Mundskiven kanske lidt blegere. Farven varierer forresten noget paa de forskjellige Individer fra Lak til Karmin. Gonidiegruberne lidt intensere rode end Mundlæberne.

the latter did not seem at all disturbed, but appeared to perfectly well enjoy the ride, as it unfolded both body and tentacles in full vigour, enabling the illustration to be effected without particular difficulty.

Specific characteristics.

The pedal disc embraces the greater part of the shell of Fusus Kroyeri, has a thin, irregular, and slightly undulating margin. On the under-surface of the pedal disc, there is deposited a chitinous membrane which secures the base to the shell. The body is urn-shaped, almost twice as high as it is thick, and it is narrowest immediately above the pedal disc. Its external surface is smooth, with broad, slightly elevated longitudinal folds, upon which, especially on the lowest half, cinclides are observed, arranged irregularly. The oral disc is broader than the column, slightly arcuated and folded. The mouth protuberant, octo-labiate, oblong, with 2 gonidial grooves, having in each of them 2 small gonidial nodules. The tentacles retractile, short, thin, and perforated at the point; they are placed in 3 alternating series, 48 in each series. The wall of the body semi-transparent, so that the mesenterial filaments can be seen. *The colour.* The body carmine-red with light-red longitudinal stripes. The oral disc, as also the tentacles, pale buff colour. The folds on the oral disc are, perhaps, a little fainter in colour. The colour varies, however, somewhat in the different individuals, from scarlet to carmine. The gonidial grooves are a little brighter red than the oral labiæ.

Familie Bunodidæ, Gosse.

Bunodes abyssorum, n. sp.

Tab. III, Fig. 3. Tab. X, Fig. 8, 9.

Fodskiven rund, noget bredere end Kolumnen, med en temmelig tyk, svagt undulerende Rand. Underfladen er rig paa concentriske, rynkede Ringe, som aftage mod Centrum, hvor der findes en traktformig Fordybning, i hvis Bund er en rund Aabning, der korresponderer med Gastralhulheden.

Kroppen er valseformig, aftagende noget i Tykkelse ned mod Fodskiven. Den er i udstrakt Tilstand omtrent 250^{mm} hoi og 200^{mm} i Omkreds; naar den er sammentrukken, er den 150^{mm} hoi og 230^{mm} i Omkreds. Kroppens udvendige Flade er forsynet med Længdefolder, paa hvilke iagttages temmelig regelmæssige Rækker Knuder, lige fra Mundskiven til Foden, Tab. III, Fig. 3. Disse Knuder staa tættest og ere stærkest fremtrædende paa den overste Del af Kroppen, men blive storst paa Midten, imedens de

Family Bunodidæ, Gosse.

Bunodes abyssorum, n. sp.

Pl. III, fig. 3. Pl. X, fig. 8, 9.

The pedal disc round, somewhat broader than the column, has a rather thick, faintly undulating margin. The under-surface is rich in concentric, shrunken annuli, which diminish towards the centre, where there is an infundibuliform depression, in whose base a round orifice appears, communicating with the gastric cavity.

The body is cylindrical, diminishing somewhat in thickness down towards the pedal disc. In extended condition, it measures about 250^{mm} in height, and 200^{mm} in circumference; when it is contracted it measures 150^{mm} in height, and 230^{mm} in circumference. The exterior surface of the body is furnished with longitudinal folds upon which rather regular series of nodules are observed, extending right from the oral disc to the base (Pl. III, fig. 3). These nodules are most compactly placed, and

aftage betydeligt mod Fodskiven, paa hvis Rand de dog endnu tildels kunne iagttages. Knuderne ere i sin store Almindelighed ganske glatte med hvælvet Overflade; kun paa enkelte sees en Fordybning, uden dog at være gjennemboret. Ved Siden af Knuderne sees hist og her enkeltstaaende Sugevorter, der under Dyrets Kontraktion saagodtsom ganske skjules af de overhvælvende Knuder. Kroppens øverste Rand har et foldet Udseende som Følge af de paa den siddende Knuder og er lidt udkrænget.

Mundskiven er kun lidet hvælvet, foldet, og i dens Centrum sidder den aflange Mund med tykke, foldede Læber og to brede Gonidiegruber. I Mundaabningen er en Del Acontier udkastede. I Mundskivens Peripheri er der 4 Rækker Tentakler, hvoraf den yderste Række har omkring 70, som ere baade kortere og tyndere end de i den inderste Række og staa lige indenfor Kropsranden. Tentaklerne ere i det Hele taget tykke, konisk tilspidsede, ikke meget retraktile, og have paa deres Ende en rund Aabning, omgiven af en Sphincter. Naar Dyret er i fuld Vigor og Tentaklerne udspændte, ser man ofte en fin Vandstraale sprøite ud igjennem Aabningen, og da der er henimod 300 Tentakler, er det et noksaa smukt Vandspring, som derved fremkommer. Irriteres ganske svagt Mundaabningen, sættes Vandspringet let i Spil. I Dyrets døende Tilstand udstødes af Tentakelaabningerne lange, fine Slimtraade.

Farven. Kroppen er hvid, perlemorglindsende, spillende svagt dels i det Røde, dels i det Blaalige. Tentaklerne ere havannabrune. Mundskiven har Kroppens Farve, kanske lidt mørkere, og fra Munden udgaa fine, brune Striber henimod Tentaklerne. Mundlæberne og Svælget ere mørk kastaniebrune.

Indenfor det sædvanlige Ectoderm, Tab. X, Fig. 8 *a*, 9 *a*, er paa Kroppen et meget bredt, fibrillært Bindevævslag, hvori sees en Mængde yderst smaa Bindevævslegemer og yderst fine Saftkanaler, Tab. X, Fig. 8 *b*, 9 *b*. Lige ved den indre Flade sees temmelig stærkt udviklede, endodermale Cirkulærmuskler, imedens hele den øvrige Del af Bindevævet er uden Muskler. Disse cirkulære Muskler, Tab. X, Fig. 9 *c*, danne temmelig regelmæssige Folder, der fremtræde paa Længdesnit som smukke Guirlander, Tab. X, Fig. 8 *c*. Paa Tværsnit ligge de bølgeformigt i Bindevævet, Tab. X, Fig. 9 *c*.

Der er 6 principale Par Septa, som ere fuldstændige, forsaavidt de fæste sig paa Svælgrøret. Af disse Septapar er der to Par udprægede Retningssepta, paa hvis indre Flader — de der vende mod hinanden — sees transverselle Muskler, som danne en meget tynd, foldet Membran, imedens deres ydre Flade er beklædt med buskformede, longitudinelle Muskler; paa de øvrige 4 Par Septa ere

are most protuberant upon the uppermost part of the body, but are largest at the middle, while they diminish considerably towards the pedal disc on whose margin, however, they can still, to some extent, be observed. The nodules are, for the most part, quite smooth with arcuate surface, and only in a few of them is a depression visible, without, however, being perforated. Alongside the nodules there are here and there seen suckers, which, during the contractions of the animal, are almost entirely concealed by the overwhelming mass of nodules. The uppermost margin of the body has a folded appearance owing to the nodules seated on it, and is slightly evolved.

The oral disc is only slightly arcuate, folded, and in its centre the oblong mouth is placed: this has thick folded labiæ and two broad gonidial grooves. In the oral aperture a number of acontia are thrown out. In the periphery of the oral disc there are 4 series of tentacles, of which the outermost series contains about 70, which are both shorter and thinner than those of the innermost series, and are placed just inside of the margin of the body. The tentacles are, upon the whole, thick, and are conically acuminated and not very retractile: they have on their extremities a round orifice surrounded by a sphincter. When the animal is in full vigour and the tentacles extended, a fine water-jet is frequently seen to be squirted out through the orifice, and as there are about 300 tentacles, there is thus produced quite a beautiful fountain. When the oral aperture is gently irritated the fountain is easily set a-going. When the animal is in moribund condition, long fine mucous threads are projected from the tentacular orifices.

The colour. The body is white with a mother-of-pearl lustre, shading faintly, partly to red partly to bluish. The tentacles are Havana-brown. The oral disc has the same colour as the body, perhaps slightly darker; and from the mouth, fine brown stripes issue towards the tentacles. The oral labiæ and the œsophagus are dark chestnut-brown.

Inside of the usual ectoderm (Pl. X, fig. 8 *a*, 9 *a*) there is, upon the body, a very broad, fibrillar layer of connective-tissue, in which a multitude of extremely small connective-tissue corpuscles are seen, and extremely slender nutritory ducts. Just at the inner surface, rather strongly developed, endodermal, circular muscles are observed, while the entire remaining part of the connective-tissue is devoid of muscles. These circular muscles (Pl. X, fig. 9 *c*) form rather regular folds, which appear, in longitudinal sections, as beautiful garlands (Pl. X, fig. 8 *c*). In transversal sections they appear in wavy form, lying in the connective-tissue (Pl. X, fig. 9 *c*).

There are 6 principal pairs of septa, which are perfect in so far that they attach themselves to the œsophagus. Of these pairs of septa, there are two pairs of distinguished directive septa upon whose inner surfaces, which face towards each other, transversal muscles are seen forming a very thin folded membrane, whilst the outer surface is clad with fruticous longitudinal muscles; on the remaining

Musklerne placerede ganske omvendt. De principale Septa ere golde og kjendes fra de ovrige derved, at de ere stærkere udprægede ved deres noget tykkere Bindevævsmembran.

De sekundære Septa ere ligeledes 6 Par, fuldstændige og golde; paa deres indre Flade ligge de longitudinelle Muskler, altsaa i de intraseptale Rum, og paa deres ydre Flade de transverselle Muskler, som vende mod de interseptale Rum. Imellem hvert 2 Par fuldstændige Septa er der 3 Par ufuldstændige, hvoraf det midterste (tertiære) er det længste, naar næsten hen til Svælgroret og bærer Mesenterialfilamenter og Acontier. De to andre Par ere meget kortere og bære Generationsorganerne, som ere saa stærkt udfyldte med Æg i forskjellige Udviklingsstadier, at de ganske lukke Kamrene. Paa disse kvaternære Septa ere Musklerne ikke meget udviklede, hvilket derimod er Tilfældet paa de tertiære, hvor de longitudinelle Muskler ligge som tykke Buske paa den indre Flade, medens de transverselle danne en foldet Membran paa den ydre.

Findested.

Station 2. Et Exemplar.
— 261. To Exemplarer.

Hertwig har henført Slægten Bunodes til Sagartidernes Familie, idet han nemlig har beskrevet en Actinie under Navnet: Bunodes minuta, funden paa Challenger-Expeditionen;[1] men han sætter rigtignok et Spørgsmaalstegn foran, hvorvidt den virkelig kan henføres dertil; thi ifølge Gosse skal Slægten Bunodes ikke have Acontier, omendskjønt han siger, at han engang har fundet saadanne hos Bunodes coronata. Hertwig mener, at Acontierne kunne være i sin store Almindelighed overseet hos Slægten Bunodes; men skulde den Mening være feilagtig, anser han det nødvendigt at danne en ny Slægt saavel for Bunodes minuta som for Bunodes coronata.

Den af mig ovenfor beskrevne Bunodes abyssorum har ikke alene Acontier, men dens cirkulære Muskler ere endodermale, ligesom den har 12 fuldstændige Septapar: den kan saaledes ifølge Hertwigs Systematik ikke henføres til Sagartiderne, hvorfor det forekommer mig rettest at beholde Familien Bunodidæ, Gosse, og lade den indtil Videre tilhøre denne, da den jo i sit Ydre frembyder adskillige Karakterer, der af Gosse ere opstillede som væsentlige baade for Familien og Slægten.

Artskarakter.

Fodskiven rund; paa dens rynkede Underflade en traktformig Fordybning, i hvis Bund en næsten rund Aab-

[1] Voyage of H. M. S. Challenger. Zoologi. Vol. VI. Report on the Actinaria dredged by H. M. S. Challenger, by Professor Richard Hertwig, pag. 84.

4 pairs of septa the muscles are placed quite in reverse manner. The principal septa are sterile, and are distinguished from the others by being more prominent, from their somewhat thicker connective-tissue membrane.

The secondary septa consist, likewise, of 6 pairs of perfect septa, and are sterile; on their inner surface lie the longitudinal muscles — consequently in the intraseptal spaces — and on their outer surface lie the transversal muscles facing towards the interseptal spaces. Between each 2 pairs of perfect septa there are 3 pairs of imperfect ones, of which the intermediate pair (tertiary) is the longest, reaches almost to the œsophagus, and carries mesenterial filaments and acontia. The 2 other pairs are much shorter and carry the reproductive organs, which are so perfectly filled with ova in various stages of development that they quite close the chambers. On these quaternary septa the muscles are not much developed, which is the contrary of the case with those of the tertiary septa, where the longitudinal muscles lie like thick frutici on the inner surface, whilst the transversal muscles form a folded membrane on the outer surface.

Habitat.

Station No. 2. One specimen.
— „ 261. Two specimens.

Hertwig has relegated the genus Bunodidæ to the family of the Sagartidæ, and has, in particular, described an Actinia, under the designation Bunodes minuta, found on the „Challenger"-Expedition [1], but he, it is true, prefixes a mark of interrogation as to whether it really can be relegated to it or not, because, according to Gosse, the genus Bunodides has no acontia, although he states that on one occasion he found them in Bunodes coronata. Hertwig thinks that the acontia may, in the generality of cases, have been overlooked in the genus Bunodes, but should that be a mistaken opinion he considers it necessary to form a new genus, both for Bunodes minuta as well as for Bunodes coronata.

The Bunodes abyssorum described by me, above, not only has acontia, but its circular muscles are also endodermal, whilst, also, it has 12 pairs of perfect septa: it can therefore, according to Hertwig's System, not be relegated to the Sagartidæ, and it, consequently, appeared to me most correct to retain the family Bunodidæ, Gosse, and permit it, for the present, to belong to that family, as in its externals it presents several characteristics which are stated by Gosse to be essential for the family and genus.

Specific characteristics.

The pedal disc round; on its wrinkled under-surface an infundibuliform depression, in whose vortex there is

[1] Voyage of H. M. S. „Challenger". Zoology. Vol. VI. Report on the Actinaria dredged by H. M. S. „Challenger", by Professor Richard Hertwig, pag. 84.

ning. Kroppen valseformig, indtil 250^{mm} hoi, 200^{mm} i Omkreds; dens ydre Flade forsynet med Længdefolder, paa hvilke regelmæssige Rækker tætstaaende Knuder. Disse ere glatte, stærkt fremtrædende med hvælvet Overflade, hvori tildels sees en liden Fordybning. Ved Siden af Knuderne iagttages hist og her Sugevorter, som skjules under Kontraktionerne. Kroppens overste Rand har et foldet Udseende. Mundskiven lidt hvælvet og foldet. Munden aflang med tykke, foldede Læber og 2 brede Gonidiegruber. Tentaklerne ikke fuldstændig retraktile, tykke, konisk tilspidsede, med en tydelig Aabning paa Enderne, staa i 4 Rækker, hvoraf den yderste har omkring 70. Farven: Kolumnen hvid, perlemorglindsende, spillende lidt i det Rode, lidt i det Blaalige. Tentaklerne havannabrune. Mundskiven har Kroppens Farve, og fra Munden til Tentaklerne lobe fine, brune Striber. Mundlæberne og Svælget mørk kastaniebrune.

an almost round aperture. The body cylindric, measures up to 250^{mm} in height and 200^{mm} in circumference; its exterior surface furnished with longitudinal folds, upon which are regular series of compactly placed nodules. These are smooth, strongly prominent, with arcuate surface in which a small orifice is sometimes observed. At the sides of the nodules suckers are here and there observed, which are concealed during the contractions. The uppermost margin of the body has a folded appearance. The oral disc is slightly arcuate and folded. The mouth oblong, with thick folded labiæ and 2 broad gonidial grooves. The tentacles not perfectly retractile, thick, conically acuminated, have a distinct orifice at the extremities, and are placed in 4 series, of which the outermost contains about 70 tentacles. *The colour.* The column white, with a mother-of-pearl lustre, shading a little to red and a little to bluish. The tentacles chestnut-brown. The oral disc has the same colour as the body, and from the mouth to the tentacles fine brown stripes issue. The oral labiæ and œsophagus dark chestnut-brown.

Actinauge (Verrill) nodosa, Fabr.

Tab. III, Fig. 4.

Actinia nodosa, Otto Fabricius. Fauna Grønlandica 1780.

Urticina nodosa, Verrill. Americ. Journ. Scien. Vol. VI. 1873—1874. Pag. 413. Pl. VII, Fig. 7. 1883—1885, Pag. 50 Pl. VI. Fig. 6, 7, 8, 8 *a*.

Actinauge nodosa (Fabr.) Verrill. Bulletin of the Museum of comparativ Zoology, Cambridge, Vol. XI, Pag. 50.

Denne af O. Fabricius forst beskrevne, meget distinkte Art, som forekommende temmelig hyppig ved Grønlands Vestkyst, er ifolge Verrill overordentlig almindelig som Dybvandsform langs de nordamerikanske Kyster lige til Grand Banks. Den varierer adskilligt i Udseende, hvorfor han har opstillet 2 Varieteter, nemlig: Variet. coronata og tuberculosa. Denne sidste er endog efter Verrill saa meget afvigende fra den typiske Form, at han er tilboielig til at anse den for en egen Art.

Verrill har dannet en ny Slægt for Fabricius's Art, hvilken han har kaldet Actinauge, men som han tidligere havde henfort til Slægten Urticina. Han karakteriserer Slægten saaledes: „Large actinians, with the tentacles and upper part of the body capable of involution. Integument of body of two kinds; that of the lower part is firm, thick, and more or less coriaceous or parchment-like, with persistent, solid warts or tubercles, usually in vertical rows, and sometimes partially covered with a thin, chitinous epidermal coating; that of the upper part of the body forms a marginal, brighter coloured band, below the tentacles, where it is soft and lubricous, secreting mucous abundantly, and rising into longitudinal ridges, crests, or oblong tubercles, which run to and unite with the bases

Actinauge (Verrill) nodosa, Fabr.

Pl. III. fig. 4.

Actinia nodosa, Otto Fabricius, Fauna Grønlandica 1780.

Urticina nodosa, Verrill. Americ. Journ. Scien. Vol. VI. 1873—1874. Pag. 413. Pl. VII, fig. 7. 1883—1885. Pl. VI, fig. 6, 7, 8, 8 *a*.

Actinauge nodosa (Fabr.) Verrill. Bulletin of the Museum of comparative Zoology, Cambridge. Vol. XI, Pag. 50.

This very distinguished species, first described by O. Fabricius as appearing very abundantly on the west coast of Greenland, is, according to Verrill, exceedingly common as a deep-water form along the North American coast as far as Grand Banks. It varies considerably in appearance, and he has therefore established two varieties viz. Variet. coronata and tuberculosa. The last-named is even, according to Verrill, so distinguished from the typical form, that he is disposed to consider it as a separate species.

Verrill has formed a new genus for Fabricius's species, which he has designated Actinauge, but which, previously, he had related to the genus Urticina. He characterizes the genus thus: „Large actinians, with the tentacles and upper part of the body capable of involution. Integument of body of two kinds, that of the lower part is firm, thick and more or less coriaceous, or parchment-like, with persistent, solid warts or tubercules, usually in vertical rows, and sometimes partially covered with a thin, chitinous epidermal coating; that of the upper part of the body forms a marginal brighter-coloured band, below the tentacles, where it is soft and lubricous, secreting mucous abundantly, and rising into longitudinal ridges, crests, or oblong tubercles, which run to and unite with the bases

of all the tentacles. The basal disc may be broad and flat, adherent, or it may be bulbous, clasping mud, or it may ensheathe the branches of Gorgoniæ &c. Tentacles long and large, contractile. Legis with large folds and gonidial grooves."

Det tor hænde, at Verrill ikke har havt levende Exemplarer, der har været i fuld Vigor, til sine Undersøgelser; thi den Forskjel, han beskriver imellem den øverste og nederste Del af Kroppen, fremkom først paa de Exemplarer, jeg har undersøgt, naar Dyrene vare begyndte at trække sig sammen, og især efter at de vare opbevarede i Alcohol. Paa hele Kroppens Overflade var der stærk Slimafsondring, og Huden var ikke tykkere og ikke fastere paa den nederste, end paa den øverste Del. Paa et Exemplar vare Vorterne overalt lige store. Nu kunne disse Forhold variere meget efter de Lokaliteter, paa hvilke de leve.

Til de Karaktermærker, Verrill har angivet for Slægten, skal jeg ifølge mine Observationer tilføie Følgende: Imellem de store Knuder sees en stor Mængde Sugevorter, samt hist og her Cinclides, hvorigjennem lange Acontier. 6 Par principale, fuldstændige, gulde Septa. Cirkulære Muskler endodermale.

Idet jeg henviser til Verrill's Beskrivelse over Actinauge nodosa og hans to Varieteter, skal jeg supplere den noget.

Fodskiven er bred, udbredt næsten skiveformigt over Stenen, hvortil den er fæstet, med en temmelig tynd og meget undulered Rand. Kolumnen høi, søileformig, cylindrisk; dens Overflade besat med store, fremragende Knuder, som staa i uregelmæssige Længderækker, og imellem dem sees en stor Mængde smaa Sugevorter, hvortil er hæftet Ler og andre fremmede Legemer, samt hist og her Cinclides, hvorigjennem lange Acontier træde ud; dens øverste Rand er fri, noget afrundet.

Mundskiven, som ikke er synderlig bredere end Kolumnen, er plan, foldet og forsynet med 3 Rækker Tentakler, 24 i hver. Den inderste Række har de tykkeste og længste, den mellemste Rækkes Tentakler ere noget tyndere, de i den yderste Række sidde strax nedenfor Kroppens fri Rand og have samme Størrelse som Mellemrækkens. Munden er aflang, foldet, med 2 temmelig brede Gonidiegruber.

Farven. Kroppen er brungul, spillende i det Violette, men den havde, idet Dyret kom i Skraben sammen med Bundens Ler, et brunt, membranost Overtræk, hvorigjennem de store, hvide Vorter stak frem. Om dette Overtræk er en virkelig Overhud, eller det blot var en afsondret, seig Slim, blandet med Ler, var vanskeligt at afgjøre; imidlertid antager jeg det sidste for at være det rette Forhold; thi efterat Dyrene havde levet nogle Dage i rent Sovand, skilte de sig ganske med det nævnte Overtræk, og da havde Kroppen den paa Tegningen angivne Farve. Tentaklerne ere i den inderste Række brunrøde, i den mellemste Række ere de blegere og i den yderste Række bleg hvidrøde.

of all the tentacles. The basal disc may be broad and flat, adherent; or it may be bulbous; clasping mud, or it may ensheathe the branches of Gorgoniæ &c. Tentacles long and large, contractile. Legis with large folds and gonidial grooves."

It may perhaps have been, that Verrill has not had living specimens that have been in full activity for his investigations, as the difference which he describes as existent between the uppermost and lowermost parts of the body, appeared in the specimens which I have investigated, first after the animal had begun to draw itself together, and especially after preservation in alcohol. On the entire external surface of the body there was a strong mucous deposit, and the integument was neither thicker, nor firmer, on the lowermost part than on the uppermost part. In one specimen the warts were everywhere uniform in size. But those relations may vary much according to the localities in which the animals exist.

To the characteristics Verrill has supplied for the genus, I shall, as the result of my investigations, add the following: Between the large nodules a great multitude of suckers are seen, also cinclides here and there, through which long acontia project; 6 pairs of principal, perfect, sterile septa, and circular muscles endodermal.

Referring to Verrill's description of Actinauge nodosa and his two varieties, I shall add a little to it.

The basal disc is broad, distributed almost discoidally over the stone to which it is adherent, and it has a rather thin and somewhat indented margin. The column high, pillar-like, cylindrical; its external surface covered with large protruding nodules, placed in irregular longitudinal series, and between these a great multitude of small suckers are seen, to which clay and other foreign bodies are adherent. Cinclides are also here and there observed, through which long acontia protrude; the uppermost margin is free, and somewhat rounded.

The oral disc, which is not much broader than the column, is plane, folded, and furnished with 3 series of tentacles, 24 in each series. The innermost series contains the thickest and longest tentacles. The tentacles of the intermediate series are somewhat thinner; those in the outermost series are seated immediately inside of the free margin of the body, and are of the same size as those of the intermediate series. The mouth is oblong, folded, and has 2 rather broad gonidial grooves.

The colour. The body is brown-yellow, shading to violet, but it had, as the animal appeared in the dredge together with the clay of the bottom, a brown, membranous coating through which the large white nodules protruded. Whether this coating is a real integument, or only a deposited viscid mucous mixed with clay, was difficult to decide, but I believe, however, that the last named is the true relation, because after the animal had lived for a few days in clean sea-water it completely threw off the coating spoken of, and then the body had the colour indicated in the illustration. The tentacles of the innermost series are brown-red; in the intermediate series they

Omkring Munden er en bleg, gulhvid, smal Ring, hvorfra udgaa blege Straaler til den indre Tentakelrække, Tab. III, Fig. 4.

Hele Legemet er udvendigt beklædt med et Ectoderm, bestaaende af lange, cilierende Cylinderceller, hvorimellem findes en Mængde encellede Slimkjertler og Nematocyster. Indenfor Ectodermet er et tyndt, fibrillært Bindevævslag, paa hvis indre Flade sees cirkulære Muskler, der danne fine Bundter, indesluttede i særskilte Bindevævsrum. Bindevævet er forresten rigt paa Bindevævslegemer med deres Kjærne samt fine Saftkanaler.

Der er 6 Par principale, fuldstændige Septa, hvoraf 2 Par ere Retningssepta, der følge Gonidiegrubernes Retning og ere forsynede med saavel transverselle som longitudinelle Muskler; de første beklæde som en Lamel de indre Flader, det vil sige dem, der vende mod hinanden, de sidste derimod de ydre Flader, hvor de ligeledes udbrede sig membranagtigt. Paa de øvrige 4 Septapar ere Muskellagene placerede omvendt, saaledes nemlig, at de longitudinelle Muskler beklæde de indre Flader, som vende mod de intraseptale Rum, og de transverselle de ydre. Ihvorvel disse Muskellag ere temmelig tydelige, indtage de dog ikke nogen Tykkelse. Disse 6 Par Septa ere golde, de staa langt fra hverandre, baade hvert Par indbyrdes og det ene Par i Forhold til det andet. Derfor ere ogsaa saavel de intraseptale som interseptale Rum (Kamre) meget vide, især gjælder dette de sidste.

I ethvert af de interseptale Kamre er der 3 Par ufuldstændige Septa, hvoraf det midterste Par er det længste, men selv dette rager kun lidt over en Trediedel ind i Hovedkammeret, imedens de to andre ere endnu kortere. Hovedkamrene, det vil sige de 6 interseptale Rum, som fremkomme ved de 6 Par principale Septa, ere derfor ualmindelig rummelige, ja rummeligere end jeg hidtil har observeret hos nogen anden Actinie. Det midterste Septapar har sine longitudinelle Muskler paa den indre Flade; de vende altsaa mod hverandre, imedens de transverselle Muskler ligge paa de ydre Flader; dette Septapar af 2den Orden er ligeledes goldt, men bærer Mesenterialfilamenter og Acontier. De øvrige 2 kortere Par synes at have Muskellaget modsat, idet de longitudinelle Muskelfibre beklæde den ydre og de transverselle den indre Flade, saaledes som Tilfældet er med de to Retningssepta. Disse 2 korte Septapar bære Generationsorganerne, hvori sees Æg i forskjellige Udviklingsstadier. Imellem hvert 2 af samtlige Septapar iagttages 2 yderst rudimentære Septa, der vise sig som smale, listeformige Fremspring, som strække sig fra Fod- til Mundskiven og ere beklædte med Længdemuskler paa den ene og Tværmuskler paa den anden Side. De 6 Par principale, fuldstændige Septa have, hvor de inserere sig paa Fodskiven, en meget stor,

are paler, and in the outermost series pale whitish-red. Round the mouth there is a pale, yellow-white, narrow annulus, from which pale rays issue to the inner tentacular series (Pl. III, fig. 4).

The entire body is, exteriorly, clad with an ectoderm consisting of long, ciliating cylinder-cells, between which a multitude of unicellular mucous glands and nematocysts are observed. Inside of the ectoderm there is a thin, fibrillar layer of connective-tissue on whose inner-surface circular muscles are seen, which form fine fasciculi enclosed in separate connective-tissue spaces. The connective-tissue is, otherwise, rich in connective-tissue corpuscles with their nuclei, and also fine nutritory ducts.

There are 6 pairs of principal, perfect septa, of which 2 pairs are directive septa that follow the direction of the gonidial grooves and are furnished with both transversal and longitudinal muscles. The first-named clothe, as a lamella, the inner surfaces, that is to say, those that face towards each other; the last-named, on the contrary, clothe the outer surfaces, where they likewise distribute themselves membranaceously. On the other 4 pairs of septa, the musculous layers are placed in reverse manner, the longitudinal muscles clothing the inner surfaces, which face towards the intraseptal spaces, while the transversal muscles clothe the outer surfaces. Although these muscular layers are rather distinct, still they do not occupy much of the thickness. These 6 pairs of septa are sterile; they are placed far apart from each other, both each pair as between themselves, as well as the one pair in relation to the other. The intraseptal as well as the interseptal spaces (chambers) are, therefore, very wide, and that is especially the case with the last-named.

In each of the interseptal chambers there are 3 pairs of imperfect septa, of which the intermediate pair is the longest, but even that pair only extends a little more than a third part into the principal chamber, while the two others are even shorter. The principal chambers, that is to say, the 6 interseptal spaces produced by the 6 principal septa, are, therefore, unusually roomy, indeed more so than I have hitherto ever observed in any other actinia. The intermediate pair of septa has its longitudinal muscles on the inner surface; they face therefore towards each other, while the transversal muscles are seated on the outer surfaces. This pair of septa of the 2nd order are likewise sterile, but carry mesenterial filaments and acontia. The remaining 2 shorter pairs of septa appear to have the muscular layer reversed, as the longitudinal muscles clothe the outer and the transversal muscles the inner surface, in same manner as with the 2 directive septa. These 2 short pairs of septa carry reproductive organs in which ova are observed in various stages of development. Between each 2 pairs of all the septa 2 extremely rudimentary septa are observed, which present themselves as narrow, fillet-formed prominences, that extend themselves from the pedal to the oral disc, and are clad with longitudinal muscles on the one and

aflang Aabning (Pedal-Stomata), hvorigjennem Kamrene kommunicere med hverandre forneden.

Findested.

Station 290. 3 Exemplarer.

transversal muscles on the other side. The 6 pairs of principal, perfect septa have, where they insert themselves in the pedal disc, a very large oblong orifice (Pedal-stomata) through which the chambers communicate with each other below.

Habitat.

Station No. 290. Three specimens

Tealidæ, Hertwig[1].

Tealiopsis polaris, n. g. et sp.

Tab. I, Fig. 7, 8. Tab. VIII, Fig. 2, 3.

Fodskiven er rund, dobbelt saa bred som Kolumnen med en temmelig tyk, uregelmæssigt bugtet Rand; dens Underflade er stærkt foldet, og Folderne udstraale viftetormigt fra Centrum mod Peripherien.

Kroppen er cylindrisk, henved 30^{mm} hoi og saavel denne som Fodskiven er ganske inkrusteret af smaa, hvide Skjælstykker samt Sandkorn. Tab. I, Fig. 7, der svare til Bundens Beskaffenhed. Denne viste sig nemlig at bestaa af umaadelige Masser knuste Skjæl, men var forovrigt yderst fattig paa Dyr. Kun den overste Fjerdedel af Kroppen er fri for Skjælbeklædningen, som temmelig let kan fjernes, og viser sig da at bestaa af et meget klæbrigt Slim, der tjener som Bindemiddel for Skjælstumperne. Den nøgne, overste Del af Kroppen er glat, halv gjennemsigtig, saa at Mesenterialfilamenterne og Septa ere synbare, og dens overste Rand er fri, afrundet, svagt dentikuleret. Borttages Skjælbeklædningen, sees Kropsvæggens ydre Flade at være tæt besat med Sugevorter (Suckers), der staa i regelmæssige, longitudinelle Rækker, mellem hvilke sees fine, glatte Linier, som antyde Insertionerne af Septa, Tab. I, Fig. 8.

Mundskiven er noget hvælvet, fint foldet. Den paatversgaaende Mund er lidt konisk fremstaaende med afrundet Rand og smale Gonidiegruber, Tab. I, Fig. 7.

Tentaklerne ere retraktile, temmelig tykke, omtrent saa lange som Skivens Bredde og staa i 3 Rækker. De i den inderste Række ere tykkest og længst og udgjøre 24; den mellemste Række afvexler med den inderste Rækkes Tentakler og har samme Antal; i den yderste Række, der staar strax indenfor Kroppens overste Rand, er der 28. Saavel Mundskiven som Tentaklerne kunne ganske skjules af Kroppens øverste Rand under Dyrets Sammentrækning.

[1] Jeg har fundet det nødvendigt at beholde Familien Tealidæ, der er opstillet af Hertwig, men senere af ham inddraget.

Tealidæ, Hertwig[1].

Tealiopsis polaris, n. g. et sp.

Pl. I, fig. 7, 8. Pl. VIII, fig. 2, 3.

The pedal disc is round, twice as broad as the column, and has a rather thick, irregularly indented margin; its under-surface is strongly folded, and the folds radiate in flabelliform from the centre towards the periphery.

The body is cylindrical, and measures about 30^{mm} in height. It, as well as, also, the pedal disc, is quite encrusted with small white fragments of shells and grains of sand (Pl. I, fig. 7), corresponding to the nature of the sea-bottom. That showed itself to consist of immense masses of broken shells but was otherwise extremely destitute of animal life. Only the uppermost fourth-part of the body is destitute of the shell-covering, which can quite easily be removed, and then appears to consist of a very sticky mucous that serves as a cement for the shell-fragments. The uncovered uppermost part of the body is smooth and semi-transparent, so that the mesenterial-filaments and septa are visible, and its uppermost margin is free, rounded and faintly denticulated. If the shell covering is removed the external surface of the body-wall is seen to be closely beset with suckers, placed in regular longitudinal series, and between which slender smooth lines are seen, indicating the insertions of the septa (Pl. I, fig. 8).

The oral disc is somewhat arcuate and finely folded. The transversally placed mouth is slightly conically protuberant, and has a rounded margin and narrow gonidial grooves (Pl. I, fig. 7).

The tentacles are retractile, rather thick, about as long as the breadth of the disc, and situated in three series. Those in the innermost series are thickest and longest, and are 24 in number. The intermediate series alternates with the tentacles of the innermost series and has the same number of tentacles. In the outermost series, which is situated immediately inside the uppermost margin of the body, there are 28 tentacles. Both the oral disc and the tentacles may be quite concealed by the uppermost margin of the body during the animal's contraction.

[1] I have found it necessary to retain the family Tealidæ, established by Hertwig, but subsequently withdrawn by him.

Den foromtalte ydre, skjælformede Membran er dannet af et meget seigt Slim, der sammenbinder Skjælstumperne og Sandkornene og er ikke organisk forbunden til den indenfor liggende Hud. Den omslutter imidlertid Fod og Krop saa intimt, at man vanskelig kan faa den helt fjernet, uden at den sonderrives, og altid bliver der hængende noget igjen ved Huden; kastes Dyret derimod i Alcohol, kan man senere med Lethed losne Membranen i sin Helhed. Det vil heraf erfares, at denne Membran er forskjellig fra den, som er karakteristisk for Phelliderne, og som er stærkere knyttet til Ectodermet.

Er den ydre Skjælmembran borttaget, fremstiller sig Epithellaget, der danner Ectodermet, og som bestaar af lange, meget cilierende Cylinderceller, imellem hvilke iagttages en stor Mængde flaskeformede, encellede Slimkjertler, samt Nematocyster, Tab. VIII. Fig. 2 *a*, 3 *a*. Indenfor Ectodermet er et temmelig bredt, fibrillært Bindevævslag, som er overmaade rigt paa Bindevævslegemer, Tab. VIII, Fig. 2 *b*, 3 *b*, og i hvis indre Vægflade ligger et Belte af stærkt udviklede, cirkulære Muskelfibre, Tab. VIII, Fig. 2 *c*, 3 *c*, der bestaa af enkelte Fibriller, som ligge tæt til hverandre; indenfor dette Belte er Endothelet, der ligeledes bestaar af Cylinderceller, men som ere kortere end de i Ectodermet, og hver forsynede med en lang Cilie, Tab. VIII, Fig. 3 *d*. Disse endodermale, cirkulære Muskelfibre fremtræde meget skarpt paa Længdesnit, hvor de overskaarne Fibriller ere ioinefaldende som fine Stubber, Tab. VIII, Fig. 3 *c*.

Der er 18 Par fuldstændige, golde Septa, som ere forsynede med Længde- og Tvermuskler, hvilke ere temmelig udviklede, især gjælder dette de longitudinelle. Imellem hver 2 Par af de fuldstændige Septa er der 3 Par ufuldstændige, af hvilke det midterste Par er længst og naar næsten hen til Svælgroret; disse lange, ufuldstændige Septa bære Mesenterialfilamenterne, og paa enkelte af dem sees udviklede Generationsorganer; de ovrige 2 Par ere knapt halvt saa lange og ere forsynede med stærke Længde- og Tvermuskler og alle bære Generationsorganer, som udfylde ganske Kamrene med Æg i forskjellige Udviklingsstadier. Der er altsaa i det Hele 72 Par Septa, af hvilke de 18 Par ere fæstede til Svælgroret. Parieto-basilarmuskelen er temmelig stærk, strækker sig opad langs den nederste Halvdel af Kropsvæggen og udbreder sig henimod Fodskivens Centrum. Farven: Den inkrusterede Del hvidgraa. Hos enkelte Exemplarer er den blottede Del, ligesom Tentaklerne, bleg, skidden hvidgul med en morkere Mundskive; hos andre Exemplarer er Farven teglstensrød. De rødfarvede Tentakler har en morkere Ring paa Midten, medens Enderne ere lysere; de hvidgule Tentakler har en hvid Halvring paa Midten af den adorale Flade.

The external shell-encrusted membrane previously mentioned, is formed of a very viscid mucous which binds the shell-pieces and sand-grains together, and is not organically connected with the integument lying inside. It, however, encloses the base and body so intimately, that it is difficult to enterely remove it without tearing it and there always remains some behind adhering to the integument. When, however, the animal is placed in alcohol, it becomes, subsequently, easy to remove the membrane in its integrity. From the foregoing it will be gathered, that this membrane differs from that which is characteristic of the Phellidæ and which is more firmly secured to the ectoderm.

When the external shell-membrane is removed the epithelial layer that forms the ectoderm presents itself, and consists of long, very ciliating cylinder-cells, between which there are observed a great multitude of bottle-shaped unicellular mucous glands, and nematocysts (Pl. VIII, fig. 2 *a*, 3 *a*). Inside of the ectoderm there is a rather broad fibrillar connective-tissue layer, extremely rich in connective-tissue corpuscles (Pl. VIII, fig. 2 *b*, 3 *b*), and in whose inner mural surface there lies a belt of strongly developed circular muscle-fibres (Pl. VIII, fig. 2 *c*, 3 *c*), which consist of a few fibrils lying close in to each other. Inside of this belt is the endothelium, also consisting of cylinder-cells, but which are shorter than those of the ectoderm, and each of them is furnished with a long cilia (Pl. VIII, fig. 3 *d*). These endodermal circular muscle-fibres appear very prominently in longitudinal sections, where the transsected fibrils become prominent like minute stumps (Pl. VIII, fig. 3 *c*).

There are 18 pairs of completely sterile septa, furnished with longitudinal and transversal muscles that are pretty well developed; that is especially the case with the longitudinal muscles. Between every 2 pairs of the perfect septa there are 3 pairs of imperfect septa, of which the intermediate pair is the longest, and extends almost to the œsophagus. These long imperfect septa carry the mesenterial filaments, and on some of them developed reproductive organs are seen: the other 2 pairs are scarcely half their length, and are furnished with strong longitudinal and transversal muscles; they all carry reproductive organs, which quite fill the chambers with ova in different stages of development. There are therefore, altogether, 72 pairs of septa, of which 18 pairs are adherent to the œsophagus. The parieto-basilar muscle is pretty strong, and extends itself upwards along the lowest half of the body-wall, and distributes itself towards the centre of the pedal disc. *Colour.* The encrusted portion is whity-grey. The uncovered portion, as well as also the tentacles, is, in a few specimens, a pale dirty whity-yellow, the oral disc being a darker shade: in other specimens it has a brick-red colour. The red coloured tentacles have a darker coloured annulus in the middle, while the extremities are lighter in colour. The whity-yellow tentacles have a white crescent in the middle of their adoral surface.

Findested.

Station 323. 11 Exemplarer af forskjellig Størrelse.

Slægtskarakter.

Fodskiven rund med bugtet Rand. Kroppen cylindrisk, dækket af en seig Hud, inkrusteret af Sand og Skjælstumper; indenfor samme — paa den egentlige Hud — en Mængde udprægede Sugevorter, stillede i Længderækker. Mundskiven foldet; Tentaklerne retraktile i faa Rækker. Fremtrædende endodermale Cirkulærmuskler. Mange fuldstændige Septa.

Artskarakter.

Fodskiven rund, dobbelt saa bred som Kolumnen, med tyk Rand og stærkt foldet Underflade. Kroppen cylindrisk, indtil 30^{mm} hoi og saavel som Fodskiven omgiven af en Membran, inkrusteret af Sand og Skjælstumper. Indenfor denne Membran er Kropsvæggen forsynet med Sugevorter i tætte Længderækker. Mundskiven fint foldet. Tentakler i 3 Rækker, omtrent saa lange som Mundskivens Bredde. Farven: Den inkrusterede Del er hvidgraa; den nøgne Del, ligesom Tentaklerne, er paa nogle Exemplarer bleg, skidden hvidgul med en mørkere Mundskive, paa andre tegelstensrød. De rødfarvede Tentakler have paa Midten en mørkere Ring, imedens Enderne ere lysere; de hvidgule have paa Midten af deres adorale Side en hvid Halvring.

Familie **Madoniactidæ.**

Hexactinier med faa principale Septa, Acontier og et udpræget endodermal-eirkulært Muskelsystem.

Madoniactis[1] **lofotensis**, n. g. et sp.

Tab. I, Fig. 5; Tab. VIII, Fig. 1.

Fodskiven er noget bredere end Kolumnen, rund og dens Rand er tyk og noget unduleret. Dens Underflade er rynket og svagt radieret fra Centrum mod Peripherien.

Kroppen er cylindrisk, omtrent lige hoi som bred; dens Overflade er saagodtsom glat og glindsende; kun naar Dyret er lidt sammentrukket, sees med Loupen yderst smaa,

[1] μαδωνία = Vandlilje.

Habitat.

Station No. 323. Eleven specimens of different sizes.

Generic characteristics.

The pedal disc round with indented margin. The body cylindrical, covered with a tough integument encrusted with grains of sand and fragments of shells; inside of this, on the integument-proper, a multitude of distinct suckers placed in longitudinal series. The oral disc folded. The tentacles retractile, placed in few series. Prominent endodermal circular muscles. Numerous perfect septa.

Specific characteristics.

The pedal disc round, twice as broad as the column, has a thick margin and strongly folded under-surface. The body cylindrical, measures up to 30^{mm} in height; it, as well as also the pedal disc, is surrounded by a membrane encrusted with grains of sand and fragments of shells. Inside of this membrane the body-wall is furnished with suckers in compact longitudinal series. The oral disc finely folded. The tentacles placed in 3 series, about as long as the breadth of the oral disc, *Colour*. The encrusted portion whity-grey; the exposed portion, and also the tentacles, are, in a few specimens, pale dirty whity-yellow with a darker oral disc, in others again brick-red. The red coloured tentacles have a darker annulus in the middle, whilst the extremities are lighter; the whity-yellow tentacles have a white crescent in the middle of their adoral surface.

Family **Madoniactidæ.**

Hexactiniæ with few principal septa, acontia, and a prominent endodermal circular muscular system.

Madoniactis[1] **lofotensis**, n. g. et sp.

Pl. I, fig. 5; Pl. VIII, fig. 1.

The pedal disc is somewhat broader than the column, and is round; its margin is thick and somewhat undulating. The under-surface is wrinkled, and faintly radiated from the centre towards the periphery.

The body is cylindrical, about the same in height as in breadth; its external surface is almost smooth, and shining. Only when the animal is a little contracted can

[1] μαδωνία = Waterlily.

vorteformige Fremstaaenheder, der staa uregelmæssigt spredte over hele Kropsfladen, især dens nederste Del, men synes stundom at have Tendents til at danne Længderækker. Disse Fremstaaenheder ere forsynede med en yderst fin Aabning (Loophole) hvorigjennem lange Acontier udstodes. Kroppens overste Rand er noget afrundet og fremstaaende, en tydelig Parapet, indenfor hvilken er en Fordybning (Fossa) imellem den fri, afrundede Rand og den yderste Tentakelrække. Kroppens Hud er fast, membranos, temmelig tynd og halv gjennemskinnende, saa at naar Dyret er udspændt og i fuld Vigor, blive Skillevæggene synbare.

Mundskiven er yderst ringe hvælvet, fint foldet; Folderne gaa fra Munden ud mod Peripherien. Munden er aflang, stærkt foldet med tykke Læber og to temmelig brede Gonidiegruber. Tab. I, Fig. 5.

Tentaklerne retraktile, staa i 4 Rækker, ere temmelig tykke, konisk tilspidsede med noget afstumpede Ender, omtrent 2 Trediedele saa lange som Skivens Bredde, noget stive og paa hele deres Overflade overordentligt rigt besatte med Nematocyster, saa de hænge fast ved Fingrene, naar de berores, uden dog at fremkalde Smerte. I den inderste, 1ste Række, er der 12 Tentakler, disse ere de tykkeste og kanske lidt længere end de ovrige; ogsaa i 2den Række er der 12, hvilke sidde afvexlende med dem i 1ste Række. I den 3die Række er der 18, men i 4de Række er der dobbelt saa mange som i 3die Række, nemlig 36, idet 2 Tentakler af 4de Række sidde mellem hver 2 Tentakler i 3die Række. Saavel Tentaklerne som Mundskiven kan fuldkommen dækkes af Kroppens Rand, naar Dyret kontraherer sig.

Farven. Kroppen med Fodskiven er gulrod med morkerode dels Striber, dels Flækker; dens fri, afrundede Rand er lidt morkere rod. Mundskiven er rosenfarvet med fine, rode Folder, der udgaa fra den rode Ring omkring Munden og strække sig henimod Tentaklerne, hvor de blive bredere, stærkere rode og dele sig saaledes, at de ringformigt omfatte Grunden af Tentaklerne, fra den inderste til den yderste Række. Mundens Læber ere stærkere rode end Skiven, næsten saa rode som Ringen omkring Tentakelgrunden. Gonidiegruberne ere bleg gulrode, eller de kunne være saa stærkt rode som Mundringen. Svælget, der let udkrænges, er hvidgult. Tentaklerne ere gjennemsigtige, bleg gulrode med 1 til 2 brede, rode Ringe, foruden den, som findes ved Grunden.

Kroppens udvendige Flade er som sædvanligt beklædt med et Epithel; dette er temmelig tykt og dannet af lange, cilierende Cylinderceller, hvorimellem sees encellede, kolbeformede Slimkjertler samt Nematocyster. Indenfor dette Ectoderm er et bredt, svagt fibrillært Bindevævslag, over-

extremely minute mammiform protuberances be seen with the assistance of a magnifier. These are placed, irregularly, over the entire surface of the body, especially on its lowest part, but occasionally they appear to have a tendency to form longitudinal series. These protuberances are furnished with an extremely minute loophole through which long acontia are projected. The uppermost margin of the body is somewhat rounded and projectant, and forms a distinct parapet, inside of which there is a fosse between the free rounded margin and the outermost tentacular series. The integument of the body is firm, membranous, rather thin and semi-transparent, so that when the animal is extended and in full activity the divisional-walls become apparent.

The oral disc is extremely slightly arcuate, and finely folded. The folds issue from the mouth towards the periphery. The mouth is oblong, strongly folded, has thick labiæ and two rather broad gonidial grooves (Pl. I, fig. 5).

The tentacles are retractile and are placed in 4 series. They are rather thick, conically acuminated with somewhat blunted extremities, and they measure in length about two-thirds of the breadth of the disc. They are somewhat stiff, and over their entire surface are richly beset with nematocysts, so that they adhere firmly to the fingers when they are touched, without, however, causing pain. In the innermost series, the first one, there are 12 tentacles; these are the thickest and they are also, perhaps, a little longer than the others. In the second series there are also 12 tentacles, seated alternating with those of the first series. In the third series there are 18 tentacles, but in the fourth series there are twice as many as in the third series, viz. 36, as two tentacles of the fourth series are seated between every two tentacles of the third series. Both the tentacles and the oral disc can be completely covered by the margin of the body when the animal contracts itself.

The colour. The body and pedal disc are yellowish-red with dark-red, partly stripes and partly patches. The free, rounded body-margin is a slightly darker-red. The oral disc is rose-coloured, with fine red folds that issue from the red annulus round the mouth, and extend themselves towards the tentacles, where they become broader and a brighter red, and also divide themselves in such manner that they annularly include the base of the tentacles from the innermost to the outermost series. The oral labiæ are a brighter red than the disc, and are almost as red as the annulus round the base of the tentacles. The gonidial grooves are pale yellowish-red, or they may be as bright a red as the oral annulus. The œsophagus is a little everted, and is whity-yellow. The tentacles are transparent, pale yellowish-red, and have 1 to 2 broad red annuli besides the one found at the base.

The external surface of the body is, as usual, clad with an epithelium; this is rather thick, and is formed of long ciliating cylinder-cells, between which unicellular claviform mucous glands and also Nematocysts are seen. Inside of this ectoderm there is a broad faintly fibrillar

ordentligt rigt paa Bindevævslegemer med deres Kjerne. Tab. VIII. Fig. 1 *a*. Henimod dette Bindevævs indre Flade sees et Belte af temmelig tykke, cirkulære Muskelfibre, der tildels anastomosere med hverandre, og som have et udpræget endodermalt Leie, Tab. VIII. Fig. 1 *b*, idet Endothelet stoder nærmest til, imedens der i hele det ovrige brede Lag af Bindevævet ikke findes Spor af Muskler.

Der er 6 Par principale, fuldstændige Septa, hvoraf 2 ere Retningssepta; samtlige ere golde. I ethvert af de derved fremkomne 6 interseptale Hovedkamre er der 3 Par Septa af 2den Orden, som dele hvert af Hovedkamrene i 4 Kamre af 2den Orden. I ethvert af disse Kamre er der 1 Par Septa af 3die Orden, som er meget kort. Septaparrene af 2den Orden ere omtrent lige lange og strække sig næsten lige hen til Svælgrøret; paa dem ere Generationsorganerne fæstede. Tab. VIII, Fig. 1 *c*, og paa 1 Exemplar var Æggestokkene saa stærkt udviklede, at Æggene i forskjellige Udviklingsstadier opfyldte Kamrene saavel af 1ste og 2den som af 3die Orden, med andre Ord, hele Gastralhulheden var udfyldt med Æg. Tab. VIII, Fig. 1 *d*. Acontierne ere fæstede længere nede mod Bunden af Mavehulheden, ligeledes paa Septa af 2den Orden, og ere i temmelig stor Mængde tilstede, sammenrullede i Spiraler.

Jeg har, som det vil sees, dannet en ny Familie for Slægten Madoniactis, omendskjont denne i sit Ydre ligner Tealiderne, men i væsentlige anatomiske Dele Sagartiderne saa særdeles meget, at det vel kunde forsvares at henføre den til dem. Slægten Tealia har saavel Gosse som Dr. Andres hentørt til Familien Bunodidæ, imedens Hertwig har dannet en ny Familie, Tealidæ, for den, grundet hovedsagelig paa Cirkulærmusklernes endodermale Leie. Han karakteriserer Familien saaledes: „Hexactiniæ with numerous perfect septa, and very contractile, moderately long or short tentacles, which can be completely covered. Circular muscle very strong endodermal, projecting as a thick swelling into the gastric cavity."

Familien Sagartidæ er karakteriseret af Hertwig saaledes: „Hexactiniæ with acontia, a strong mesodermal circular muscle and numerous very contractile tentacles; the principal septa, or septa of the first order, only are perfect and at the same time sterile; all the remaining septa are imperfect."

Man vil af Beskrivelsen over Slægten Madoniactis have erfaret, at den efter dette hverken kan henføres til den ene eller den anden af de to nysnævnte Familier, naar de cirkulære Musklers Leie skal være det afgjørende. Mest nærmer den sig Sagartiderne, kun Hensynet til de cirkulære Muskler har gjort, at den ikke er stillet i deres Række. Ihvorvel jeg ikke, ifølge mine hidtil gjorte Undersøgelser, kan tillægge de cirkulære Musklers Leie saa stor Betydning som Hertwig, saa antager jeg dog, at de bør komme i væsentlig Betragtning som et udpræget Karaktermærke, der muligens kan faa den systematiske Overvægt.

connective-tissue layer, extremely rich in connective-tissue corpuscles with their nuclei (Pl. VIII, fig. 1 *a*). Towards the inner surface of this connective-tissue there is observed a belt of pretty thick circular muscle-fibres that to some extent anastomose with each other, and which have a distinct endodermal seat (Pl. VIII, fig. 1 *b*), as the endothelium adjoins closest, whilst in the entire remainder of the broad connective-tissue layer no trace of muscles is to be found.

There are 6 pairs of principal, perfect septa, of which 2 are directive septa; all of them are sterile. In each of the 6 interseptal principal chambers thus produced, there are three pairs of septa of the second order, which divide each of the principal chambers into 4 chambers of the second order. In each of these chambers there is 1 pair of septa of the third order which are very short. The pairs of septa of the second order are about equal in length, and extend themselves almost right up to the œsophagus; the organs of reproduction are secured upon them (Pl. VIII, fig. 1 *c*), and in one specimen the ovaries were so strongly developed that the ova, in various stages of development, filled the chambers of the first and second as well as of the third order; in other words the entire gastral cavity was stuffed with ova (Pl. VIII, fig 1 *d*). The acontia are adherent farther down towards the bottom of the gastral cavity, also upon septa of the second order, and they are present in rather great abundance, coiled up in spirals.

I have, as will be apparent, formed a new family for the genus Madoniactis, although it, in externals, resembles the Tealidæ, and in important anatomical points the Sagartidæ so very greatly, that it might well be justified if it was assigned to them. Goss, as well as Dr. Andres, has assigned the genus Tealia to the family Bunodidæ, whilst Hertwig has formed a new family, Tealidæ, for it, based principally on the endodermal seat of the circular muscles. He characterizes the family thus: „Hexactiniæ with numerous perfect septa, and very contractile, moderately long or short tentacles, which can be completely covered. Circular muscle very strong endodermal, projecting as a thick swelling into the gastric cavity."

The family Sagartidæ is characterized by Hertwig thus: „Hexactiniæ with acontia, a strong mesodermal circular muscle and numerous very contractile tentacles; the principal septa, or septa of the first order, only are perfect and at the same time sterile; all the remaining septa imperfect."

From the description of the genus Madoniactis it will be seen, that it cannot be assigned to either the one or the other of the two families just mentioned, if the seat of the circular muscles is regarded as the point of determination. It resembles the Sagartidæ most, and only regard to the circular muscles has prevented it being placed in that subfamily. Although I cannot, according to my investigations up to date, place such great stress on the seat of the circular muscles as Hertwig does, yet I must assume that it ought to be regarded as of importance as a distinct characteristic trait which, possibly, may have the systematic

som Hertwig allerede har tildelt dem. Madoniactis kommer altsaa indtil Videre til at danne et Led imellem Familierne Bunodidæ, Andres, og Sagartidæ, Gosse, Hertwig.

predominance that Hertwig has already assigned it. The Madoniactis must therefore, for the present, form a link between the families Bunodidæ, Andres, and Sagartidæ, Gosse, Hertwig.

Findested.

Saltstrommen, Lofoten. 90 Favne.

Habitat.

Saltstrommen, Lofoten. Depth. 90 fathoms.

Slægtskarakter.

Fodskiven rund, lidt videre end Kroppen. Denne er cylindrisk, omtrent lige hoi som bred, glat, forsynet med spredte Cinclides. Parapet og Fossa. Tentaklerne i flere Rækker, retraktile, korte. Saavel Tentakler som Mundskive dækkes af Kroppens Rand. De fuldstændige Septa 6 Par, golde. Acontier. De cirkulære Muskler udpræget endodermale.

Generic characteristics.

The pedal disc round, a little wider than the body. The latter is cylindrical, about the same in height as in breadth, smooth, furnished with dispersed cinclides. Parapet and fosse. The tentacles in several series, retractile, short. Both the tentacles and the oral disc covered by the margin of the body. 6 pairs of perfect septa, sterile. Acontia. The circular muscles distinctly endodermal.

Artskarakter.

Fodskiven rund, tyk, noget videre end Kroppen med en tyk, noget unduleret Rand. Kroppen cylindrisk, glat, glindsende, omtrent lige hoi som bred, forsynet med spredte, yderst smaa, gjennemborede Fremstaaenheder (Cinclides), hvorigjennem Acontier udstodes. Kroppens overste Rand afrundet, fri; Parapet, indenfor hvilket en Fordybning (Fossa). Kroppens Hud fast, membranos, halvt gjennemsigtig. Mundskiven næsten flad, dækkes tilligemed Tentaklerne ganske af Kropsranden under Sammentrækningen. Munden aflang med tykke Læber og to brede Gonidieturer. Tentaklerne retraktile, tykke, temmelig korte, danne 4 Rækker: 12 i den 1ste — inderste — Række, hvilke ere de tykkeste; 12 i 2den, 18 i 3die og 36 i 4de Række.

Samtlige Tentakler rigt besatte med Nematocyster. *Farven*: Kroppen gulrod med morkere dels Striber, dels Flækker. Mundskiven Rosa med fine, røde Straaler, der blive bredere og morkere henimod Tentaklerne og danne Ringe om deres Grunddel. Mundens Læber stærkere røde end Skiven. Gonidiegruberne ere bleg gulrøde. Svælgroret, der let udkrænges, hvidgult. Tentaklerne bleg gulrøde med 1 til 2 brede, røde Ringe, foruden den Ring, som findes ved Grunden.

Specific characteristics.

The pedal disc round, thick, somewhat wider than the body, with a thick somewhat undulating margin. The body cylindrical, smooth, lustrous, about the same in height as in breadth, furnished with scattered, extremely minute, perforated protuberances (Cinclides) through which the acontia are projected. The uppermost margin of the body rounded, free. Parapet, inside of which a depression (Fosse). The integument of the body firm, membranous, semi-transparent. The oral disc almost flat; it as well as the tentacles completely covered by the margin of the body during contraction. The mouth oblong, with thick labiæ and two broad gonidial grooves. The tentacles retractile, thick, rather short, form 4 series; 12 in the innermost series, which are also the thickest ones; 12 in the second series; 18 in the third series, and 36 in the fourth series.

All the tentacles richly beset with nematocysts. *Colour*: The body yellowish-red with, partly stripes partly patches of a darker colour. The oral disc rose colour, with fine red rays which become broader and darker towards the tentacles and form annuli round their bases. The oral labiæ brighter red than the disc. The gonidial grooves are pale yellowish-red. The œsophagus, which is easily everted, whity-yellow. The tentacles pale yellowish-red with 1 to 2 broad, red annuli, besides the annulus found at the base.

Familie **Phellidæ**, Andres.

Sagartidæ (pars). Gosse. 1858.
Phellinæ. Verrill. 1868.
— Klunzinger. 1877.
Sagartidæ. R. Hertwig. 1882.
Phellidæ. R. Hertwig. 1888.

Legemet langstrakt. Kolumnen cylindrisk, forsynet med en inkrusteret Skede, fastvoxet til Ectodermet ved en skarpt begrændset Cuticula. Acontier.

Som det vil sees, har jeg optaget Andres's Subfamilie Phellidæ, som jeg finder berettiget, væsentlig paa Grund af den udprægede Skede og den dertil horende Cuticula, hvormed Phelliderne ere forsynede.

Phellia flexibilis, n. sp.

Tab. III. Fig. 5, 6; Tab. XII. Fig. 1—5.

Fodskiven udvider sig skiveformigt over Gjenstanden, hvorpaa den sidder, med en lidt uregelmæssig, temmelig tynd Rand. Tab. III. Fig. 5, 6; Tab. XII. Fig. 1. Dens Overflade er hvælvet og inkrusteret; Underfladen er næsten plan, glat og straalet fra Centrum mod Peripherien; de fine Straaler antyde Septa-Insertionerne.

Kroppen (Kolumnen) er cylindrisk, omtrent 20 ^{mm} høi, noget indkneben ved Fodskiven, men udvider sig bægerformigt opimod Mundskiven, Tab. III, Fig. 5; Tab. XII. Fig. 1. Den nederste Totrediedel er omgiven af en inkrusteret Membran, der danner en Skede, hvis øverste Rand er skarpt begrændset, Tab. III, Fig. 5 *a*; Tab. XII. Fig. 1 *a*. 2 *a*, imedens Kroppens øverste Trediedel er nogen, glat, glindsende og tæt besat med Nematocyster. Tab. III, Fig. 5 *b*; Tab. XII, Fig. 1 *b*. 2 *b*. Mundskiven er temmelig bred, lidt foldet med en aflang Mund og i Randen 2 Rækker lange, flagrende, retraktile Tentakler, hvoraf dog den ydre Række staar paa Kroppens øverste Rand, Tab. XII, Fig. 1.

Der er 24 Tentakler i hver Række; de i den indre Række ere længst og tykkest, næsten dobbelt saa lange som Mundskivens Bredde; de i den ydre Række ere kortere og smalere. Baade Mundskiven og Tentaklerne ere tæt besatte med Nematocyster, og hele den nogne Del af Dyret kan trækkes fuldstændig ind i den inkrusterede Skede, Tab. XII. Fig. 3. Naar Dyret er fuldt indtrukket, er det næsten fladt og danner kun en liden, afrundet Forhøining paa Gjenstanden, hvortil det er fæstet, Tab. XII. Fig. 3.

Farven. Den inkrusterede Del af Kroppen og Fodskiven er temmelig udpræget gulbrun; den nogne Del enten næsten hvid eller bleg rosenrod. Mundskiven stærkt brun med en hvid Ring omkring Munden, hvorfra udgaar hvide Striber hen til Grunden af Tentaklerne, som de omfatte.

Family **Phellidæ**, Andres.

Sagartidæ (pars). Gosse. 1858.
Phellinæ. Verrill. 1868.
— Klunzinger. 1877.
Sagartidæ. R. Hertwig. 1882.
Phellidæ. R. Hertwig. 1888.

The body elongate. The column cylindrical, furnished with an encrusted sheath which has grown fast to the ectoderm by means of a distinctly defined cuticulum. Acontia.

As will be observed, I have included Andres' subfamily Phellidæ, as I find that justified, principally on account of the distinguished sheath and the cuticulum pertaining to it, with which the Phellidæ are furnished.

Phellia flexibilis, n. sp.

Pl. III, fig. 5, 6; Pl. XII. fig. 1—5.

The pedal disc expands itself discoidally over the object upon which it is seated, with a slightly irregular, rather thin margin (Pl. III, fig. 5, 6; Pl. XII, fig. 1). Its upper surface is arcuate and encrusted. The inferior surface is almost plane, smooth, and radiated from the centre towards the periphery. The fine rays indicate the insertions of septa.

The body (the column) is cylindrical, about 20^{mm} in height, somewhat constricted at the pedal disc, but expands in crateriform up towards the oral disc (Pl. III, fig. 5; Pl. XII, fig. 1). The lowest two-thirds part is surrounded by an encrusted membrane which forms a sheath whose uppermost margin is sharply defined (Pl. III, fig. 5 *a*; Pl. XII, fig. 1 *a*, 2 *a*), while the body's uppermost third part is exposed, smooth, lustrous, and closely covered with nematocysts (Pl. III, fig. 5 *b*; Pl. XII, fig. 1 *b*, 2 *b*). The oral disc is rather broad, slightly folded, has an oblong mouth and, in the margin, 2 series of long, waving, retractile tentacles, of which, however, the outer series are seated on the uppermost margin of the body (Pl. XII, fig. 1).

There are 24 tentacles in each series; those in the inner series are longest and thickest, almost twice as long as the breadth of the oral disc; those in the outer series are shorter and narrower. Both the oral disc and the tentacles are closely covered with nematocysts, and the entire exposed part of the animal can be completely withdrawn into the encrusted sheath (Pl. XII, fig. 3). When the animal is fully retracted it is almost flat, and then forms only a small rounded prominence on the object to which it is attached (Pl. XII, fig. 3).

The colour. The encrusted part of the body and the pedal disc are a rather distinguished yellowish-brown. The exposed part is either almost white or pale rose-red. The oral disc is strong brown, with a white annulus round the mouth from which white stripes issue to the base of the

Tentaklerne i den ydre Række ere bleg rosenrode, de i den indre ere brune og ved Grunden mork kastaniebrune, Tab. III, Fig. 5, 6.

Ved Tversnit viser den inkrusterede Del af Kroppen sig at bestaa af 2 Lag; det ydre, der dannes af en temmelig tyk, seig Slimmembran, hvori er indleiret forskjellige haarde, uorganiske Bestanddele, Tab. XII, Fig. 4 *a*, og en temmelig skarpt afgrændset, fibros Cuticula, Tab. XII, Fig. 4 *b*. Denne Membran er fast adhæreret til den indenfor liggende, egentlige Cutis, hvorfra den dog er skilt ved en skarp Grændse, dannet af cylinderformede Epithelceller, der udgjør det egentlige Ectoderm, Tab. XII, Fig. 4 *c*. Slimmembranen er et Produkt af Ectodermet, imellem hvis Celler der findes en Mængde encellede Slimkjertler. Indenfor Ectodermet er et bredt, fibrillært Bindevævslag, Tab. XII, Fig. 4 *d*, i hvis Midte sees cirkulære Muskelfibriller, som samle sig i tynde Bundter, Tab. XII, Fig. 4 *e*.

Et Tversnit af Kroppens nogne Del viser et lidt forskjelligt Billede. Ectodermet bestaar her af meget lange, cilierende Cylinderceller, hvorimellem iagttages, foruden de ovenfor omtalte Slimceller, en stor Mængde Nematocyster. Disse fremtræde i 3 forskjellige Former, nemlig dels som store, næsten cylinderformede Kapsler, hvori en tyk, spiralvunden Traad, dels som meget smaa, lancetformede Kapsler enten uden noget traadformigt Indhold, eller med en lige, spydformet Traad i Kapselen. Paa Tentaklerne, der ogsaa ere rige paa Nematocyster, findes kun de to første Former; indenfor Ectodermet ligger et Lag af stærke, longitudinelle Muskler.

Der er 6 Par principale, fuldstændige Septa, som staa temmelig langt fra hverandre, ligesom hvert Pars Septa ere vel adskilte, saa at baade de intraseptale og de interseptale Rum ere vide, Tab. XII, Fig. 5. Af disse 6 Par fuldstændige Septa ere de to Par Retningssepta, Tab. XII, Fig. 5, 1, og adskille sig fra de øvrige ved Muskelanordningen. De transverselle Muskler danne en foldet Membran, beklæde den indre Flade af hvert Septum og vende i det intraseptale Rum mod hverandre, Tab. XII, Fig. 5 *a*, imedens de longitudinelle Muskler ere stærkt udviklede og danne jo længere de komme henimod Svælgrøret en tyk Busk, Tab. XII, Fig. 5 *b*, ere fæstede til den ydre Flade af hvert Septum og vende altsaa fra de transverselle Muskler, ragende som en Fane ind i det interseptale Rum. De longitudinelle Muskler danne meget smukke Forgreninger, der bedst sees paa Tversnit, Tab. XII, Fig. 5.

Richard Hertwig har beskrevet i sin „Report on the Actinaria dredged by „Challenger“ [1] en ny Phellia under

[1] l. c. pag. 83

tentacles which they enclose. The tentacles of the outer series are pale rose-red, those of the inner series are brown, and at their bases dark chestnut-brown (Pl. III, fig. 5, 6.

In transversal sections the encrusted portion of the body presents itself in two layers; the outer one, which is formed of a rather thick, viscid, mucous membrane in which various hard inorganic substances are embedded (Pl. XII, fig. 4 *a*), and a rather sharply defined, fibrous cuticulum (Pl. XII, fig. 4 *b*). This membrane is firmly adherent to the true cutis which lies inside, from which it is, however, divided by a clearly defined margin formed of cylindric epithelial cells which compose the real ectoderm (Pl. XII, fig. 4 *c*). The mucous membrane is a product of the ectoderm, between whose cells a multitude of unicellular mucous glands are found. Inside of the ectoderm there is a broad, fibrillar layer of connective-tissue (Pl. XII, fig. 4 *d*), in whose middle circular muscle-fibrils which collect themselves into thin fasciculi (Pl. XII, fig. 4 *e*) are observed.

A transversal section of the exposed part of the body presents a slightly different picture. Here the ectoderm consists of very long, ciliating cylinder-cells, between which there are observed a multitude of nematocysts, besides the mucous glands mentioned above. These present themselves in 3 different forms viz. partly as large, almost cylindrically formed capsules, in which there is a thick spirally coiled filament; partly as very small lanceolate capsules either without any filamentous contents, or with a straight, hastiform filament in the capsule. Upon the tentacles, which are also rich in nematocysts, only the two first-named forms are found. Inside of the ectoderm there lies a layer of powerful longitudinal muscles.

There are 6 pairs of principal, perfect septa, which are placed pretty far apart from each other, while at same time each pair of septa are well separated, so that both the intraseptal and the interseptal spaces are wide (Pl. XII, fig. 5). Of these 6 pairs of perfect septa, 2 pairs are directive septa (Pl. XII, fig. 5, 1), and distinguish themselves from the others by their muscular arrangement. The transversal muscles form a folded membrane and clothe the inner surface of each septum, and face towards each other in the intraseptal space (Pl. XII, fig. 5 *a*), while the longitudinal muscles, which are powerfully developed and which, the closer they approach to the œsophagus, form a thick frutex (Pl. XII, fig. 5 *b*), are adherent to the outer surface of each septum and, consequently, face from the transversal muscles and reach like a flag into the interseptal space. The longitudinal muscles form very beautiful ramifications, which are best seen in transversal sections (Pl. XII, fig. 5).

Richard Hertwig has described, in his Report on the Actinaria dredged by „Challenger“ [1], a new Phellia under

[1] l. c. pag. 83.

Navn af Phellia pectinata og angiver i denne sin Beskrivelse, at i det ene Par Retningssepta (han undersogte kun det ene Par) fandt der en Sammenvoxning Sted imellem begge Septas fri Rand, saaledes, at det ene Septums longitudinelle Muskler gik over i det andet Septums Længdemuskler. Nogen saadan Sammenvoxning findes ikke hos Phellia flexibilis og heller ikke hos nogen af de følgende Arter; hvert Septum fæster sig i nogen Afstand fra det andet paa Svælgroret, som ovenfor antydet. Tab. XII, Fig. 5. Hertwig selv opkaster Tvivl med Hensyn til denne Sammensmeltning af Retningssepta og mener, at han muligens kan have hævt med et ungt Exemplar at gjøre, idet han gjor opmærksom paa, at han hos unge Actinier fandt de nylig dannede Septapar sammenvoxede just saaledes, som han har beskrevet hos Phellia pectinata og Tealia bunodiformis.

Paa de øvrige 4 Par fuldstændige Septa er Muskelanordningen ganske modsat den paa Retningssepta; de longitudinelle Muskler ere fæstede paa den indre Flade af hvert Septum og rage som en tyk Busk ind i Intraseptalrummet, hvor de ofte møde de fra det andet Septum udgaaende Længdemuskler, Tab. XII, Fig. 5, 2; de transverselle Muskler beklæde næsten ganske som en fint foldet Membran de ydre Flader og vende altsaa mod de interseptale Rum.

Lige ved Insertionen af ethvert fuldstændigt Septum paa Svælgroret udspringer et Mesenterialfilament, der er proptrækkerformigt oprullet og naar kun lidt nedenfor Svælgrørets nederste Rand, Tab. XII, Fig. 5 *c*; — der er altsaa 12 Mesenterialfilamenter, men forresten ere samtlige fuldstændige Septa sterile.

Imellem hvert to Par fuldstændige Septa er der i hvert interseptalt Rum 2 Par ufuldstændige, der naa kun halvveis henimod Svælgroret og ere forsynede med temmelig stærke Længdemuskler og mindre udviklede Tvermuskler, Tab. XII, Fig. 5, 3. Disse sekundære Septa bære Acontier, der ere tilstede i rigelig Mængde, og langt ned imod Gastralhulhedens Bund ere ogsaa Generationsorganerne fæstede til dem.

Imellem hvert 2 Par af disse ufuldstændige, sekundære Septa er der et Par meget korte Septa, der ligeledes ere forsynede med Længde- og Tvermuskler, og som bære Generationsorganer. Tab. XII, Fig. 5, 4; hvorvidt Acontier ere knyttede til disse tertiære Septa, kan ikke afgjøres med Sikkerhed; men det forekom mig, at enkelte Acontier vare fæstede til dem. Undersøgelsesmaterialet var saa ringe — kun et Exemplar — at det havde sine Vanskeligheder udforligen at granske Dyrets Anatomi og Histologi.

Findested.

Station 8. Et Exemplar. Paa Station 1 fandtes 1 Exemplar, Tab. III, Fig. 6, der dog varierede noget i Farve og var lidt beskadiget; det er dette Exemplar, der er benyttet til Undersøgelserne.

the designation Phellia pectinata, and states in his description of it, that in the one pair of directive septa (he only examined the one pair), there took place a concretion between the free margins of both the septa, in such manner, that the longitudinal muscles of the one septum passed over into the longitudinal muscles of the other septum. A similar concretion is not found in Phellia flexibilis or in any of the species to be subsequently mentioned. Each septum secures itself to the œsophagus at some distance apart from the other, as above indicated (Pl. XII, fig. 5). Hertwig, himself, raises a doubt with respect to the concretion of the directive septa, and supposes that he may possibly have had to do with a young specimen, and he draws attention to the fact that in young Actiniæ he found the newly formed pairs of septa concreted together quite in the same manner as he has described in Phellia pectinata and Tealia bunodiformis.

Upon the remaining 4 pairs of perfect septa the muscular arrangement is quite the reverse of that on the directive septa; the longitudinal muscles are adherent to the inner-surface of each septum, and reach, like a thick frutex, into the intraseptal space, where they frequently meet the longitudinal muscles issuing from the other septum (Pl. XII, fig. 5, 2). The transversal muscles almost entirely clothe the outer surfaces like a fine folded membrane and, consequently, face towards the interseptal spaces.

Just at the insertion of each perfect septum upon the œsophagus a mesenterial filament issues; it is coiled like a cork-screw, and extends only slightly below the lowest margin of the œsophagus (Pl. XII, fig. 5 *c*); there are thus 12 mesenterial filaments but, otherwise, all the perfect septa are completely sterile.

Between each two pairs of perfect septa there are 2 pairs of imperfect septa in each interseptal space, which extend only half way towards the œsophagus, and which are furnished with rather powerful longitudinal muscles and less developed transversal muscles (Pl. XII, fig. 5 3). These secondary septa carry acontia, which are present in rich abundance, and the reproductive organs are also secured to them quite down at the bottom of the gastric cavity.

Between each 2 pairs of these imperfect secondary septa there is a pair of very short septa, which are also furnished with longitudinal and transversal muscles, and carry reproductive organs (Pl. XII, fig. 5, 4. Whether acontia are attached to those tertiary septa can not be stated decisively, but it appeared to me that a few acontia were adherent to them. The investigated material was so small — only a single specimen — that it was most difficult to study fully the animals anatomy and histology.

Habitat.

Station No. 8. One specimen. At station No. 1 a specimen (Pl. III, fig. 6) was found which, however, differed somewhat in colour and was somewhat damaged. It is that specimen which has served for my investigations.

Artskarakter.

Fodskiven udvidet, med en tynd, uregelmæssig Rand; dens Overflade lidt hvælvet; Underfladen næsten plan, glat og straalet. Kroppen cylindrisk, 20^{mm} hoi, bægerformigt udvidet mod Mundskiven, og de to nederste Trediedele omgivne af en inkrusteret, membranøs Skede, hvori den øverste Trediedel af Kroppen kan indtrækkes. Denne er nogen, glat, glindsende, tæt besat med Nematocyster. Mundskiven bred, lidt foldet med en aflang Mund og i Randen 2 Rækker lange, flagrende, retraktile Tentakler, — 24 i hver Række, hvoraf de indre ere længst, næsten dobbelt saa lange som Mundskivens Bredde. Mundskiven og Tentaklerne tæt besatte med Nematocyster. Mesodermale, cirkulære Muskler. Farven: Den inkrusterede Del af Kroppen og Fodskiven temmelig udpræget gulbrun; den nogne Del enten næsten hvid eller bleg rosenrød. Mundskiven stærk brun med en hvid Ring omkring Munden, hvorfra udgaa hvide Striber hen til Tentaklerne. Disse ere i den ydre Række blegrøde, i den indre Række brune og ved Grunden mørk kastaniebrune.

Specific characteristics.

The pedal disc expanded, has a thin irregular margin; its upper surface is a little arcuate; the under-surface almost plane, smooth and radiate. The body cylindric, 20^{mm} in height, crateriform, expanded towards the oral disc, and the lowest two thirds-part is surrounded by an encrusted membranous sheath into which the uppermost third-part of the body can be withdrawn. That latter part is bare, smooth, lustrous, and closely covered with nematocysts. The oral disc broad, slightly folded; has an oblong mouth, and 2 series of long, waving, retractile tentacles in the margin. 24 tentacles in each series, of which the inner series contains the longest, being almost twice as long as the breadth of the oral disc. The oral disc and the tentacles are closely covered with nematocysts. Mesodermal circular muscles. *The colour.* The encrusted part of the body and the pedal disc a rather distinguished yellowish-brown; the exposed part, either almost white or pale rose-red. The oral disc strong brown, with a white annulus round the mouth, from which white stripes issue to the tentacles. In the outer series these are pale red, in the inner series brown, and at their bases dark chestnut brown.

Phellia margaritacea, n. sp.

Tab. III. Fig. 7; Tab. XII. Fig. 6—12.

Dyret er udstrakt henved 30^{mm} hoit. Fodskiven er bred, skiveformigt udvidet, naar den har fæstet sig paa en Sten, med en snart rund, snart aflang, tynd Rand, — har den derimod fæstet sig paa Ler, er den ikke synderlig bredere end Kolumnen, og Randen er da tyk, ligesom der paa dens indre Flade er afsat en klæbrig, hornagtig Membran, der er inkrusteret med Biloculiner, og som er saa fast hæftet til Fodsaalen, at den kun med Kniven kan fjernes. Naar Fodskiven har fæstet sig paa en Sten, saa er dens Underflade lidt konkav og foldet straaleformigt fra Centrum mod Peripherien. Fodskivens øvre Flade er lidt hvælvet og fuldkommen inkrusteret. Tab. III, Fig. 7; Tab. XII, Fig. 6.

Kroppen er henved 25^{mm} hoi, 18^{mm} bred nede ved Fodskiven og omtrent 10^{mm} bred ved Tentakelranden. De nederste tre Fjerdedele ere omgivne af en temmelig tyk, membranøs Skede, der er inkrusteret af Biloculiner og har foroven en skarp Rand. Tab. III, Fig. 7 *a*; Tab. XII, Fig. 6, 7 *a*. Den øverste Fjerdedel er cylindrisk, nogen, glat, perlemorglindsende, fint foldet efter Længden med en krenuleret Rand. Tab. III, Fig. 7 *b*; Tab. XII, Fig. 6 *b*.

Mundskiven er næsten flad, bredere end Kolumnen med en aflang Mund, der er foldet, og fra hvis Rand

Phellia margaritacea, n. sp.

Pl. III. fig. 7; Pl. XII, figs. 6—12.

The animal is, when extended, about 30^{mm} in height. The pedal disc is broad and discoidally expanded, when it has secured itself to a stone, with sometimes a round, sometimes an oblong, thin margin. Upon the other hand, when it secures itself to clay it is not much broader than the column, and the margin is then thick, while also, upon its under-surface, there is deposited a glutinous, corneous membrane encrusted with biloculina clay, so firmly adherent to the pedal sole that it can only be removed with the aid of knife. When the pedal disc has secured itself to a stone its under-surface is then a little concave, and radiately folded from the centre towards the periphery. The upper-surface of the pedal disc is a little arcuate, and completely encrusted (Pl. III. fig. 7; Pl. XII. fig. 6).

The body measures about 25^{mm} in height, and 18^{mm} in breadth at the pedal disc, and is about 10^{mm} in breadth at the tentacular margin. The lowest three-fourths part is surrounded by a rather thick, membranous sheath encrusted with biloculina clay, and which has at its top a sharp margin (Pl. III, fig. 7 *a*, Pl. XII, fig. 6, 7 *a*). The uppermost fourth part is cylindric, bare, smooth, mother-of-pearl lustrous, finely folded longitudinally, and has a crenulated margin (Pl. III, fig. 7 *b*; Pl. XII, fig. 6 *b*).

The oral disc is almost flat, broader than the column, but with an oblong mouth which is folded, and from whose

udgaa radiært fine Folder henimod Tentaklerne, Tab. XII, Fig. 6. Disse sidde i Mundskivens Peripheri i 2 afvexlende Rækker, 24 i hver Række; de ere omtrent saa lange som Mundskivens Bredde, Tab. III, Fig. 7; Tab. XII, Fig. 6. Saavel Tentaklerne som hele den overste, nogne Del kunne trækkes ind i den inkrusterede Skede, og naar Indtrækningen er fuldstændig, fremkommer enten en opretstaaende Soile, eller en Halvkugle, hvori den overste Del af Dyret er ganske skjult.

Farven. Den inkrusterede Del af Kroppen er graabrun af den indleirede Biloculinler; den nogne Del er bleg rosenrod med stærk Perlemorglands. Mundskiven er blegere med lidt morkere Striber. Tentaklerne rosenrode ved Grunden, men deres overste Halvdel er morkere og lidt brunlig. Tab. III, Fig. 7.

Et Tversnit af den inkrusterede Kropsdel viser, at der er to Lag udenfor den egentlige Cutis. Det ene Lag, det ydre, bestaar af en meget seig Slimmembran, hvori er indleiret en Mængde fremmede, haarde Legemer, som egentlig danner Krusten. Tab. XII, Fig. 7 *a*, og indenfor denne en skarp afgrændset, fibrillos Membran, Cuticula, Tab. XII, Fig. 7 *b*, der er fast adhæreret til Ectodermet. Dette dannes af temmelig lange Cylinderceller uden Cilier, Tab. XII, Fig. 7 *c*, imellem hvilke sees mange spredte, encellede Slimkjertler. Indenfor Ectodermet er et bredt, fibrillært Bindevævslag, Tab. XII, Fig. 7 *d*, i hvis Midte sees temmelig fine, undulerende, cirkulære Muskelfibriller, Tab. XII, Fig. 7 *e*, der paa enkelte Steder synes at nærme sig Ectodermet, imedens de paa andre nærme sig Entodermet; tydeligst sees de cirkulære Muskler paa Længdesnit.

Et Tversnit af den nogne Kropsdel viser, at her ingen Cuticula findes, men Ectodermet bestaar af længere, cilierende Cylinderceller, imellem hvilke baade encellede Slimkjertler og Nematocyster findes; disse sidste dog ikke i nogen stor Mængde. Det fibrillære Bindevæv er meget bredt, og i dets Midte sees cirkulære Muskelfibre, stærkere udviklede end de, som findes i den inkrusterede Dels Bindevæv. Paa Mundskiven samle de cirkulære Muskler sig omkring Munden, hvor de synes at danne en Sphincter. De longitudinelle Muskler paa Tentaklerne ere fuldstændig ectodermale.

Der er 6 Par principale, fuldstændige Septa, som staa temmelig langt fra hverandre, Tab. XII, Fig. 12, og af hvilke der er 2 Par Retningssepta, Tab. XII, Fig. 7 *R*, 12 *R*, som adskille sig fra de øvrige 4 Par væsentlig derved, at de transverselle Muskler ere placerede paa den indre Flade af hvert Septum, Tab. XII, Fig. 7 *f*, og vende saaledes i hvert intraseptalt Rum imod hverandre. Disse principale Septa tage deres Begyndelse fra Centrum af Fodskivens indre Flade, hvor de ere vel adskilte og temmelig smale, men tiltage i Bredde, alt eftersom de komme længere op paa Kroppen, imedens de longitudinelle Muskler sidde paa den ydre Flade, Tab. XII, Fig. 7 *g*. Paa de

margin fine folds issue radially towards the tentacles (Pl. XII, fig. 6). These are seated in the periphery of the oral disc in 2 alternating series, 24 in each series; they are about as long as the breadth of the oral disc (Pl. III, fig. 7; Pl. XII, fig. 6). Both the tentacles as well as the entire uppermost bare portion, are capable of being withdrawn into the encrusted sheath, and when the retraction is cómplete, there is produced either a vertical pillar or a hemisphere, in which the uppermost portion of the animal is quite hidden.

The colour. The encrusted part of the body is grey-brown, from the embedded biloculina clay; the bare portion is pale rose-red, with a strong mother-of-pearl lustre. The oral disc is paler, with somewhat darker stripes. The tentacles rose-red at the base, but the uppermost half is darker and slightly brownish (Pl. III, fig. 7).

A transversal section of the encrusted portion of the body shows, that there are 2 layers outside the true cutis. The one layer, the outer one, consists of a very viscid, mucous membrane, in which there are embedded a multitude of foreign hard bodies, that really forms the crust (Pl. XII, fig. 7 *a*), and inside of it there is a sharply defined fibrillar membrane, cuticulum, (Pl. XII, fig. 7 *b*) which is firmly adherent to the ectoderm. This latter is formed of rather long cylinder-cells devoid of cilia (Pl. XII, fig. 7 *c*), between which a multitude of scattered unicellular mucous glands are observed. Inside of the ectoderm there is a broad layer of fibrillar connective-tissue (Pl. XII, fig. 7 *d*), in whose middle rather fine, undulating, circular muscle-fibres are seen (Pl. XII, fig. 7 *e*) which, in some places, appear to approach to the ectoderm, while in other places they approach to the entoderm. The circular muscles are most distinctly seen in longitudinal sections.

A transversal section of the bare part of the body shows, that no cuticulum is found in it, but the ectoderm consists of longish ciliating cylinder-cells, between which both unicellular mucous glands and nematocysts are found. These last are, however, not present in great abundance. The fibrillar connective-tissue is very broad, and in its middle, circular muscles, more powerfully developed than those in the connective-tissue of the encrusted part, are observed. Upon the oral disc the circular muscles collect themselves round the mouth, where they appear to form a sphincter. The longitudinal muscles on the tentacles are completely ectodermal.

There are 6 pairs of principal, perfect septa, placed rather far apart from each other (Pl. XII, fig. 12), and of these, 2 pairs are directive septa (Pl. XII, fig. 7 *R*, 12 *R*) which are distinguished from the other 4 pairs, principally by the transversal muscles being placed on the inner surface of each septum, (Pl. XII, fig. 7 *f*) and facing thus towards each other in each intraseptal space. These principal septa originate in the centre of the pedal disc's inner surface, where they are well separated and rather narrow, but they increase in breadth, gradually, as they extend farther up the body; while the longitudinal muscles are seated on the outer surface (Pl. XII, fig. 7 *g*). On

andre 4 Par fuldstændige Septa Tab. XII. Fig. 7, 1, Fig. 12. 1 ere de longitudinelle Muskler fæstede til den indre Flade af hvert Septum, Tab. XII. Fig. 7 *h*, og udfylde for en Del Intraseptalrummet, imedens de transverselle Muskler ere adhærerede til den ydre Flade og vende mod det interseptale Rum, Tab. XII. Fig. 7 *i*. De transverselle Muskler danne en finfoldet Membran, men de longitudinelle danne Buske og vise sig i Tversnit som skjønne Grene, Tab. XII, Fig. 7 *g, h*, som fremkomme derved, at der fra hvert Septum udgaar en Mængde listeformige Bindevævsforgreninger, paa hvilke Musklerne sidde. De fuldstændige Septa ere golde, men bære Mesenterialfilamenter og Acontier. Disse sidste udmærke sig ved sin overordentlige Rigdom paa Nældeorganer; de ere fæstede ved den fri Rand af Septum, imellem denne og Mesenterialfilamentet, og som sædvanligt dannes Axen, der her synes at være ganske rund, af et fast Bindevæv, som er beklædt med cilierende Epithel (Endothelceller); imellem dette og Bindevævsaxen, hvilende paa denne, sees longitudinelle Muskelfibriller, der ligesom beklæde Axen. Foruden endel spredte, encellede Slimkjertler er Axen forøvrigt tæt besat med Nematocyster, som saagodtsom ganske skjuler Epithelet, Tab. XII. Fig. 8. Disse Nematocyster dannes væsentligst af lange, klare, lysbrydende, næsten cylinderformede Kapsler, der ere tilspidsede i den ene Ende, Tab. XII, Fig. 9, og indeslutte en fin Traad, som er yderst vanskelig at iagttage, selv ved overordentlig stærke Forstorrelser, saa at Kapselen har Udseende af at være uden Indhold. Men en hel Del af disse Nematocyster havde jaget Traaden ud, og den viste sig da som en lang Pidsk, hvis yderst fine Ende næsten blev usynlig, Tab. XII. Fig. 10.

I de ved de fuldstændige Septapar opstaaede 6 Interseptalrum eller Hovedkamre, er der Septa af anden og tredie Orden. Saaledes er der i 4 af disse Kamre et Par Septa af anden Orden, Tab. XII, Fig. 7, 2, Fig. 12, 2, der indtager Midtpartiet, er neppe halvt saa langt som de fuldstændige Septa og har de buskformede Længdemuskler vendte mod hverandre, Tab. XII. Fig. 7, 2. Til den ene Side af dette Septapar er to Par Septa, Tab. XII. Fig. 7, 3, og til den anden Side er et Par af tredie Orden, Tab. XII. Fig. 7, 4; men disse tertiære Septa ere noget uregelmæssige, idet hvert Septum staar temmelig langt fra det andet tilsvarende, saa at det har Udseende af, at de ikke ere stillede parvis, hvilket dog virkelig er Tilfældet. I de øvrige to Hovedkamre er der ligeledes et Par Septa af anden Orden, der som de for omtalte ere stillede i Midten; men til hver af dets Sider er der kun et Septapar af tredie Orden, Tab. XII. Fig. 7, 5. Samtlige Septapar af tredie Orden have omtrent samme Storrelse, rage kun lidet ind i Kamrene og have temmelig udprægede Længdemuskler. Septa saavel af anden som tredie Orden bære Acontier og Generationsorganer. Disse sidste vare kun lidet udviklede paa de undersøgte Exemplarer; hvorvidt Kjønnet er adskilt faar staa derhen. Til et Septum af anden Orden sees fæstet et langt, bugtet, baandformigt Legeme af en blændende hvid Farve, som under Mikro-

the other 4 pairs of perfect septa (Pl. XII, fig. 7, 1—12, 1), the longitudinal muscles are adherent to the inner surface of each septum (Pl. XII, fig. 7 *h*) and partially fill the intraseptal space; while the transversal muscles are adherent to the outer surface towards the interseptal space (Pl. XII, fig. 7 *i*). The transversal muscles form a finely folded membrane, but the longitudinal muscles form frutici, and in transversal sections present themselves as beautiful branches (Pl. XII, fig. 7 *g, h*), produced by a multitude of fillet-formed connective-tissue ramifications, upon which the muscles are seated, issuing from each septum. The perfect septa are sterile but carry mesenterial filaments and acontia. These last are distinguished by an exceeding wealth of nematocysts which are adherent to the free margin of the septum, between it and the mesenterial filament, and, as usual, the axis, which here appears to the quite round, is formed of a firm connective-tissue clad with ciliating epithelium (endothelial cells); between that and the connective-tissue axis, resting upon the latter, longitudinal muscular fibres are seen, which, as it were, clothe the axis. Besides with a number of scattered unicellular mucous glands, the axis is, otherwise, closely covered with nematocysts which almost entirely conceal the epethelium (Pl. XII, Fig. 8). These nematocysts are formed, principally, of long, pellucid, refracting, almost cylindric capsules that are acuminated at the one extremity (Pl. XII, Fig. 9) and enclose a fine filament, which is extremely difficult to observe, even on extremely powerful magnification, so that the capsule has the appearance of being empty. But a great many of these nematocysts had projected the filament, and it then showed itself like a long flagellum whose outermost fine extremity was invisible (Pl. XII, fig. 10).

In the 6 interseptal spaces, or principal chambers produced by the pairs of perfect septa, there are septa of the 2nd and 3rd order. There is thus in 4 of these chambers a pair of septa of the 2nd order (Pl. XII, fig. 7, 2, 12, 2) which occupy the mesial part, are scarcely half the length of the perfect septa, and which have the frutiform longitudinal muscles turned towards each other (Pl. XII, fig. 7, 2). At the one side of this pair of septa there are 2 pairs of septa (Pl. XII, fig. 7, 3) and at the other side one pair of the 3rd order (Pl. XII, fig. 7, 4), but these tertiary septa are somewhat irregular, as each septum stands pretty far apart from the other corresponding one, so that they have the appearance of not being placed in pairs, although that is, however, really the case. In the remaining two principal chambers there is, likewise, a pair of septa of the 2nd order, which like those previously mentioned are placed in the middle: but at each of its sides there is only one pair of septa of the 3rd order (Pl. XII, fig. 7, 5). All the pairs of septa of the 3rd order are about uniform in size, extend only a short way into the chambers, and have rather distinguished longitudinal muscles. The septa of both the 2nd and 3rd orders carry acontia and reproductive organs. These last are only slightly developed in the specimens investigated. Whether the sexes are separated must remain undecided for the present. To

skopet viser sig at være en Æggestok, hvori sees parvis Æg liggende, men ikke meget udviklede, Tab. XII, Fig. 11, 12. Svælgroret er meget vidt, strækker sig omtrent halvveis ned i Gastralhulheden og er forsynet med to Svælggruber. Parieto-basilarmuskelen er yderst tynd og meget smal.

a septum of the 2nd order, a long bulging ribbon-like body of a blinding-white colour is seen to be attached, that under the microscope shows itself to be an ovary in which ova are seen lying in pairs but not much developed (Pl. XII, fig. 11, 12). The œsophagus is very wide, extends about half way down the gastric cavity and is furnished with 2 gullet-grooves. The parieto-basilar muscle is extremely thin and very narrow.

Findested.

Station 295. To meget smaa, yderst stærkt kontraherede Exemplarer.
— 303. To Exemplarer.
— 353. Flere Exemplarer.

Habitat.

Station No. 295. Two very small, extremely contracted specimens.
— „ 303. Two specimens.
— „ 353. Several specimens.

Artskarakter.

Hele Dyret er udstrakt 30^{mm} høit. Fodskiven bred, skiveformigt udvidet med en dels rund, noget tyk, dels aflang, tynd Rand og et Chitinlag paa Underfladen. Kolumnen henved 25^{mm} høi, 18^{mm} bred ved Fodskiven, 10^{mm} bred ved Tentakelranden. Dens nederste tre Fjerdedele samt Fodskivens ovre Flade stærkt inkrusteret; dens overste Fjerdedel cylindrisk, nogen, glat, perlemorglindsende, fint foldet efter Længden med en krenuleret Rand. Mundskiven flad; Munden aflang, foldet, udsendende vifteformigt fine Folder mod Tentaklerne. Disse, siddende i Peripherien i 2 afvexlende Rækker, 24 i hver, ere omtrent saa lange som Mundskivens Bredde. Hele den overste, nogne Del med Mundskive og Tentakler retraktile. Farven: Den inkrusterede Del graabrun; den nogne Del bleg rosenrod med stærk Perlemorglands. Mundskiven blegere med lidt morkere Straaler. Tentaklerne rosenrøde ved Grunden, deres overste Halvdel morkere, svagt brunlig.

Specific characteristics.

The entire animal is, when extended, 30^{mm} in height. The pedal disc broad, discoidally expanded, with a partly round, somewhat thick, and partly oblong, thin margin, and it has a chitinous layer on the under-surface. The column about 25^{mm} in height, 18^{mm} in breadth at the pedal disc, 10^{mm} broad at the tentacular margin. Its lowest three-fourths part and the upper-surface of the pedal disc are strongly encrusted. Its uppermost fourth part cylindric, bare, smooth, mother-of-pearl lustrous, finely folded longitudinally, and with a crenulated margin. The oral disc flat; the mouth oblong, folded, sending out fine folds in fiabelliform towards the tentacles. The tentacles, seated in the periphery in 2 alternating series, 24 tentacles in each, are about the same in length as the breadth of the oral disc. The entire upper bare part and the oral disc and tentacles are retractile. *The colour.* The encrusted part greyish-brown; the bare part pale rose-red, with strong mother-of-pearl lustre. The oral disc paler with slightly darker rays. The tentacles rose-red at the base, their uppermost half part darker, faint brownish.

Phellia arctica, n. sp.

Tab. III, Fig. 8; Tab. XII, Fig. 13, 14; Tab. XIII, Fig. 1—4.

Hele Dyret er i fuld Vigør med udfoldede Tentakler 40^{mm} høit, 12—15^{mm} bredt forneden, men smalner lidt af opover mod Tentakelranden, Tab. III, Fig. 8; Tab. XIII, Fig. 1. Fodskiven er lidt bredere end Kroppens Tykkelse; den har en meget tyk, lidt indboiet Rand, og dens Underflade er lidt konkav og belagt med en chitinagtig Membran, imedens Overfladen er lidt hvælvet og stærkt inkrusteret.

Kroppens nederste tre Fjerdedele ere omgivne af en inkrusteret Overhud i Form af en Skede, der foroven har

Phellia arctica, n. sp.

Pl. III, fig. 8; Pl. XII, figs. 13, 14; Pl. XIII, figs. 1—4.

When the entire animal is in full vigour, with outstretched tentacles, it measures 40^{mm} in height, and 12—15^{mm} in breadth at the base, but diminishes in thickness a little up towards the tentacular margin (Pl. III, fig. 8; Pl. XIII, fig. 1). The pedal disc is a little broader than the thickness of the body; it has a very thick, slightly involved margin, and its under-surface is slightly concave and coated with a chitinous membrane, while the upper-surface is a little arcuated and strongly encrusted.

The lowest three-fourths part of the body is surrounded by an encrusted outer integument, in the form of

en afrundet, skarpt begrændset Rand, Tab. III, Fig. 8 *a*; Tab. XIII, Fig. 1 *a*; den overste Fjerdedel er nogen, glat, forsynet med fine Længdestriber, der antyde Septainsertionerne, og er saa gjennemsigtig, at Mesenterialfilamenterne kunne sees, Tab. III, Fig. 8 *b*; Tab. XIII, Fig. 1 *b*. Imellem Linierne sees yderst smaa, runde Vorter, som synes at staa i et Par Tverrækker. Disse Vorter, der især blive tydelige under Kontraktionen, men forresten kan sees under Loupen, er paa Midten forsynet med en Grube og maa betragtes som Sugevorter, Tab. XII, Fig. 14.

Mundskiven er næsten plan, strækker sig noget udover Kolumnen og har en Mængde fine Folder, der straale ud fra Munden mod Peripherien. Munden er aflang med tykke, foldede Læber, Tab. XIII, Fig. 1. Tentaklerne ere lange, slanke og staa i 4 Rækker. I den yderste eller 4de Række staa de lige i Kroppens overste Rand, ere glasklare, traadformige og omtrent 48 i Antal. Den 3die Række har det samme Antal; de ere noget tykkere og sidde afvexlende med de foregaaende; ogsaa i den 2den Række er der 48, som ere baade længere og tykkere end de i 3die Række; men i den 1ste eller inderste Række er der 24; disse ere de længste og tykkeste, Tab. XIII, Fig. 1. Hele den overste, nogne Del af Kolumnen med Mundskiven og Tentakler kan fuldstændig drages ind i den inkrusterede Skede og ganske skjules af denne. Halvt indtrukken skjules Tentaklerne, Mundskiven og den nogne Del af Kolumnen, og der dannes da en Halvkugle med udprægede Folder, Tab. XII, Fig. 13 *a*. Er den nogne Del helt indtrukken, sees kun Skeden som en opretstaaende Søile. Fjernes den inkrusterede Skede fra den indenfor værende Hud, hvortil den forøvrigt er meget fast adhæreret, saa frembyder Kroppens Overflade under Loupen et vortet Udseende. Vorterne staa her i temmelig regelmæssige Tverrækker, noget langt fra hverandre, have paa Midten en Grube og ere fuldkommen lig dem, som findes paa den nogne Del, Tab. XII, Fig. 14.

Farven. Den inkrusterede Skede er graabrun; den nogne Del af Kroppen er næsten hvid og saa gjennemsigtig, at de temmelig stærkt gulfarvede Mesenterialfilamenter sees. Skiven er fin rosenrod med en smal, gulhvid Ring omkring Munden. Svælget er gulhvidt. Tentaklerne ere i den 1ste, inderste, Række, stærkt laxerøde; i den 2den Række er Farven mindre intens; i den 3die Række er den fin rosenrod, og i den 4de, yderste, Række ere Tentaklerne saagodtsom farveløse, men have en svag, violet Ring omkring deres Grunddel, Tab. III, Fig. 8.

Paa et Tversnit af Kroppens inkrusterede Del sees det ydre Lag at være dannet af en strukturlos, bred Membran, hvori er indleiret fremmede Legemer, saasom Ler,

a sheath, which at its top has a rounded, sharply defined margin (Pl. III, fig. 8 *a*; Pl. XIII, fig. 1 *a*). The uppermost fourth part is bare and smooth, and is furnished with fine longitudinal stripes which indicate the insertions of septa, and it is so transparent that the mesenterial filaments can be seen (Pl. III, fig. 8 *b*: Pl. XIII, fig. 1 *b*). Between the lines, extremely small, round nodules are observed, which appear to be placed in a couple of transversal series. These nodules become epecially distinct during contractions of the animal, but at other times can only be observed with the assistance of a magnifier; they are furnished in their middle with a cavity and must be considered as suckers (Pl. XII, fig. 14).

The oral disc is almost plane and extends itself somewhat out beyond the column, and it has a multitude of fine folds radiating from the mouth towards the periphery. The mouth is oblong, with thick folded labiæ (Pl. XIII, fig. 1). The tentacles are long, attenuated, and placed in 4 series. In the outermost or 4th series they are situated exactly in the uppermost margin of the body, are translucent, filamentous, and about 48 in number. The 3rd series of tentacles has the same number; they are somewhat thicker, and are placed alternating with those of the preceding series. In the 2nd series of tentacles there are also 48, which are both longer and thicker than those of the 3rd series; but in the 1st or innermost series there are 24; these are the longest and thickest (Pl. XIII, fig. 1). The entire uppermost, bare part of the column, with the oral disc and tentacles, can be entirely withdrawn into the encrusted sheath and be completely concealed by it. When only half retracted, the tentacles, oral disc and bare part of the column are hidden, and there is then formed a hemisphere with distinguished folds (Pl. XII, fig. 13 *a*). When the bare part is entirely retracted the sheath alone is seen, appearing like a vertical pillar. When the encrusted sheath is removed from the integument lying inside of it, to which it is, however, very firmly adherent, the external surface of the body then presents, under the magnifier, a nodulous appearance. The nodules are here placed in rather regular transversal series, somewhat apart from each other, and have a cavity in the middle, and are exactly similar to those which are observed on the bare part (Pl. XII, fig. 14).

The colour. The encrusted sheath is grey-brown; the bare part of the body is almost white, and so transparent that the rather strongly yellow-coloured mesenterial filaments may be seen. The oral disc is fine rose-red with a narrow yellowish-white annulus round the mouth. The œsophagus is yellowish-white. The tentacles are in the 1st, innermost series, strong salmon-red colour; in the 2nd series the colour is less intense, in the 3rd series it is fine rose-red, and in the 4th, outermost series, the tentacles are almost colourless, but have a faint violet-coloured annulus round their base (Pl. III, fig. 8).

In a transversal section of the encrusted part of the body, the outer layer is seen to be formed of a structureless broad membrane in which foreign bodies are embedded,

Skjælstumper, Kiselstykker o. s. v., hvoraf den Havbund væsentlig bestaar, hvorpaa Dyret lever. Indenfor denne Membran er et smalt, vel begrændset, fibrillært Lag, Cuticula, der er fast bundet til det indenfor liggende Ectoderm, hvoraf det er et Produkt. Ectodermet dannes af Cylinderceller med deres Kjerner, men uden Cilier, Tab. XIII, Fig. 2 *a*, og imellem Cellerne sees aflange, encellede Slimkjertler i temmelig stor Mængde. Nogle af disse ere ganske tomme og ligne Vacuoler, andre ere mere eller mindre fyldte med finkornet Masse, der som oftest skjuler Kjernen. Indenfor Ectodermet er et meget bredt, fibrillært Bindevævslag, forsynet med Bindevævslegemer og fine Saftkanaler, Tab. XIII, Fig. 2, 3 *b*. Paa den indre Flade af dette Bindevæv, imod Endothelet, iagttages cirkulære Muskler, Tab. XIII, Fig. 2 *c*, der ligge i Bundter, hvilket især er fremtrædende paa Længdesnit, Tab. XIII, Fig. 3 *c*. Paa den overste, nogne Del af Kroppen er der ingen Cuticula; Ectodermets Cylinderceller ere længere og forsynede med Cilier, og der er rigere Forsyning af encellede Slimkjertler, ligesom Nematocyster optræde i temmelig stor Mængde.

Der er 6 Par principale, fuldstændige, golde Septa, hvoraf de to Par ere Retningsscpta, som adskille sig fra de øvrige ved som sædvanligt at have de transverselle Muskler fæstede paa den indre og de longitudinelle paa den ydre Flade. De øvrige 4 Septapar have deres longitudinelle Muskler fæstede paa den indre Flade og vende mod hverandre i det intraseptale Rum, Tab. XIII, Fig. 4 *a*, imedens de transverselle Muskler sidde paa den udvendige Flade og vende mod det interseptale Rum, Tab. XIII, Fig. 4 *b*. De longitudinelle Muskler danne stærke Forgreninger, der ere rigest og længst paa Midtpartiet af Septum, Tab. XIII, Fig. 4, imellem Gastralhulhedens Væg og Svælgroret, det vil egentlig sige, at fra Septum udgaa dels enkelte, dels forgrenede Bindevævsforlængelser, paa hvilke Længdemusklerne ere fæstede. De transverselle Muskler danne en fint foldet Membran, der beklæder næsten hele Fladen af Septum; kun et smalt Belte langs dettes fri Rand er uden Muskler. Til samtlige fuldstændige Septa ere Mesenterialfilamenter bundne; de tage deres Begyndelse lige ved Skillevæggens Tilheftning til Svælgroret, strække sig et Stykke nedenfor dette og have en stærk straagul Farve.

Imellem hvert 2 Par af de fuldstændige Septa, altsaa i hvert Hovedkammer, er der 3 Par ufuldstændige Septa, hvoraf det midterste Par er det længste og naar næsten hen til Svælgroret, Tab. XIII, Fig. 4 *c*. Længdemusklerne sidde paa den indre Flade mod hverandre i det intraseptale Rum, Tab. XIII, Fig. 4 *d*, og ere forholdsvis ligesaa stærkt udviklede, som de paa de principale, fuldstændige Septa, hvilket ogsaa er Tilfældet med de transverselle Muskler, der sidde paa den ydre Flade fra hverandre i det interseptale Rum, Tab. XIII, Fig. 4 *e*. Disse sekundære

such as clay, bits of shell, silicious fragments &c. of which the sea-bottom where the animal exists principally consists. Inside of that membrane there is a narrow, well-defined fibrillar layer — cuticulum — which is firmly secured to the ectoderm lying inside, and of which it is a product. The ectoderm is formed of cylinder cells with their nuclei, but without ciliæ (Pl. XIII, fig. 2 *a*) and between the cells, oblong, unicellular mucous glands are observed in rather great abundance. Some of these glands are quite empty, and resemble vacuoli, others are more or less filled with a fine granular mass, that most frequently conceals the nucleus. Inside of the ectoderm there is a very broad, fibrillar layer of connective-tissue, furnished with connective-tissue corpuscles and fine nutritory ducts (Pl. XIII, fig. 2, 3 *b*). On the inner-surface of this connective-tissue, towards the endothelium, circular muscles are observed (Pl. XIII, fig. 2 *c*), lying in fasciculi, and which are especially prominent in longitudinal sections (Pl. XIII, fig. 3 *c*). On the uppermost bare part of the body there is no cuticulum; the cylinder-cells of the ectoderm are longer and are furnished with ciliæ, and there is a richer supply of unicellular mucous glands, while, also, nematocysts appear in rather great abundance.

There are 6 pairs of principal, perfect, sterile septa, of which two pairs are directive septa, and distinguish themselves from the others by, as usual, having the transversal muscles adherent to the inner, and the longitudinal muscles to the outer surface. The remaining 4 pairs of septa have their longitudinal muscles secured to the inner surface, and face towards each other in the intraseptal space (Pl. XIII, fig. 4 *a*), while the transversal muscles are seated on the exterior surface, and face towards the interseptal space (Pl. XIII, fig. 4 *b*). The longitudinal muscles form strong ramifications, which are richest and longest in the mesial part of the septum (Pl. XIII, fig. 4), between the wall of the gastric cavity and the œsophagus, that is, really, to say, that from the septum there issue, partly single, partly ramified connective-tissue prolongations on which the longitudinal muscles are secured. The transversal muscles form a finely folded membrane which clothes almost the entire surface of the septum; there is only a narrow belt left along its free margin which is devoid of muscles. Mesenterial filaments are secured to all the perfect septa; they originate just at the attachment of the divisional walls to the œsophagus, and extend themselves a piece down it, and have a strong straw-yellow colour.

Between each two pairs of the perfect septa, consequently in each principal chamber, there are 3 pairs of imperfect septa, of which the intermediate pair is the longest, and extends almost to the œsophagus (Pl. XIII, fig. 4 *c*). The longitudinal muscles are seated on the inner surface, facing each other in the intraseptal space (Pl. XIII, fig. 4 *d*) and are, relatively, quite as strongly developed as those upon the principal, perfect septa, which is also the case with the transversal muscles, which are seated on the outer surface, facing from each other in the inter-

Septa bære saavel Acontier som Kjønsorganer, og til hver Side af dem sees det tertiære, ufuldstændige Septapar, Tab. XIII, Fig. 4 *f*, der er meget smalt, rager knapt en Trediedel saa langt frem i det interseptale Rum som de sekundære Septa. De ere ligeledes forsynede med Længde- og Tværmuskler og bære baade Acontier og Kjønsorganer; disse sidste ere kun lidet udviklede. Svælgroret er vidt, foldet, forsynet med 2 brede Svælggruber og indtager omtrent to Trediedele af Gastralhulhedens Længde, Tab. XIII, Fig. 4 *g*.

Findested.

Station 290. Et Exemplar.

Artskarakter.

Hele Dyret 40^{mm} høit, 12– 15^{mm} bredt lige ved Fodskiven og smalner af mod Tentakelranden. Fodskiven lidt bredere end Kroppen med en tyk, lidt indbøiet Rand og en lidt konkav Underflade. Trefjerdedele af Kolumnen med den hvælvede Fodoverflade ere omgivne af en inkrusteret Skede med en afrundet, skarpt begrændset Rand foroven. Den overste Fjerdedel er nøgen, glat, forsynet med fine Længdelinier og saa gjennemsigtig, at Mesenterialfilamenterne sees. Imellem Linierne yderst smaa, runde Vorter, forsynede med en Grube (Suckers). Mundskiven plan, fint foldet. Munden aflang med foldede Læber. Tentaklerne lange, slanke, retraktile, i 4 Rækker. 24 i den 1ste, inderste, Række, hvilke ere de længste og tykkeste, 48 i hver af de øvrige 3 Rækker. Hele den overste, nøgne Del af Kolumnen med Mundskive og Tentakler kan fuldstændig drages ind i den inkrusterede Skede. Fjernes denne, sees regelmæssige Tværrækker af Suckers. Farven: Den inkrusterede Skede graabrun. Kroppens nøgne Del næsten hvid. Mundskiven fint bleg rosenrød med en smal, gulhvid Ring omkring Munden. Svælget gulhvidt. Tentakler i 1ste Række laxerøde, i 2den og 3die Række mindre intens røde og i 4de, yderste, Række næsten farvelose, men have en svag violet Ring omkring Grunddelen. De cirkulære Muskler endodermale.

Phellia crassa, n. sp.

Tab. IV, Fig. 9; Tab. XIII, Fig. 5, 6; Tab. XIV, Fig. 1—5.

Hele Dyret er omkring 45—50^{mm} høit; paa enkelte Exemplarer er det kun 10^{mm} bredt ved Foden, imedens det paa andre er 20^{mm} og derover, Tab. IV, Fig. 9; Tab. XIII, Fig. 5.

septal space (Pl. XIII, fig. 4 *e*). These secondary septa carry both acontia and reproductive organs, and on each side of them the tertiary imperfect pairs of septa are observed (Pl. XIII, fig. 4 *f*); these are very narrow and reach scarcely a third part as far forward into the interseptal space as the secondary septa do. They are, likewise, furnished with longitudinal and transversal muscles, and carry both acontia and reproductive organs; these last are only little developed. The œsophagus is wide, folded, furnished with 2 broad gullet-grooves, and occupies about two-third parts of the length of the gastric-cavity (Pl. XIII, fig. 4 *g*).

Habitat.

Station No. 290. One specimen.

Specific characteristics.

The entire animal measures 40^{mm} in height, 12—15^{mm} in breadth just at the pedal disc, diminishing in thickness upwards towards the tentacular margin. The pedal disc a little broader than the body, has a thick, slightly involved margin, and a slightly concave under-surface. Three-fourth parts of the column with the surface of the arcuate base, is surrounded by an encrusted sheath having a rounded sharply defined margin at its top. The uppermost fourth part is bare, smooth, furnished with fine longitudinal lines, and is so transparent that the mesenterial filaments can be seen. Between the lines there are extremely small, round nodules furnished with a cavity in the middle (suckers). The oral disc plane, finely folded. The mouth oblong, with folded labiæ. The tentacles long, attenuated, retractile, in 4 series. 24 tentacles in the 1st, innermost series, and these the longest and thickest; 48 tentacles in each of the other 3 series. The entire uppermost, bare part of the column with the oral disc and tentacles, can be completely withdrawn into the encrusted sheath. When that is removed, regular transversal series of suckers are seen. *The colour.* The encrusted sheath grey-brown; the bare part of the body almost white; the oral disc fine pale rose-red with a narrow yellowish-white annulus round the mouth. The œsophagus yellowish-white. The tentacles in the 1st series salmon-red colour; in the 2nd and 3rd series not quite so intense red, and in the 4th, outermost series almost colourless, but with a faint violet annulus around the base. The circular muscles endodermal.

Phellia crassa, n. sp.

Pl. IV, fig. 9; Pl. XIII, fig. 5, 6; Pl. XIV, fig. 1—5.

The entire animal measures about 40—50^{mm} in height, and in some specimens it measures only 10^{mm} in breadth at the base, whilst in others the breadth is 20^{mm} and upwards (Pl. IV, fig. 9; Pl. XIII, fig. 5).

Fodskiven er bred, næsten skiveformigt udvidet med en tynd, uregelmæssig Rand og en temmelig jævn Underflade, beklædt med en tynd, chitinagtig Membran, der fæster den til den Gjenstand, hvorpaa den sidder, hvilken i Almindelighed er dode Skaller af Astarte; kun et Exemplar syntes at være losrevet fra den almindelige Befæstningsgjenstand, og hos det var Fodskivens Rand indbøiet over en Lerklump, der i dette Tilfælde dannede Befæstningsgjenstanden. Tab. IV, Fig. 9.

Saavel Fodskivens Overflade som de nederste to Trediedele af Kolumnen ere beklædte med en grovt inkrusteret, membranos Skede, der foroven har en rund, jævn, men stærkt udpræget Rand, Tab. IV, Fig. 9 *a*; Tab. XIII, Fig. 5 *a*. Denne inkrusterede Del af Kroppen aftager successivt i Tykkelse, saa at den overste Rand er knapt halvt saa bred som det nederste Parti ved Fodskiven, Tab. IV, Fig. 9. Den overste Trediedel er cylindrisk, nogen, glat, lidt smalere end Skedens Rand og forsynet med Længdefolder, imellem hvilke findes fine Furer, Tab. IV, Fig. 9 *b*; Tab. XIII, Fig. 5 *b*. Paa Folderne iagttages dels smaa runde Vorter med en Grube i Midten (Suckers), dels Cinclides. De første have en Tendents til at danne Tværrækker, der dog ere meget uregelmæssige; de sidste ere aflange Spalter, der kun ere sparsomme, og igjennem enkelte af dem stikker en Acontie frem.

Mundskiven er næsten plan. Munden er aflang med tykke Læber, der danne 5 Folder paa hver Side af Mundvigene (Gonidialgruberne), Tab. XIII, Fig. 5. Tentaklerne staa i 2 Rækker, 12 i hver; de ere retraktile, ikke meget lange, omtrent som Skivens Bredde. I den yderste Række sidde Tentaklerne lige i Kropsranden og synes at være lidt tykkere end de i den inderste Række, der sidde afvexlende med de første, Tab. XIII, Fig. 5. Hele den nogne, øverste Del af Kroppen med Mundskive og Tentakler kunne med Lethed trækkes ind i den inkrusterede Skede og derved ganske skjules af denne, der da antager snart Formen af en afstumpet Kegle, snart af en fladtrykt Halvkugle, Tab. XIII, Fig. 6. Borttager man den inkrusterede Skede, saa frembyder Kroppens Overflade et yderst fintkornet Udseende, der under Loupen viser sig at være tætstaaende, smaa Vorter, fuldkommen lig dem paa den nogne Del, Tab. XIII, Fig. 6 *a*.

Farven. Den inkrusterede Skede, der bestaar væsentligst af grove Sandkorn, er graabrun; den nogne Del af Kroppen er næsten hvid. Tentaklerne i yderste Række ere violetrøde, intensere ved Grunden; de i den inderste Række ere mere rosenrøde. Mundskiven er violetrød, straalet med violette Striber. De foldede Mundlæber ere intensere violetrøde. Kropshuden indenfor Skeden er ganske hvid. Vorterne skinne lidt i det Gule.

The pedal disc is broad, almost discoidally expanded, has a thin irregular margin and a rather even under-surface clad with a thin, chitinous membrane that secures it to the object upon which it is seated, usually shells of dead Astarte; only one specimen appears to be torn from the usual object of adhesion and, in it, the margin of the pedal disc was curved over a lump of clay, which in this case formed the object of adhesion (Pl. IV, fig. 9).

Both the upper-surface of the pedal disc as well as the lowest two-third parts of the column are clad with a coarse encrusted membranous sheath, which at the top has a round, even, but strongly prominent margin (Pl. IV, fig. 9 *a*; Pl. XIII, fig. 5 *a*). This encrusted part of the body diminishes, gradually, in thickness, so that the uppermost margin is scarcely half the breadth of the lowest part at the pedal disc (Pl. IV, fig. 9). The uppermost third part is cylindric, bare, smooth, slightly narrower than the margin of the sheath, and is furnished with longitudinal folds between which fine furrows are observed (Pl. IV, fig. 9 *b*; Pl. XIII, fig. 5 *b*). On the folds there may be observed, partly small round nodules with a cavity in the middle (suckers), partly cinclides. The first-named have a tendency to form transversal series, which are, however, very irregular; the last-named are oblong fissures which are only sparingly present, and through some of them an acontia is protruded.

The oral disc is almost plane. The mouth is oblong, with thick labiæ which form 5 folds on each side of the oral angles (gonidial grooves) (Pl. XIII, fig. 5). The tentacles are placed in 2 series, 12 in each; they are retractile, not very long, about the breadth of the disc. In the outermost series the tentacles are seated quite at the margin of the body, and appear to be a little thicker than those of the innermost series, which are placed so as to alternate with those of the first series (Pl. XIII, fig. 5). The entire, bare, uppermost part of the body with the oral disc and tentacles, can be withdrawn with ease into the encrusted sheath, and is thus quite concealed by it, and the sheath then assumes, sometimes the form of a shortened blunted cone, sometimes of a flattened hemisphere (Pl. XIII, fig. 6). When the encrusted sheath is removed, the external surface of the body then presents an extremely fine granulated appearance, which, under the magnifier, shows itself to arise from compactly placed, small nodules, quite similar to those on the bare part (Pl. XIII, fig. 6 *a*).

The colour. The encrusted sheath, which consists principally of coarse grains of sand, is grey-brown; the bare part of the body is almost white. The tentacles of the outermost series are violet-red with a more intense colour at the base; those of the innermost series are more rosy-red. The oral disc is violet-red radiated with violet stripes. The folded oral labiæ are a more intense violet-red. The integument of the body, inside the sheath, is quite white. The nodules (suckers) a lustrous yellowish-colour.

Den inkrusterede Del af Kroppen viser paa Tversnit to Hovedlag, nemlig Skeden, der bestaar af en Slimmembran, hvori de fremmede, haarde Legemer ere indleirede i stor Mængde, og Cuticula, der er fast adhæreret til det indenfor værende Ectoderm. Dette er dannet af Cylinderceller, som ikke ere meget lange og uden Cilier, men imellem Cellerne sees mange encellede Slimkjertler, ligesom Sugevorterne vise sig at være lukkede indad, saa at de ikke perforere Huden. Indenfor Ectodermet er et ikke meget bredt, fibrillært Bindevæv, i hvis Midte sees et temmeligt bredt Belte af cirkulære Muskelfibre, der danne Bundter og strække sig henimod den indre Flade, som er beklædt med Endothelceller, forsynede med lange Cilier. Paa den nogne Del af Kroppen er Ectodermcellerne længere og forsynede med Cilier, Tab. XIV, Fig. 3 *a*; de encellede Slimkjertler synes at være i større Mængde tilstede, ligesom her optræde Nematocyster i saa stor Rigdom, at de saagodtsom ganske dække Ectodermet, Tab. XIV, Fig. 3 *b*. Indenfor dette er Bindevævet, Tab. XIV, Fig. 3 *c* med sine cirkulære Muskelfibre, Tab. XIV, Fig. 3 *d*, som her ere stærkere udviklede end paa den inkrusterede Del. Muskelfibrillerne, der danne Bundter, sees tydeligst paa Længdesnit, Tab. XIV, Fig. 4 *a*. Paa Mundskiven er en lignende Mængde Nematocyster som paa den nogne Del af Kroppen, og de cirkulære Muskelfibre samle sig omkring Munden til en temmelig kraftig Sphincter.

Tentaklerne have et temmelig bredt Ectoderm, bestaaende af lange, cilierende Cylinderceller, Tab. XIV, Fig. 1 *a*, imellem hvilke sees hist og her encellede Slimkjertler samt Nematocyster, der paa større Strækninger ganske dække Ectodermcellerne, Tab. XIV, Fig. 1 *b*. Indenfor disse sees paa Bindevævsfladen, Tab. XIV, Fig. 1 *c*, og ligesom indleiret i denne, stærkt udviklede, longitudinelle Muskelfibre, som danne Bundter og ere fuldkommen ectodermale, Tab. XIV, Fig. 1 *d*. Selve Bindevævslaget er ikke meget bredt, det er fibrillært, forsynet med Bindevævslegemer og fine Ernæringskanaler, og paa dets indre Flade sees fine, cirkulære Muskelfibre, beklædte af Endothelet, Tab. XIV, Fig. 1 *e*, *f*. Svælgroret er cylindrisk, strækker sig til lidt over Halvdelen af Gastralhulheden og har paa dets indre Flade to udprægede Svælggruber, der ere Fortsættelser af Mundvigene, Tab. XIV, Fig. 2 *a*, og 5 Længdefolder paa hver Side af Gruberne, hvilke især ved Svælgrorets Sammentrækninger blive tydelige, Tab. XIV, Fig. 2 *b*. Svælgrorets ydre Flade er beklædt med lange, cilierende Cylinderceller, Tab. XIV, Fig. 5 *a*, som ligeledes beklæde Kamrene, og indenfor dette Endothel er Bindevævet, Tab. XIV, Fig. 5 *b*, hvorfra udgaa listeformige Forlængelser, Tab. XIV, Fig. 5 *c*, der bidrage til at danne Folderne i Svælget. Imellem Bindevævets ydre Flade og Endothelet er et Belte med cirkulære Muskelfibre, Tab. XIV, Fig. 5 *d*, der ved Kontraktioner danne ligesom en Konus, Tab. XIV, Fig. 5 *d*, ind i Folden, og paa dets indre Flade sees longitudinelle Muskel-

The encrusted part of the body shows, in transversal sections, two principal layers, viz. the sheath, consisting of a mucous membrane in which the hard foreign bodies are embedded in great abundance, and a cuticulum that is firmly adherent to the ectoderm lying inside. The latter is formed of cylinder-cells, which are not very long and are devoid of ciliæ, but between the cells numerous unicellular mucous glands are seen, whilst, also, the suckers show themselves to be shut inwards, so that they do not perforate the integument. Inside of the ectoderm there is a not very broad, fibrillar connective-tissue, in whose middle a rather broad belt of circular muscle-fibres is seen, that form fasciculi and stretch themselves towards the inner surface, which is clad with endothelial cells furnished with long ciliæ. On the bare part of the body the ectodermal cells are longer, and are furnished with ciliæ (Pl. XIV, fig. 3 *a*). The unicellular mucous glands appear to be present in great abundance, whilst, also, nematocysts appear here in such great abundance that they almost entirely conceal the ectoderm (Pl. XIV, fig. 3 *b*). Inside of that is the connective-tissue (Pl. XIV, fig. 3 *c*) with its circular muscle-fibres (Pl. XIV, fig. 3 *d*), which are, here, more powerfully developed than on the encrusted part. The muscular fibrils, which form fasciculi, are most distinctly observed in longitudinal sections (Pl. XIV, fig. 4 *a*). Upon the oral disc there is a similar abundance of nematocysts as on the bare part of the body, and the circular muscle-fibres collect themselves round the mouth into a rather powerful sphincter.

The tentacles have a rather broad ectoderm consisting of long ciliating cylinder-cells (Pl. XIV, fig. 1 *a*), between which there are here and there seen unicellular mucous glands, also nematocysts, which for considerable distances quite cover the ectodermal cells (Pl. XIV, fig. 1 *b*). Inside of these there are observed, on the surface of the connective-tissue (Pl. XIV, fig. 1 *c*), and, as it were, embedded in it, strongly developed longitudinal muscle-fibres, which form fasciculi and are completely ectodermal (Pl. XIV, fig. 1 *d*). The layer of connective-tissue itself is not very broad; it is fibrillar and is furnished with connective-tissue corpuscles and fine nutritory ducts; and on its inner-surface fine circular muscles clad with endothelium are seen, (Pl. XIV, fig. 1 *e*, *f*). The œsophagus is cylindric and extends itself over a little more than the half of the gastric cavity, and upon its inner-surface it has two distinguished gullet-grooves, that are continuations of the oral angles (Pl. XIV, fig. 2 *a*), and 5 longitudinal folds upon each side of the grooves which become especially distinct on the contraction of the œsophagus (Pl. XIV, fig. 2 *b*). The outer surface of the œsophagus is clad with long, ciliating cylinder-cells (Pl. XIV, fig. 5 *a*), which also clothe the chambers, and inside of this endothelium lies the connective-tissue (Pl. XIV, fig. 5 *b*), from which fillet-formed prolongations proceed, contributing to the formation of the folds in the œsophagus. Between the outer surface of the connective-tissue and the endothelium, there is a belt with circular muscle-fibres (Pl. XIV, fig. 5 *d*), which on contraction

fibre, Tab. XIV, Fig. 5 *e*, der stode lige til Epithelet, som beklæder Svælgrorets indre Flade. Dette Epithel bestaar af temmelig lange, cilierende Cylinderceller, Tab. XIV, Fig. 5 *f*, lig dem, som danne Ectodermet paa den nøgne Kropsdel, og imellem disse Celler sees temmelig tæt placeret encellede Slimkjertler, Tab. XIV, Fig. 5 *g*, *h*.

Der er 6 Par principale, fuldstændige, golde Septa, Tab. XIV, Fig. 2, hvoraf 2 Par ere Retningssepta, Tab. XIV, Fig. 2 *c*, der svare til Svælgrorsgruberne. De to Septa i hvert af disse Par ere stillede temmelig langt fra hinanden, saa at det intraseptale Rum bliver vidt, Tab. XIV, Fig. 2 *c*, og paa hvert Septums ydre Flade ere de longitudinelle Muskler placerede i Form af Buske, som ere tykkest i nogle Millimeters Afstand fra Svælgroret, Tab. XIV, Fig. 2 *d*, imedens de transverselle Muskler beklæde Storstedelen af den indre Flade som en Lamel, Tab. XIV, Fig. 2 *e*. De øvrige 4 Septapar, nemlig 2 Par paa hver Side af Retningssepta, have Musklerne placerede ganske modsat disses; saaledes ere de longitudinelle Muskler fæstede til den indre Flade, rage ind i det intraseptale Rum, hvor de vende mod hverandre og tildels mødes, Tab. XIV, Fig. 2 *f*, medens de transverselle Muskler ligge paa den ydre Flade, vende fra hverandre i det interseptale Rum, Tab. XIV, Fig. 2 *g*. De fuldstændige Septa bære Mesenterialfilamenter, der som sædvanligt tage sin Begyndelse lige ved Septa-insertionerne paa Svælgroret og ligge sammenrullede et lidet Stykke nedover Septums fri Rand.

Imellem hvert 2 Par fuldstændige Septa (i de principale Kamre) er der et Par sekundære, ufuldstændige Septa, der ere temmelig brede, rage lidt over Halvdelen ind i Kamret og ere forsynede saavel med Længde- som Tværmuskler, hvoraf de første ere temmelig udviklede, Tab. XIV, Fig. 2 *h*. Disse Septa bære baade Acontier og Generationsorganer, af hvilke de sidste ere meget udviklede og bestaa af Æggestokke i Form af sammenrullede Baand, der udfylde ganske Kammeret og indeholde baade Æg og Unger, Tab. XIV, Fig. 2 *i*. Der er altsaa i det Hele kun 12 Par Septa, hvoraf de 6 Par ere fuldstændige. Parieto-basilarmuskelen er yderst lidet udviklet; dette er Tilfældet hos alle de Phellia-arter, jeg har undersøgt. Grunden tor være den, at disse Dyr bevæge sig kun lidet, deres Fodskive er som oftest limet fast ved en chitinagtig Masse til den Gjenstand, hvorpaa de sidde.

Findested.

Station 290. 4 Exemplarer.

Artskarakter.

Hele Dyret 45—50^{mm} høit, paa enkelte Exemplarer 10^{mm} bredt ved Foden, paa andre 20^{mm} og derover. Fod-

forms, as it were, a cone (Pl. XIV, fig. 5 *d*) within the fold; and upon its inner surface longitudinal muscle-fibres (Pl. XIV, fig. 5 *e*) are seen, which quite meet the epithelium that clothes the inner surface of the œsophagus. This epithelium consists of rather long, ciliating cylinder-cells (Pl. XIV, fig. 5 *f*) like those which form the ectoderm of the bare portion of the body, and between these cells rather closely placed unicellular mucous glands are seen (Pl. XIV, fig. 5 *g*, *h*).

There are 6 pairs of principal, perfect, sterile septa (Pl. XIV, fig. 2) of which 2 pairs are directive septa (Pl. XIV, fig. 2 *c*) which correspond with the gonidial grooves. The two septa in each of these pairs are placed pretty far apart from each other, so that the intraseptal space becomes wide (Pl. XIV, fig. 2 *c*), and on the outer surface of each septum the longitudinal muscles are seated in the form of frutici, which are thickest at a few millimetres distance from the œsophagus (Pl. XIV, fig. 2 *d*) whilst the transversal muscles cloth the greater part of the inner surface like a lamella (Pl. XIV, fig. 2 *e*). The other 4 pairs of septa, viz. 2 pairs on each side of the directive septa, have the muscles placed quite the opposite of those; thus, the longitudinal muscles are secured to the inner surface, extend into the intraseptal space where they face towards each other and partly meet (Pl. XIV, fig. 2 *f*); but the transversal muscles lie on the outer surface and face from each other in the interseptal space (Pl. XIV, fig. 2 *g*). The perfect septa carry mesenterial filaments which, as usual, originate just at the insertions of the septa on the œsophagus and lie coiled together a little way down the free margin of the septum.

Between each 2 pairs of perfect septa (in the principal chambers), there is a pair of secondary, imperfect septa, which are rather broad, extend a little more than half way into the chamber, and are furnished with both longitudinal and transversal muscles, of which the first are pretty well developed (Pl. XIV, fig. 2 *h*). These septa carry both acontia and reproductive organs, of which the last-named are very fully developed, and consist of ovaries in the form of coiled ribbons that quite fill the chamber, and contain both ova and embryons (Pl. XIV, fig. 2 *i*). There are thus, altogether, only 12 pairs of septa, of which 6 pairs are perfect. The parieto-basilar muscle is extremely little developed; this is the case with all the Phellia species that I have examined. The reason may be, perhaps, that those animals move themselves only little; their pedal disc is most frequently glued by a chitinous substance to the object upon which it is seated.

Habitat.

Station No. 290. Four specimens.

Specific characteristics.

The entire animal, 45—50^{mm} in height, in some specimens 10^{mm} in breadth at the base, in others 20^{mm} and

skiven bred, skiveformigt udvidet med en tynd, uregelmæssig Rand. Fodskivens Overflade og to Trediedele af Kolumnen beklædt med en grovt inkrusteret, membranos Skede. Den inkrusterede Del aftager i Tykkelse opad mod Skedens skarpe Rand. Den overste Trediedel cylindrisk, nøgen, glat, lidt smalere end Skedens Rand, forsynet med Længdefolder og Furer. Paa Folderne smaa, runde, tætstaaende Sugevorter, imellem disse enkelte Cinclides. Mundskiven plan. Munden aflang med tykke, foldede Læber. Tentaklerne omtrent saa lange som Mundskivens Bredde, staa i 2 afvexlende Rækker, 12 i hver, retraktile; den yderste Række staar lige i Kropsranden. Hele den overste, nøgne Del trækkes ganske ind i Skeden. Skrabes Skeden væk, sees Kropsfladen tæt besat med Sugevorter. Farven: Den inkrusterede Del graabrun; den nøgne Del af Kroppen næsten hvid. Tentaklerne i den yderste Række violetrøde, intensere ved Grunden; de i den inderste Række ere mere rosenrøde. Mundskiven violetrød, straalet, med violetrøde Striber. De foldede Mundlæber intens violetrøde. Kropshuden indenfor Skeden ganske hvid. Vorterne skinne lidt i det Gule. Cirkulærmusklerne mesodermale. 12 Septapar, hvoraf 6 fuldstændige.

upwards. The pedal disc broad, discoidally expanded, has a thin irregular margin. The external surface of the pedal disc and two-third parts of the column, clad with a coarse, encrusted membranous sheath. The encrusted portion diminishes in thickness upwards towards the sharp margin of the sheath. The uppermost third part cylindric, bare, smooth, slightly narrower than the margin of the sheath, furnished with longitudinal folds and furrows. Upon the folds, small, round, compactly placed suckers; between these a few cinclides. The oral disc plane. The mouth oblong, with thick folded labiæ. The tentacles about the same length as the breadth of the oral disc, placed in 2 alternating series, 12 in each, retractile; the outermost series placed just at the margin of the body. The entire uppermost, bare part, can be quite withdrawn into the sheath. When the sheath is scraped away the surface of the body is seen to be closely covered with suckers. *The colour.* The encrusted portion grey-brown; the bare part of the body almost white. The tentacles in the outermost series violet-red, and more intense in colour at the base; the tentacles in the innermost series are more rose-red in colour. The oral disc violet-red, radiated with violet-red stripes. The folded oral labiæ, intense violet-red. The integument of the body, inside the sheath, quite white. The suckers have a slight yellow lustre. The circular muscles are mesodermal. 12 pairs of septa, of which 6 pairs perfect.

Phellia bathybia, n. sp.

Tab. IV, Fig. 1—4; Tab. XIII, Fig. 7—9.

Dyrets hele Høide er omkring 45^{mm}. Fodskiven rund, tyk, lidt bredere end Kolumnens nederste Del, men smalere end dennes overste Rand, Tab. IV, Fig. 1, 2. Den undre Flade er lidt konkav og foldet fra Centrum mod Peripherien; den øvre Flade er hvælvet og inkrusteret.

Kolumnen er cylindrisk, dens nederste tre Fjerdedele har en membranos Skede, hvori er indleiret plastisk Biloculinler, og hvis øverste Rand er skarpt afgrændset, Tab. IV, Fig. 4; Tab. XIII, Fig. 7 *a*. Kroppens øverste Fjerdedel er nøgen og udvider sig fra Skedens Rand urneformigt op imod Mundskiven; den har mange Længdefolder, Tab. IV, Fig. 4, imellem hvilke sees fine Furer, der antyde Septainsertionerne; paa hver Fold sees en Længderække af temmelig store, tætstaaende Sugevorter, Tab. XIII, Fig. 7 *b*.

Mundskiven er bred med en aflang Mund, hvorfra udgaa mange Folder mod Peripherien, Tab. XIII, Fig. 7. Tentaklerne sidde afvexlende i 2 Rækker, 18 i hver, ere retraktile og indtage Kroppens overste Rand. I den inderste Række ere de meget korte og afstumpede, imedens de i den ydre Række ere overordentlig lange, ja næsten

Phellia bathybia, n. sp.

Pl. IV, fig. 1—4; Pl. XIII, fig. 7—9.

The entire height of the animal is about 45^{mm}. The pedal disc is round, thick, slightly broader than the lowest part of the column, but narrower than its uppermost margin (Pl. IV, fig. 1, 2). The inferior surface is slightly concave, and folded from the centre towards the periphery; the upper surface is arcuate and encrusted.

The column is cylindric; its lowest three-fourths part has a membranous sheath in which plastic biloculina-clay sits embedded, and whose uppermost margin is sharply defined (Pl. IV, fig. 4; Pl. XIII, fig. 7 *a*). The uppermost fourth part of the body is bare, and expands from the margin of the sheath in urn-shape, up towards the oral disc; it has numerous longitudinal folds (Pl. IV, fig. 4) between which fine furrows that indicate the insertions of septa are seen, and upon each fold there is a longitudinal series of pretty large, highly protuberant suckers (Pl. XIII, fig. 7 *b*).

The oral disc is broad, with an oblong mouth from which numerous folds issue towards the periphery (Pl. XIII, fig. 7). The tentacles are seated alternatingly in 2 series, 18 in each; they are retractile and occupy the uppermost margin of the body. In the innermost series they are very short and blunted, whilst in the outer series they

lige saa lange som Kroppens hele Længde og ende traadformigt, saa at de under Bevægelsen viste sig meget flagrende. Tab. IV. Fig. 1; Tab. XIII. Fig. 7. Hele den overste, nogne Del af Kroppen med Tentakler og Mundskive kan fuldkommen trækkes ind i Skeden, der lukkes ganske og antager Formen af en opretstaaende Kolle, Tab. IV. Fig. 2. Naar den inkrusterede Skede fjernes, viser den indenfor værende Hud sig at være foldet, ligesom den overste, nogne Del af Kroppen, og som denne besat med Længderækker af Sugevorter, Tab. XIII, Fig. 7 *c*.

Farven. Skeden er graahvid; indenfor den er Kropshuden laxerød, hvilket ogsaa er Tilfældet med den nogne Del. Mundskiven og den indre Række af Tentaklerne ere morkere, medens de ydre Tentakler ved Grunden og paa den aborale Flade have Kroppens Farve, men ere næsten ganske hvide forresten. Tab. IV. Fig. 1—4.

Den inkrusterede Del af Kroppen viser paa Tversnit, at den inkrusterede Skede bestaar af to Lag; det ydre, som er dannet af en tyk, seig, slimet Membran, hvori er indleiret Lerklumper og Biloculiner, og et indre, der danner en fast, tynd, fibrillær Membran (Cuticula), som er stærkt adhæreret til det indenfor værende Ectoderm. Dette bestaar af temmelig korte, lidt forkroblede Cylinderceller med Kjerne, men uden Cilier, og imellem Cellerne spredte, encellede Slimkjertler. Indenfor Ectodermet, Tab. XIII, Fig. 8 *a*, er et fibrillært Bindevæv, der ikke er meget bredt, Tab. XIII Fig. 8 *b*, og i hvis Midte sees stærkt udviklede, cirkulære Muskler, som danne Bundter, der især ere fremtrædende baade paa Længde- og Skraasnit, Tab. XIII, Fig. 8 *c*. Til begge Sider af de cirkulære Muskler er et Belte, hvori sees Bindevævslegemer og fine Ernæringskanaler, Tab. XIII, Fig. 8 *b*. Paa den indre Flade af dette Bindevæv sees Længdemuskler, beklædte med lange Cylinderceller, som ere forsynede med Cilier.

Paa den nogne Del af Kroppen er Ectodermet temmelig bredt og bestaar af lange cilierende Cylinderceller, imellem hvilke sees encellede Slimkjertler og en rigelig Mængde Nematocyster. Ectodermet paa Mundskiven er mindre rigt paa Nematocyster; derimod synes her Cilierne at være længere end paa Kroppen, og i Bindevævet samle de cirkulære Muskler sig omkring Mundaabningen og danne Slutmuskelen (Sphincter).

Tentaklernes Ectoderm er overordentligt rigt paa Nematocyster, især paa den aborale Flade, og indenfor det ere stærke Længdemuskler leirede saaledes, at de rage noget ind i Bindevævet. Paa dettes indre Flade findes et yderst tyndt Lag Tvermuskler, der beklædes af Endothelceller, hvorimellem iagttages enkelte encellede Slimkjertler.

are exceedingly long, indeed almost as long as the entire length of the body, and terminate filamentously, so that during movement they show themselves very wavingly (Pl. IV. fig. 1; Pl. XIII. fig. 7). The entire uppermost, bare part of the body with the tentacles and oral disc, can be completely withdrawn into the sheath, which then becomes quite closed and assumes the form of a vertical club (Pl. IV. fig. 2). When the encrusted sheath is removed the integument that lies inside of it shows itself to be folded in similar manner to the uppermost bare portion of the body, and, like it, it is also covered with longitudinal series of suckers (Pl. XIII, fig. 7 *c*).

The colour. The sheath is greyish-white; inside of it the integument of the body is salmon-red colour, which is also the case with the bare portion. The oral disc and the inner series of the tentacles are darker in colour, whilst the outer series of tentacles have, at the base and on the aboral surface, the colour of the body, but are otherwise almost quite white (Pl. IV. fig. 1—4).

The encrusted portion of the body shows in transversal sections, that the encrusted sheath consists of two layers viz. the outer one formed of a thick, viscid, mucous membrane in which pieces of clay and biloculina are embedded; and an inner one that forms a firm, thin, fibrillar membrane (cuticulum) and is strongly adherent to the ectoderm lying inside of it. The latter consists of rather short, slightly deformed cylinder-cells with nuclei but without ciliæ, and between the cells unicellular mucous glands are dispersed. Inside of the ectoderm (Pl. XIII, fig. 8 *a*) there is a fibrillar connective-tissue which is not very broad (Pl. XIII, fig. 8 *b*), and in whose middle strongly developed circular muscles are seen forming fasciculi, which are especially prominent in both longitudinal and diagonal sections (Pl. XIII, fig. 8 *c*). On both sides of the circular muscles there is a belt in which connective-tissue corpuscles and fine nutritory ducts are observed (Pl. XIII, fig. 8 *b*). On the inner-surface of this connective-tissue longitudinal muscles are seen, clad with cylinder-cells furnished with ciliæ.

On the bare portion of the body the ectoderm is rather broad, and consists of long, ciliating cylinder-cells, between which unicellular mucous glands and a rich abundance of nematocysts are observed. The ectoderm on the oral disc is less rich in nematocysts, but on the other hand the ciliæ appear here to be longer than on the body, and in the connective-tissue the circular muscles collect themselves around the oral aperture and form a sphincter.

The ectoderm of the tentacles is exceedingly rich in nematocysts, especially upon the aboral surface, and inside of it powerful longitudinal muscles are embedded, in such manner that they extend somewhat into the connective-tissue. On the inner surface of the connective-tissue an extremely thin layer of transversal muscles is found, clothed with endothelial cells between which a few unicellular mucous glands are observed.

Svælgroret er vidt, foldet efter Længden, Tab. XIII, Fig. 9 *a*, og har 2 temmelig vide Svælggruber, Tab. XIII, Fig. 9 *b*; det er ligesom hos den foregaaende Art forsynet med Tver- og Længdemuskler.

Der er 12 Par fuldstændige Septa, hvoraf 6 Par maa ansees som de principale, der adskille sig fra de ovrige derved, at de ere bredere, ligesom stærkere bygget og golde. Af de 6 Par fuldstændige, principale Septa er der 2 Par, som danne Retningssepta, Tab. XIII, Fig. 9 R, der svare til de to Svælggruber, Tab. XIII, Fig. 9 *b*; hvert Pars Septa staa langt fra hinanden, fordi Svælggruberne ere meget vide, saa at det intraseptale Rum er meget vidt, Tab. XIII, Fig. 9. De longitudinelle Muskler ere fæstede paa den ydre Flade af hvert Septum, Tab. XIII, Fig. 9 *c*; de ere temmelig udviklede, næsten i Form af Buske, imedens de transverselle Muskler sidde paa den indre Flade, vende mod hverandre og danne en tynd, foldet Membran i det intraseptale Rum. De ovrige 4 Par af de principale, fuldstændige Septa, Tab. XIII, Fig. 9, 1, have de longitudinelle Muskler indsererede paa den indre Flade af hvert Septum, hvor de henimod Svælgroret ere stærkt udviklede og danne her en tyk Busk, der sammen med de tilsvarende fra det andet Septum næsten ganske udfylder paa dette Sted det intraseptale Rum. De transverselle Muskler danne en foldet, temmelig tynd Membran, der indtager Storstedelen af den ydre Flade af Septumet, dog saaledes, at der er et frit Belte langs den fri Rand, hvori Mesenterialfilamentet ligger.

De 6 Par fuldstændige, sekundære Septa ere stillede saaledes, at et Par staar imellem to Par af de principale Septa, Tab. XIII, Fig. 9, 2. Disse sekundære Septa ere ikke fuldt saa brede som de primære; deres longitudinelle Muskler ere fæstede paa hvert Septums indre Flade, vende mod hverandre i det intraseptale Rum og synes at være mindre udviklede, idet de danne en tyndere Busk; de transverselle Muskler danne en tynd, yderst fint foldet Membran, der indtager saagodtsom hele Fladen, naar undtages et smalt Felt langs den fri Rand. Paa dette Felt sees, foruden Mesenterialfilamentet, Acontier at være fæstede — ikke i nogen stor Mængde og temmelig spredte — og nedenfor Acontierne imod Gastralhulhedens Bund Kjonsorganerne, der indeholde Æg i forskjellige Udviklingsstadier. Samtlige Septa, som alle ere fuldstændige, forsaavidt de fæste sig paa Svælgroret, bære Mesenterialfilamenter, der tage deres Begyndelse ved den nederste Ende af Svælgroret, ved Septainsertionerne, og strække sig i en sammenrullet Tilstand et lidet Stykke nedover Septum. Der er altsaa i det Hele 12 Par Septa, hvoraf ingen ere ufuldstændige.

Parieto-basilarmuskelen er yderst tynd og strækker sig kun lidt opover Væggen, imedens den udbreder sig noget videre nedover Fodskivens indre Flade.

The œsophagus is wide, longitudinally folded (Pl. XIII, fig. 9 *a*), and has 2 rather wide gonidial grooves (Pl. XIII, fig. 9 *b*). It is furnished with transversal and longitudinal muscles like the preceding species.

There are 12 pairs of perfect septa, of which 6 pairs must be considered as the principal ones, and are distinguished from the rest by being broader and, as it were, stronger built and sterile. Of the 6 pairs of perfect principal septa, there are 2 pairs which form directive septa (Pl. XIII, fig. 9 R), corresponding to the two gullet-grooves (Pl. XIII, fig. 9 *b*). The septa of each pair stand far apart from each other, because the gullet-grooves are very wide, so that the intraseptal space is very wide (Pl. XIII, fig. 9). The longitudinal muscles are secured to the outer surface of each septum (Pl. XIII, fig. 9 *c*), and are pretty well developed, almost in the form of frutici; whilst the transversal muscles are seated on the inner surface, face towards each other, and form a thin folded membrane in the intraseptal space. The other 4 pairs of the principal perfect septa (Pl. XIII, fig. 9, 1) have the longitudinal muscles inserted on the inner surface of each septum where they, in proximity to the œsophagus, are strongly developed and form here a thick frutex, which, together with the corresponding one from the other septum, almost quite fills, at this place, the intraseptal space. The transversal muscles form a folded, rather thin membrane that occupies the greater part of the outer surface of the septum, in such manner, however, that there is a free belt along the free margin in which the mesenterial filament lies.

The 6 pairs of perfect, secondary septa are placed in such manner, that one pair stands between two pairs of the principal septa (Pl. XIII, fig. 9, 2). These secondary septa are not quite so broad as the primary ones; their longitudinal muscles are secured to the inner surface of each septum, face towards each other in the intraseptal space and appear to be less developed, inasmuch as they form a thinner frutex; the transversal muscles form a thin, extremely fine, folded membrane that almost covers the entire surface with the exception of a narrow area along the free margin. In this area, besides the mesenterial filament, acontia are seen to be secured, not in any great abundance and pretty much dispersed; and below the acontia, towards the bottom of the gastric cavity, the reproductive organs are seen. These contain ova in various stages of development. The whole of the septa, all of which are perfect in so far that they secure themselves to the œsophagus, carry mesenterial filaments which originate in the lowest extremity of the œsophagus, at the insertions of the septa, and stretch themselves in a coiled up condition a little way down the septum. There are, thus, altogether, 12 pairs of septa, of which none are imperfect.

The parieto-basilar muscle is extremely thin and extends itself only a little way up the wall, whilst it distributes itself somewhat farther down the inner surface of the pedal disc.

Hele Gastralhulheden med alle de deri værende Organer har en Endothelbeklædning, bestaaende af temmelig lange, cilierende Cylinderceller. Om hver Celle kun har en Cilie eller flere, har ikke været muligt at bestemme. Paa enkelte Steder af Væggen synes der at være kun en; Cellerne paa Svælgroret har blot en lang Cilie.

Findested.

Station 51. Mange Exemplarer, hvoraf dog de fleste vare stærkt kontraherede, idet de kom op af Skraben, og strakte sig ikke mere ud, imedens nogle faa levede flere Dage i Observationskarret.

Artskarakter.

Dyrets Hoide er omkring 45^{mm}. Fodskiven tyk, rund, bredere end Kolumnens nedre Del. Fodsaalen konkav, foldet. Kolumnen er cylindrisk; de nederste tre Fjerdedele have en membranos Skede, inkrusteret af plastisk Ler og Biloculiner. Den overste Fjerdedel nogen, urneformigt udvidet opad og forsynet med Længdefolder, der hver har en Længderække af temmelig tætstaaende Sugevorter. Mundskiven bred, fint foldet, med aflang Mund. Tentaklerne retraktile, afvexlende i 2 Rækker, 18 i hver, paa Kroppens overste Rand. De i den indre Række ere korte, afstumpede: i den ydre Række ere de overordentlig lange og flagrende. Hele den nogne Del fuldstændig retraktil og skjules under Kontraktionen ganske af Skeden, som da danner en opretstaaende Kolle. Indenfor Skeden har Huden Længdefolder med Sugevorter ligesom paa den nogne Del. Farven: Skeden er graahvid; indenfor den er Kropshuden laxerod, ligesom paa den nogne Del. Mundskiven og de indre Tentakler morkere; de ydre Tentakler ved Grunden og paa den aborale Side laxerode, ellers hvide. 12 Septapar, alle fuldstændige, men hvoraf 6 Par ere primære og golde. Cirkulærmusklerne mesodermale.

Phellia norvegica, n. sp.

Tab. IV, Fig. 5, 6; Tab. XIV, Fig. 6—8.

De to Exemplarer, der af denne Art bleve fundne, sidde paa Skjæl af Astarte crebricostata.

Fodskiven er rund, membranagtig udbredt, omtrent 8^{mm} bred med en tynd Rand, Tab. IV, Fig. 5, 6. Underfladen er næsten plan og straalet fra Centrum mod Peripherien. Overfladen, der er lidt hvælvet, danner, naar Dyret ikke er fuldt udstrakt, en Halvkugle, Tab. IV, Fig. 6, og er inkrusteret af fin Sand.

The entire gastral-cavity, with all the organs lying within it, has an endothelial covering consisting of rather long, ciliating cylinder-cells. Whether each cell has only one cilia or several, it has not been possible to determine. In some parts of the wall there appears to be only one; the cells on the œsophagus have only one long cilia.

Habitat.

Station No. 51. Many specimens, of which, however, most were strongly contracted, as when they came up in the dredge they did not again extend themselves, whilst a few lived several days in the glass vessel.

Specific characteristics.

The entire height of the animal is about 45^{mm}. The pedal disc thick, round, broader than the lower part of the column. The pedal sole concave, folded. The column cylindric; the lowest three-fourths part has a membranous sheath encrusted with plastic clay and biloculina. The uppermost fourth part bare, expanded in urn-shape above, and furnished with longitudinal folds, each of which has a longitudinal series of pretty closely placed suckers. The oral disc broad, finely folded, with oblong mouth. The tentacles retractile, alternating in 2 series, 18 in each, on the uppermost margin of the body. The tentacles in the inner series are short, blunted; in the outer series they are exceedingly long and waving. The entire bare portion completely retractile, and quite hidden by the sheath during contraction; the sheath then forms a vertical club. Inside of the sheath the integument has longitudinal folds with suckers similar to the bare part. *The colour:* The sheath in greyish-white; inside it the integument of the body is salmon-red colour, similar to the bare part. The oral disc and the inner tentacles darker in colour; the outer tentacles at the base and on the aboral side salmon-red colour, otherwise white. 12 pairs of septa, all perfect but of which 6 pairs are primary and sterile. Mesodermal circular muscles.

Phellia norvegica, n. sp.

Pl. IV, fig. 5, 6; Pl. XIV, fig. 6—8.

The two specimens of this species which were found are seated on shells of Astarte crebricostata.

The pedal disc is round, membranaceously expanded, about 8^{mm} broad, with a thin margin (Pl. IV, fig. 5, 6). The under surface is almost plane and radiated from the centre towards the periphery. The upper surface, which is slightly arcuate, forms, when the animal is not fully extended, a hemisphere (Pl. IV, fig. 6), and is encrusted with fine sand.

Kroppen er omtrent 10^{mm} hoi, cylindrisk og omtrent de 6 nederste Millimeter forsynede med en tynd, inkrusteret Skede, der foroven har en fri, afrundet Rand. De overste 4 Millimeter af Kroppen er nogen og har Længdefolder, paa hvilke sees temmelig store Sugevorter, som staa temmelig langt fra hverandre i Længderækker, Tab. XIV, Fig. 6 *a*. Enkelte af disse Sugevorter rage lidt over Hudens Niveau; men de fleste ere ligesom nedsænkede i en Grube. Borttages den inkrusterede Skede, saa viser ogsaa den Del af Kroppen Længdefolder, hvorpaa findes lignende Sugevorter som paa den nogne Del, kun med den Forskjel, at her ligge de overalt i Gruber, og til hvilke fremmede Legemer, saasom Sandkorn ere festede, Tab. XIV, Fig. 6 *b*.

Mundskiven er kun lidet hvælvet og fint foldet; Munden er aflang med tykke, foldede Læber og 2 temmelig vide Gonidiefurer, Tab. XIV, Fig. 6. Tentaklerne sidde i 3 Rækker, ere retraktile, koniske, ikke meget lange, men temmelig tykke, Tab. IV, Fig. 5; Tab. XIV, Fig. 6. I den 1ste — inderste — Række er der 12 Tentakler, som ere baade de længste og tykkeste. Den 2den Række afvexler med den 1ste, og i den er 12, som ere tyndere og lidt kortere; men i den 3die Række er der 24, nemlig 2 imellem hver 2 af 2den Række; de ere de mindste. Hele den øvre, nogne Del af Kroppen med Mundskive og Tentakler kan trækkes ind i Skeden, saa den ganske skjuler de indtrukne Dele, Tab. IV, Fig. 6.

Farven: Skeden er graabrun; den nogne Del af Kroppen er rosenrød; Mundskiven er brunrød med lysere Striber, der gaa fra Munden mod Tentaklerne. Disse ere intens brunrøde, især langs den aborale Side; de i 2den og 3die Række ere noget lysere.

Et Tversnit af den Del af Kroppen, der er beklædt af Skeden, viser, at denne, som tidligere angivet hos andre Arter, bestaar af et ydre Lag, der er dannet af en seig Membran, hvori fremmede Legemer ere inkrusterede, og et indre Lag, der udgjør en skarpt begrændset, fibrillær Cuticula, som noie er fæstet til det indenfor værende Ectoderm. Dette dannes af forkroblede Cylinderceller med en aflang Kjerne, men uden Cilier, Tab. XIV, Fig. 7 *a*, og imellem Cellerne iagttages encellede Slimkjertler. Indenfor Ectodermet er et smalt, fibrillært Bindevævslag, Tab. XIV, Fig. 7 *b*, i hvis Midte sees cirkulære Muskelfibre, der ikke synes at være meget udviklede, Tab. XIV, Fig. 7 *c*, og paa hvis indre Flade Endothelet er fæstet, Tab. XIV, Fig. 7 *d*.

Paa den nogne Kropsdel bestaar Ectodermet af lange, cilierende Cylinderceller med Kjerne og rigt Protoplasmaindhold, og imellem Cellerne findes encellede Slimkjertler og Nematocyster, begge i rigelig Mængde. Indenfor Ectodermet er Bindevævslaget noget bredere, og de cirkulære Muskelfibriller noget mere udviklede, end paa den af Skeden

The body measures about 10^{mm} in height, is cylindric, and about the lowest 6 millimetres of its height is furnished with a thin, encrusted sheath, which has at the top a free rounded margin. The uppermost 4 millimetres of the height of the body is bare, and has longitudinal folds upon which rather large suckers are seen, standing pretty far apart from each other in longitudinal series (Pl. XIV, fig. 6 *a*). A few of these suckers protrude a little beyond the surface of the integument, but the bulk of them are, as it were, depressed in a cavity. When the encrusted sheath is removed, that part of the body also shows longitudinal folds, upon which similar suckers are found as on the bare part, with this difference only, that they here lie everywhere in cavities and have foreign bodies, such as grains of sand, adherent to them (Pl. XIV, fig. 6 *b*).

The oral disc is only slightly arcuate, and is finely folded; the mouth is oblong with thick, folded labiæ and two rather wide gonidial grooves (Pl. XIV, fig. 6). The tentacles are seated in 3 series, are retractile, conical, not very long, but rather thick (Pl. IV, fig. 5; Pl. XIV, fig. 6). In the innermost series there are 12 tentacles which are both the longest and thickest. The second series alternates with the first (innermost), and in it there are also 12 tentacles which are thinner and slightly shorter, but in the third series there are 24 tentacles viz. two tentacles between each 2 of the second series; these are the smallest. The entire upper, bare part of the body with the oral disc and tentacles can be withdrawn into the sheath, which then completely conceals the retracted parts (Pl. IV, fig. 6).

The colour. The sheath is grey-brown; the bare part of the body is rose-red; the oral disc is brown-red, with lighter-coloured stripes which issue from the mouth towards the tentacles. These latter are intense brown-red in colour, especially along the aboral side. Those of the second and third series are somewhat lighter in colour.

A transversal section of that part of the body which is clothed by the sheath shows, that it, as previously indicated in other species, is composed of an outer layer formed of a viscid membrane in which foreign bodies are encrusted, and an inner layer that forms a sharply defined fibrillar cuticulum, closely adherent to the ectoderm lying inside. The ectoderm is composed of deformed cylinder-cells with an oblong nucleus but without ciliæ (Pl. XIV, fig. 7 *a*), and between the cells unicellular mucous glands are observed. Inside of the ectoderm there is a narrow, fibrillar layer of connective-tissue (Pl. XIV, fig. 7 *b*) in whose middle circular muscle-fibres are seen, which do not appear to be very much developed (Pl. XIV, fig. 7 *c*) and upon whose inner surface the endothelium is secured (Pl. XIV, fig. 7 *d*).

On the bare portion of the body the ectoderm consists of long, ciliating cylinder-cells with nuclei and rich protoplasmic contents, and between the cells unicellular mucous glands and nematocysts are found, both in great abundance. Inside of the ectoderm the layer of connective-tisse is somewhat broader, and the circular muscle-fibrils are some-

beklædte Kropsdel. I Mundskiven samler de cirkulære Muskelfibriller sig i større Bundter og nærme sig stærkt Ectodermbeklædningen, imedens de danne en Slutmuskel omkring Munden.

Tentaklerne ere udvendigt beklædte med et bredt Ectoderm, bestaaende af lange, cilierende Cylinderceller, imellem hvilke sees encellede Slimkjertler og en stor Mængde Nematocyster. Indenfor Ectodermet er et stærkt Lag longitudinelle Muskler, der rage lidt ind i det fibrillære Bindevæv, som er forsynet med Bindevævslegemer med dels en, dels flere Udløbere, samt fine Ernæringskanaler. Paa dette Bindevævs indre Flade ligge transverselle Muskelfibriller, der ikke ere meget udviklede, og som ere beklædte af det cilierende Endothel.

Der er 6 Par principale, fuldstændige Septa, som indbyrdes staa langt fra hinanden, saa at de intraseptale Rum blive meget vide, Tab. XIV, Fig. 8. De to Par Retningssepta ere fæstede paa hver Side af Svælgroret og svare ganske til Svælggruberne, Tab. XIV, Fig. 8 *a*. De adskille sig fra de øvrige væsentlig derved, at deres Længdemuskler ere fæstede paa den ydre Flade af Septumet og vende fra hverandre i det interseptale Rum, imedens de transverselle Muskler beklæde for en stor Del den indre Flade og vende mod hverandre i det intraseptale Rum. Paa de øvrige 4 Par fuldstændige Septa, Tab. XIV, Fig. 8 *b*, ere Længdemusklerne fæstede paa den indre Flade; de vende altsaa mod hverandre i det intraseptale Rum, imedens Tværmusklerne findes paa den ydre Flade og vende mod det interseptale Rum. Længdemusklerne paa samtlige disse Septa ere omtrent lige meget udviklede; de tiltage i Tykkelse henimod Svælgroret, hvor de danne en liden Busk for igjen at blive smalere, idet de gaa over paa dette. Tværmusklerne forme sig i en fint foldet Membran; hverken disse eller Længdemusklerne beklæde hele Fladen af Septum; thi henimod den fri Rand ophøre de, hvorved der dannes et smalt Belte imellem denne og Muskelen, og i dette Belte paa den ydre Flade er Mesenterialfilamentet fæstet, Tab. XIV, Fig. 8 *c*. Hvert Septum bærer et saadant, som udspringer tæt ved Svælgrorets nederste Ende og følger spiralformigt sammenrullet et Stykke nedover den ydre Flade af Septum, langs det smale Belte, Tab. XIV, Fig. 8 *c*.

Imellem hvert 2 Par af de fuldstændige, principale Septa i de 6 Hovedkamre, er der et Par ufuldstændige, sekundære Septa, som ere temmelig lange, men ophøre 2—3 Millimeter fra Svælgroret, Tab. XIV, Fig. 8 *d*. De ere forsynede med baade Længde- og Tværmuskler; de første ere fæstede paa den ydre Flade af Septumet og ligesom paa de fuldstændige Septa stærkest fremtrædende henimod Svælgroret, de sidste paa den indre og ikke meget udviklede. De ufuldstændige Septa bære Acontier, som ikke ere i nogen stor Mængde tilstede; enkelte Septa bære 2—3 Acontier, andre kun en, Tab. XIV, Fig. 8 *e*, og

what more developed than on the part of the body covered by the sheath. On the oral disc the circular muscle-fibrils collect themselves into largish fasciculi, and approach close to the ectodermal covering, whilst they form a sphincter round the mouth.

The tentacles are exteriorly clad with a broad ectoderm consisting of long, ciliating cylinder-cells, between which unicellular mucous glands and a great number of nematocysts are seen. Inside of the ectoderm there is a strong layer of longitudinal muscles, that reach a little way into the fibrillar connective-tissue, which is furnished with connective-tissue corpuscles having sometimes one, sometimes several prolongations and also fine nutritory ducts. On the inner-surface of this connective-tissue lie the transversal muscle-fibrils; these are not much developed and are clad with the ciliating endothelium.

There are 6 pairs of principal perfect septa, which between themselves stand far apart from each other, so that the intraseptal spaces are very wide (Pl. XIV, fig. 8). The 2 pairs of directive septa are secured upon each side of the œsophagus, and quite correspond with the gonidial-grooves (Pl. XIV, fig. 8 *a*). They are distinguished from the others principally by their longitudinal muscles being secured to the outer surface of the septum and facing from each other in the interseptal space, whilst the transversal muscles, for a great part, clothe the inner-surface and face towards each other in the intraseptal space. In the other 4 pairs of perfect septa (Pl. XIV, fig. 8 *b*), the longitudinal muscles are secured upon the inner surface; they face consequently towards each other in the intraseptal space, while the transversal muscles are found on the outer surface, and face towards the interseptal space. The longitudinal muscles upon all of these septa are about equal in development; they increase in thickness towards the œsophagus, where they form a small frutex, becoming again narrower as they pass over upon it. The transversal muscles form themselves into a finely folded membrane; neither they nor the longitudinal muscles clothe the entire surface of the septum, as they terminate in proximity to the free margin, causing a narrow belt to be formed between that and the muscle, and on the outer surface of this belt the mesenterial filament is secured (Pl. XIV, fig. 8 *c*). Each septum carries one of these, which originates close to the lowest extremity of the œsophagus, and passes, coiled up in spiral form, for a little way down the outer surface of the septum along the narrow belt (Pl. XIV, fig. 8 *c*).

Between each 2 pairs of the perfect, principal septa, in the 6 principal chambers, there is a pair of imperfect, secondary septa which are rather long, but terminate 2– 3 millimetres from the œsophagus (Pl. XIV, fig. 8 *d*). They are furnished with both longitudinal and transversal muscles; the first-named are secured upon the outer surface of the septum and are, in same manner as upon the perfect septa, most strongly prominent in proximity to the œsophagus; the last-named are secured upon the inner-surface and are not much developed. The imperfect septa carry acontia but they are not present in any great

under Acontierne nede imod Gastralhulhedens Bund sidde Generationsorganerne, der ikke ere meget udviklede, Tab. XIV, Fig. 8 *f*. Æg i deres tidlige Udvikling udfylde enkelte Æggestokke, imedens andre synes at være tomme. Svælgroret er cylindrisk, Tab. XIV. Fig. 8 *g*. temmelig langt, har paa hver Side af Svælggruberne flere Længdefolder og er forsynet med baade Tver- og Længdemuskler. Parieto-basilarmuskelen er tynd men bred og strækker sig et godt Stykke baade opad og nedad.

Findested.

Station 260—261. To Exemplarer.

Artskarakter.

Fodskiven rund, membranagtig udbredt, omtrent 8^{mm} i Tversnit, med en tynd Rand. Underfladen plan, fint foldet. Kolumnen omtrent 10^{mm} høi, cylindrisk; dens to nederste Trediedele forsynede med en tynd, inkrusteret Skede, der har en fri, afrundet Rand foroven; den øverste Trediedel nogen med Længdefolder, hvorpaa store Sugevorter, staaende i Længderækker. Indenfor Skeden lignende Længdefolder med Sugevorter. Mundskiven lidt hvælvet, fint foldet. Munden aflang med tykke, foldede Læber og vide Mundvige. Tentaklerne retraktile, koniske, korte og tykke, i 3 Rækker. I den 1ste og 2den Række 12 i hver; i den 3die (yderste) 24; disse ere de mindste. Hele den øvre, nogne Del med Mundskiven og Tentaklerne kan indtrækkes i Skeden, der lukker sig. Farven: Skeden graabrun; den nogne Del af Kolumnen rosenrød. Mundskiven brunrød med lysere Striber. De indre Tentakler intens brunrøde, især langs den aborale Side; de i 2den og 3die Række noget lysere.

abundance. A few septa carry 2—3 acontia, others only one (Pl. 8 *e*), and below the acontia, down towards the bottom of the gastral cavity, lie the reproductive organs, which are not much developed (Pl. XIV, fig. 8 *f*). Ova in their earliest development occupy some ovaries whilst others appear to be empty. The œsophagus is cylindric (Pl. XIV, fig. 8 *g*) rather long, and has several longitudinal folds on each side of the gonidial-grooves. It is furnished with both transversal and longitudinal muscles. The parieto-basilar muscle is thin but broad, and extends itself a considerable way both upwards and downwards.

Habitat.

Station No. 260—261. Two specimens.

Specific characteristics.

The pedal disc round, membranaceously expanded, measures about 8^{mm} in breadth, has a free margin. The under surface plane, finely folded. The column about 10^{mm} in height, cylindric, its lowest two thirds part furnished with a thin encrusted sheath having a free, rounded margin at the top. The uppermost third part bare, with longitudinal folds upon which are large suckers placed in longitudinal series. Inside of the sheath similar longitudinal folds with suckers. The oral disc slightly arcuate, finely folded. The mouth oblong, with thick, folded labiæ and wide oral angles. The tentacles retractile, conical, short and thick, placed in 3 series. In the first and second series 12 tentacles in each; in the third series (outermost) 24 tentacles, and these last are the smallest in size. The entire upper bare part with the oral disc and the tentacles, can be withdrawn into the sheath, which then closes itself. *The colour*. The sheath grey-brown; the bare part of the column rose-red. The oral disc brown-red with lighter coloured stripes. The inner tentacles intense brown-red, especially along the aboral side; those in the second and third series somewhat lighter in colour.

Phellia violacea, n. sp.

Tab. IV, Fig. 7; Tab. XIII. Fig. 10; Tab. XIV. Fig. 9, 10.

Phellia violacea er omtrent 25^{mm} høi, medens Mund- og Fodskive ere mindst 10^{mm} bredere. Fodskiven er 35^{mm} bred og rund med en tyk, jævn, ringformig Rand, der danner ligesom en Vold omkring den nederste Del af Kolumnen. Tab. IV. Fig. 7 *a*. Fodskivens Underflade er konkav, straaleformigt foldet fra Centrum mod Peripherien.

Kroppen er cylindrisk, smalere nedad mod Fodskiven, bredere foroven, Tab. IV, Fig. 7. Dens nederste tre Fjerdedele, ligesom Fodskivens Rand, er beklædt med en membranos

Phellia violacea, n. sp.

Pl. IV. fig. 7; Pl. XIII, fig. 10; Pl. XIV. figs. 9, 10.

Phellia violacea is about 25^{mm} in height, whilst the oral and pedal discs are at least 10^{mm} broader. The pedal disc is 35^{mm} broad, and round, with a thick, even, annular margin which forms, as it were, a ridge round the lowest part of the column (Pl. IV, fig. 7 *a*). The under surface of the pedal disc is concave, and folded radiately from the column towards the periphery.

The body is cylindric, narrowest downwards towards the pedal disc, and broadest at the top (Pl. IV. fig. 7). Its lowest three-fourths part, as also the margin of the

Skede, der er stærkt inkrusteret og har foroven en skarpt afgrændset, glat Rand. Den øverste Fjerdedel af Kroppen er nogen, cylindrisk, glat og har foroven en tyk Rand, som er krenuleret af temmelig fremstaaende Ribber, der danne ligesom en spansk Krave omkring Mundskiven. Tab. IV, Fig. 7 *b*. Der er 24 saadanne Ribber eller Folder, som strække sig omtrent et Par Millimeter nedover Kroppens udvendige, nogne Flade. Det er, om man saa vil, en Parapet, men nogen indenfor værende Fossa existerer ikke. Saavel paa den nogne Dels Overflade som paa den, der bedækkes af Skeden, sees uregelmæssigt stillede Suckers, som ligge indsunkne i Huden.

Mundskiven er næsten flad, har 12 brede Folder, der udgaa fra Mundaabningen og strække sig henimod den indre Række Tentakler, hvor de dele sig i to, der hver for sig synes at korrespondere med de ovenfor omtalte Ribber paa Kroppens øvre Rand. Munden er aflang, har to Mundvige, der føre ned til Svælggruberne, og som paa hver Side har 12 temmelig tykke Folder, der danne Læberne.

Tentaklerne staa i 2 afvexlende Rækker, 12 i hver, og ere retraktile. De i den inderste Række ere længst, men tyndere end de i den ydre Række, der ere tykke og korte, Tab. IV, Fig. 7. Naar Dyret i fuld Vigor har udslaaet sine Tentakler, ser det ud, som om der kun er en Række; men ved nærmere Undersøgelse viser det sig, at de tyndere, som afvexle med de tykkere, staa lidt indenfor disse. Den nogne, cylindriske Del af Kroppen tilligemed Tentaklerne kan trækkes ganske ind i Skeden; men Midtpartiet af Mundskiven synes ikke at kunne inddrages eller dækkes af Kroppens øverste Rand, da Mundaabningen med de nærmest omgivende Dele altid ligger blottet.

Farven. Skeden er inkrusteret af lysegraat Ler, spillende lidt i det Brune (plastisk Biloculinler), som paa dens nederste Del, der omgiver Fodskivens Rand, er grovere. Kroppens nøgne Del er lysviolet, imedens dens øverste, ribbede Rand er skidden gulhvid. De indre Tentakler ere næsten brun violette; de i ydre Rækken lys violette med en hvid Ring omkring Grunddelen og lysere Spids. Mundskiven bleg violet med skidden gulhvide Folder. Dyret sidder paa smaa, flade, kompakte Lerklumper.

Den Del af Kroppen, som er bedækket af Skeden, er i histiologisk Henseende noget forskjellig fra den nogne Del. Skeden bestaar af to Lag; et ydre, der danner en seig Slimmembran, hvori er indleiret fint Ler, Sand og Skaller af Foraminiferer, alt fremmede Gjenstande, som tilhøre Bunden, paa hvilket Dyret lever, og et indre Lag, der bestaar af en skarpt begrændset, fibrillær Membran (Cuticula), som skilles temmelig fra den ydre Slimmembran, men er fast bunden til det indenfor værende Ectoderm. Naar Dyret berøves en større eller mindre Del af det ydre Lag, reproduceres det paa den Maade, at der fra

pedal disc, is clad with a membranous sheath strongly encrusted, and having at its top a sharply defined, smooth margin. The uppermost fourth part of the body is bare, cylindric, smooth, and at the top has a thick margin which is crenulated by rather projectant ribs, which form, as it were, a frilled collar round the oral disc (Pl. IV, fig. 7 *b*). There are 24 of these ribs or folds, which extend themselves about a couple of millimetres down the exterior, bare surface of the body. It is, as we may say, a parapet but without any fosse inside it. Both upon the exterior surface of the bare part of the body as well as upon the part clothed with the sheath, irregularly placed suckers are seen lying embedded in the integument.

The oral disc is almost flat, has 12 broad folds which issue from the oral aperture and extend themselves towards the inner series of tentacles, where they split themselves into two parts, each of which appears to correspond with the ribs on the upper margin of the body above mentioned. The mouth is oblong, has two oral angles leading down to the gonidial-grooves, and which have on each side 12 rather thick folds that form the labiæ.

The tentacles are situated in 2 alternating series, 12 in each, and are retractile. Those in the innermost series are longest, but thinner than those in the outer series, which are thick and short (Pl. IV, fig. 7). When the animal is in full vigour and has outstretched its tentacles, it appears as if there was only one series, but upon closer investigation it is seen that the thinner ones, which alternate with the thicker ones, are situated a little to the inside of the latter. The bare cylindric part of the body as well as also the tentacles, can be quite withdrawn into the sheath; but the mesial part of the oral disc appears not to be capable of being retracted or being covered by the uppermost margin of the body, as the oral aperture with the adjacent surrounding parts always remains exposed.

The colour. The sheath is encrusted with light grey clay, shading a little to brown (plastic biloculina-clay) which is coarsest upon the lowest part surrounding the margin of the pedal disc. The bare part of the body is light-violet, whilst its uppermost ribbed margin is dirty yellowish-white. The inner tentacles are almost brown-violet; those in the outer series, light-violet with a white annulus round the base and lighter coloured points. The oral disc pale violet, with dirty yellowish-white folds. The animal is seated on small, flat, compact lumps of clay.

That part of the body which is clothed by the sheath is, in histological respects, somewhat different from the bare portion. The sheath consists of two layers, an outer one that forms a viscid mucous membrane in which fine clay, sand, and shells of foraminifera lie embedded, all of them foreign bodies which belong to the sea-bottom upon which the animal exists; and an inner layer that consists of a sharply defined, fibrillar membrane (cuticulum) which is well separated from the outer mucous membrane, but firmly adherent to the ectoderm lying inside. When the animal is deprived of a greater or smaller portion of the outer

Ectodermet afsondres Slim, og saa vælter Dyret sig paa Bunden, eller det sætter Overfladen af denne i Bevægelse med Tentaklerne, hvorved de fremmede Legemer fæste sig i Slimet. Ectodermet er dannet af temmelig forkrøblede Cylinderceller med Kjerne, men uden Cilier og fattige paa Protoplasma. Tab. XIV. Fig. 9 *a*. Imellem Ectodermcellerne sees hist og her encellede, kolbeformige Slimkjertler, hvoraf flere ere tomme og sammenskrumpede. Indenfor Ectodermet er et temmelig bredt Lag fibrillært Bindevæv, forsynet med Bindevævslegemer, der have dels en, dels flere Udløbere, samt fine Saftkanaler med deres Epithel, Tab. XIV. Fig. 9 *b*, som bestaar af smaa, aflange Celler, der ganske udfylde Lumenet, saaledes som jeg oftere har paavist at være Tilfælde hos Coelenteraterne. Omtrent i Midten af dette Bindevæv sees temmelig stærkt udviklede, cirkulære Muskler, der danne fine Bundter, som synes paa enkelte Steder at anastomosere med hverandre, Tab. XIV. Fig. 9 *c*, og paa dets indre Flade er et Epithelialovertræk, bestaaende af lange, cilierende Cylinderceller, Tab. XIV. Fig. 9 *d*, der forresten beklæder hele Gastralhulheden med deri værende Organer.

Et Tversnit af den nøgne Kropsdel viser et bredt Ectodermlag, dannet af lange, cilierende Cylinderceller med en aflang Kjerne og et rigt Protoplasmaindhold. Imellem Cellerne er leiret en rigelig Mængde encellede, langstrakte Slimkjertler, samt Nematocyster. Bindevævet er her som paa den af Skeden indesluttede Kropsdel og ligesaa Endothelet, imedens de mesodermale Cirkulærmuskler ere kanske noget mere udviklede.

Tentaklerne have paa deres ydre Flade en stærk Beklædning af Ectodermet, bestaaende af Cylinderceller, ganske lig dem paa den nøgne Kropsdel, imellem hvilke ere encellede Slimkjertler og en overordentlig stor Mængde Nematocyster, der aldeles skjule Ectodermcellerne; indenfor disse er et Lag meget udviklede Længdemuskler, som ere fæstede til Bindevævet, paa hvis indre Flade de transverselle Muskler ere leirede, beklædte af Endothelet.

Der er 12 Par fuldstændige Septa, Tab. XIV. Fig. 10; af disse synes 6 Par at være de principale, da de ere stærkere byggede, have en kraftigere Muskulatur og ere golde; desforuden er der 4 Par ufuldstændige Septa. Af de 6 Par principale, fuldstændige Septa, er der 2 Par Retningssepta, som svare til Svælggruberne og ere meget brede; hvert Pars Septa staa langt fra hinanden, saa at Intraseptalrummet bliver meget bredt, Tab. XIV. Fig. 10 R. Længdemusklerne ere fæstede paa den udvendige Flade af hvert Septum, vende mod Interseptalrummet, ere meget stærkt udviklede og danne henimod Svælgroret, hvor de opnaa den største Tykkelse, store Buske, der rage langt ind i Interseptalrummet, Tab. XIV. Fig. 10 *a*. De transverselle Muskler ligge paa den indre Flade af Septumet

layer it becomes reproduced in this way viz. mucous is deposited from the ectoderm, and the animal rolls itself on the sea-bottom or stirs the surface of the bottom up with its tentacles, causing the foreign bodies to attach themselves to the mucous. The ectoderm is formed of rather deformed cylinder-cells with nuclei but without ciliæ and poor in protoplasm (Pl. XIV, fig. 9 *a*). Between the ectoderm cells there are here and there seen unicellular claviform mucous glands, several of which are empty and shrunk together. Inside of the ectoderm there is a rather broad layer of fibrillar connective-tissue furnished with connective-tissue corpuscles that have, partly one, partly several prolongations, also fine nutritory ducts with their epithelium (Pl. XIV, fig. 9 *b*); the latter consists of small oblong cells that quite fill the channel in the same way as I have frequently shown to be the case with coelenterata. At about the middle of this connective-tissue rather strongly developed circular muscles are seen, forming fine fasciculi that appear in some places to anastomose with each other (Pl. XIV, fig. 9 *c*), and upon its inner-surface there is an epithelial covering consisting of long ciliating cylinder-cells (Pl. XIV, fig. 9 *d*), which further clothes the entire gastral cavity and the organs lying within it.

A transversal section of the bare part of the body shows a broad layer of ectoderm, formed of long ciliating cylinder-cells with an oblong nucleus and a rich protoplasmic contents. Between the cells there are embedded a rich abundance of unicellular, elongate mucous glands, also nematocysts. The connective-tissue is here similar to that of the part of the body enclosed in the sheath, and so also is the endothelium, whilst the mesodermal circular muscles are, perhaps, a little more developed.

The tentacles have, upon their outer surface, a strong covering of the ectoderm, consisting of cylinder-cells, quite like those on the bare part of the body, between which there are unicellular mucous glands and an exceeding great abundance of nematocysts that quite conceal the ectoderm-cells; inside of these there is a layer of well developed longitudinal muscles secured to the connective-tissue, upon whose inner-surface the transversal muscles, clothed with the endothelium, are situated.

There are 12 pairs of perfect septa (Pl. XIV, fig. 10): of these 6 pairs appear to be the principal ones, as they are stronger built, have a more powerful musculosity, and are sterile; besides those there are 4 pairs of imperfect septa. Of the 6 pairs of principal, perfect septa, there are 2 pairs of directive septa that correspond to the gonidial-grooves and are very broad. The septa of each pair stand far apart from each other, so that the intraseptal space becomes very broad (Pl. XIV, fig. 10 R). The longitudinal muscles are secured on the outer surface of each septum, face towards the interseptal space, are very fully developed, and in proximity to the œsophagus, where they attain the greatest thickness, form large frutici which extend far into the interseptal space (Pl. XIV, fig. 10 *a*). The transversal

danne en tyk, foldet Membran og vende mod de transverselle Muskler paa det tilsvarende modsatte Septum i det intraseptale Rum, Tab. XIV, Fig. 10 *b*. De ovrige 4 principale Septapar, Tab. XIV, Fig. 10 *c*, have deres Muskler placerede ganske modsat, saaledes at de longitudinelle Muskler altid ere fæstede paa den indre Flade og vende mod hverandre i det intraseptale Rum, Tab. XIV, Fig. 10 *d*, som de paa Grund af deres stærke Udvikling synes ganske at udfylde i en Strækning af flere Millimeter, imedens de transverselle Muskler fæste sig paa den ydre Flade mod det interseptale Rum. Hverken de longitudinelle eller transverselle Muskler udfylde ganske hele Fladen af Septumet; de ophore altid henimod Randen, hvorved der bliver et Længdebelte, som er nogent, og hvori Mesenterialfilamentet hviler.

De 6 Par sekundære, fuldstændige Septa ere alle noget spinklere i Bygning, Tab XIV, Fig. 10 *e*, og paa dem ere de longitudinelle Muskler placerede paa den indre Flade, saa at de vende mod hverandre i det intraseptale Rum, Tab. XIV, Fig. 10 *f*. De ere kanske ikke saa stærkt udviklede som de paa de principale Septa, men stor Forskjel er der dog ikke; de transverselle Muskler ere fæstede paa den ydre Flade, vende mod det interseptale Rum og danne en temmelig tyk, foldet Membran, ligesom paa de principale Septa. Paa et af disse sekundære Septa fandt jeg en kun lidet udviklet Æggestok, men paa de ovrige var der ikke noget, der kunde tyde hen paa Generationsorganer.

De 4 Par ufuldstændige, tertiære Septa ere kortere, naa ikke til Svælgroret og ere saaledes stillede, at 1 Par findes paa den ydre Side af hvert Retningsseptum, altsaa imellem dette og det 1ste Par sekundære, fuldstændige Septa, eller, om man vil, i det 1ste Interseptalrum, Tab. XIV, Fig. 10 *g*. Paa disse ufuldstændige Septa ere de longitudinelle Muskler placerede paa den indre Flade, de vende mod hverandre i det intraseptale Rum, som de omtrent paa Midten næsten ganske udfylde. Ligesom de longitudinelle Muskler ere temmelig stærke og danne tykke Bundter, saaledes ere ogsaa de transverselle Muskler godt udviklede og danne en tynd, foldet Membran paa den ydre Flade. Disse ufuldstændige Septa bære Generationsorganerne; paa et Par af dem sees Æggestokke, der indeholde kun lidet udviklede Æg. Acontier har ikke været til at opdage; men jeg maa bemærke, at jeg har havt kun et eneste Exemplar, saa Materialet har været meget sparsomt. Acontier ere forovrigt ikke vanskelige at iagttage, hvor de ere tilstede, saa jeg er tilboielig til at antage, at denne Art ingen Acontier har. Parieto-basilarmuskelen er bred, men ikke meget tyk.

Svælgroret er forsynet med to meget vide Svælggruber, Tab. XIV, Fig. 10 *h*, der have et gult Pigmentovertræk, og paa hver Side af dem er der 12 Længdefolder, Tab. XIV, Fig. 10 *i*, som rage temmelig langt ind i Svælget og have et kastaniebrunt Pigmentovertræk.

muscles are seated on the inner surface of the septum, form a thick, folded membrane and face towards the transversal muscles on the corresponding opposite septum in the intraseptal space (Pl. XIV, fig. 10 *b*). The other 4 pairs of principal septa (Pl. XIV, fig. 10 *c*) have their muscles placed in quite reverse manner; thus, the longitudinal muscles are always secured upon the inner surface and face towards each other in the intraseptal space (Pl. XIV, fig. 10 *d*), which they, by reason of their great development, appear to completely fill for an extent of several millimetres, whilst the transversal muscles secure themselves upon the outer surface opposite the interseptal space. Neither the longitudinal nor the transversal muscles quite occupy the entire surface of the septum; they always terminate near the margin, so that there is always left a bare longitudinal belt in which the mesenterial filament lies.

The 6 pairs of secondary, perfect septa are all somewhat more delicate in their structure (Pl. XIV, fig. 10 *e*), and upon them the longitudinal muscles are placed on the inner surface, so that they face towards each other in the intraseptal space (Pl. XIV, fig. 10 *f*). They are perhaps not so fully developed as those on the principal septa, but yet there is no great difference; the transversal muscles are secured upon the outer surface, face towards the interseptal space, and form a rather thick, folded membrane, similar to what is the case with the principal septa. On one of these secondary septa I found a but slightly developed ovary, whilst on the others there was nothing that showed any indication of reproductive organs.

The 4 pairs of imperfect, tertiary septa are shorter, do not reach to the œsophagus, and are so placed, that one pair is found upon the outer side of each directive septum, consequently, between it and the 1st pair of secondary, perfect septa or, as it may be said, in the 1st interseptal space (Pl. XIV, fig. 10 *g*). Upon these imperfect septa the longitudinal muscles are placed on the inner surface, and face towards each other in the intraseptal space, which they, at about the middle, completely fill. Just as the longitudinal muscles are pretty strong and form thick fasciculi, so also are the transversal muscles well developed and form a thin, folded membrane on the outer surface. These imperfect septa carry the reproductive organs; upon a couple of them ovaries are observed, containing only slightly developed ova. It has not been possible to discover acontia, but I must remark that I have only had a single specimen, so that my material has been very scanty. Acontia are usually not difficult to discover when they are present, so I am disposed to assume that this species has no acontia. The parieto-basilar muscle is broad but not very thick.

The œsophagus is furnished whith two very wide gonidial-grooves (Pl. XIV, fig. 10 *h*) that have a yellow pigmental covering, and upon each side of them there are 12 longitudinal folds (Pl. XIV, fig. 10 *i*) that extend considerably into the œsophagus, and have a chestnut brown pigmental covering.

Findested.

Station 205. Et Exemplar. I min Notisebog er angivet ogsaa et Exemplar, fundet paa Station 240; men dette maa paa en eller anden Maade være bortkommet; thi det har ikke været mig muligt at finde det blandt det opbevarede Materiale.

Habitat.

Station No. 205. One specimen. In my Journal another specimen, found at station No. 240, is also mentioned, but that one must in some way or other have been lost, as it has not, subsequently, been found possible to discover it amongst the material preserved.

Artskarakter.

Hele Dyrets Hoide er 25^{mm}. Fodskiven 35^{mm} bred, rund, med en tyk, ringformig Rand, dannende en Vold om Kolumnens nederste Del. Fodskivens Underflade konkav, foldet fra Centrum mod Peripherien. Kroppen cylindrisk, smalere nedad mod Fodskiven; dens nederste tre Fjerdedele, ligesom Fodskivens Rand, forsynet med en stærkt inkrusteret Skede, hvis overste Rand er glat. Den øverste Fjerdedel nøgen, cylindrisk, glat, har foroven en tyk, stærkt krenuleret Rand, dannende en Krave med 24 Folder omkring Mundskiven. Paa Kroppens Overflade spredte, uregelmæssigt stillede Sugevorter. Mundskiven næsten flad med 12 brede Folder, udgaaende fra Munden og strækkende sig henimod Tentaklerne, hvor de dele sig i to. Munden aflang med 12 Folder paa hver Side af Mundvigene. Tentaklerne retraktile, staa i 2 afvexlende Rækker, 12 i hver, hvoraf de inderste ere længst. Den nøgne Kropsdel med Tentakler lader sig trække ind i Skeden, men Mundskiven kan ikke ganske skjules. Farven: Skeden er inkrusteret af lysegraat, lidt i det Gronlige spillende, Ler. Kroppens nøgne Del lysviolet; dens overste, krenulerede Rand gulhvid. De indre Tentakler brunviolette; de ydre lysere med en hvid Ring omkring Grunddelen og en lysere Spids. Mundskiven bleg violet med gulhvide Folder.

Specific characteristics.

The height of the entire animal is 25^{mm}. The pedal disc 35^{mm} in breadth, round, with a thick annular margin, forming a ridge round the lowest part of the column. The under surface of the pedal disc concave, folded from the centre towards the periphery. The body cylindric, narrowest downwards towards the pedal disc. Its lowest three-fourths part, as also the margin of the pedal disc, furnished with a strongly encrusted sheath, whose uppermost margin is smooth. The uppermost fourth part bare, cylindric, smooth, has at the top a thick, strongly-crenulated margin, forming a collar, with 24 folds, round the oral disc. On the exterior surface of the body, scattered, irregularly-placed suckers. The oral disc almot flat, with 12 broad folds issuing from the mouth and extending themselves towards the tentacles, where they become split into two. The mouth oblong with 12 folds upon each side of the oral angles. The tentacles retractile, placed in 2 alternating series, 12 in each, of which the innermost are the longest. The bare portion of the body with the tentacles can be withdrawn into the sheath, but the oral disc cannot be quite hidden. *The colour.* The sheath is encrusted with a light-grey clay having a slightly greenish play of colour. The bare part of the body light-violet; the uppermost, crenulated margin yellowish white. The inner tentacles brown-violet, the outer tentacles lighter in colour with a white annulus round the base and lighter coloured point. The oral disc pale violet with yellowish-white folds.

Phellia spitsbergensis, n. sp.

Tab. IV. Fig. 8; Tab. XV. Fig. 1—3.

Fodskiven, som ikke er synderlig bredere end Kolumnen, er rund med en jævn, temmelig tynd Rand og en næsten flad Underflade, der har mange fine Linier, som straale ud fra Centrum mod Peripherien og angive Septalinsertionerne. Kolumnen er 15^{mm} hoi, cylindrisk, beklædt indtil et Par Millimeter fra den øverste Rand med en inkrusteret, slimet Skede, der har en fri Rand foroven, og som forneden ganske omslutter Fodskivens Rand, Tab. IV, Fig. 8. Skeden er paa Overfladen lidt ru som Følge af den inkrusterede, grove Sand og har fine Længdefurer, der hverken ere meget dybe eller brede, Tab. IV, Fig. 8; Tab. XV, Fig. 1. Den nøgne Del af Kolumnen er glat, glindsende, har ligeledes fine Længdefurer og er forsynet

Phellia spitsbergensis, n. sp.

Pl. IV, fig. 8; Pl. XV, fig. 1—3.

The pedal disc, which is not much broader than the column, is round, has an even, rather thin margin, and an almost flat under-surface with numerous fine lines, radiating from the centre towards the periphery, indicating the insertions of septa. The column is 15^{mm} in height, cylindric, clad up to within a couple of millimetres from the uppermost margin, with an encrusted, mucous sheath having a free margin at the top, and which at the foot quite encloses the margin of the pedal disc (Pl. IV, fig. 8). The exterior surface of the sheath is somewhat rough in consequence of the encrusted coarse sand, and has fine longitudinal folds which are neither very broad nor deep (Pl. IV, fig. 8; Pl. XV, fig. 1). The bare part of the column

med spredte Cinclides, hvorigjennem paa et Par af dem Acontier træde frem.

Mundskiven er næsten plan med en aflang, lidt fremspringende Mund, hvis Læber ere tykke og have 5 Folder paa hver Side af de temmelig brede Mundvige (Gonidiegruber), Tab. XV. Fig. 1. Tentaklerne staa i 3 afvexlende Rækker, 24 i hver, og ere omtrent saa lange som Mundskivens Bredde, dog ere de i den inderste Række noget længere. Den yderste Række staar paa Kolumnens overste Rand.

Farven. Den nogne Del af Kolumnen er blaaviolet, men dens tentakulære Rand er noget blegere, saa det ser ud, som om den havde en Ring om sig. Mundskiven er ligeledes blaaviolet med lysere Straaler og en lysere Ring om Munden. Tentaklerne ere intens blaaviolette med rødlige Ender. Skeden har et grønligt Skjær, imedens Længdefolderne spille noget i det Violette.

Phellia spitsbergensis sad paa Buccinum hydrophanum, og naar den strakte sig noget ud, dannede den en Kegle eller Søile med hvælvet Top, men trak den sig ganske ind i Skeden, fremkom en Halvkugle med en fin Aabning paa Midten. Tab. IV. Fig. 8; Tab. XV. Fig. 1.

Et Tversnit af Kroppens skedebeklædte Del viser, at Skeden danner et ydre Lag, bestaaende af en seig Slimmembran, hvori er inkrusteret Sand og Skjælstumper, Tab. XV. Fig. 2 *a*, og et indre Lag, dannet af en fast, fibrillær Membran (Cuticula), Tab. XV, Fig. 2 *b*. Denne er fast adhæreret til det indenfor liggende Ectoderm, der bestaar af temmelig korte Cylinderceller, som ere fattige paa Protoplasmaindhold og uden Cilier, Tab. XV. Fig. 2 *c*, og imellem hvilke iagttages kolbeformede, encellede Slimkjertler. Indenfor Ectodermet er et bredt, fibrillært Bindevævslag, forsynet med Bindevævslegemer og fine Ernæringskanaler. Tab. XV. Fig. 2 *d*, og omtrent i Midten af dette Bindevævslag ere cirkulære Muskler indleirede, der danne tynde Bundter, Tab. XV. Fig. 2 *e*. Paa den indre Flade af Bindevævet er som sædvanligt Endothelet med sine lange Cilier fæstet, Tab. XV, Fig. 2 *f*. Den nogne Del af Kroppen frembyder paa Tversnit et noget andet Billede. Ectodermet bestaar her af lange Cylinderceller med store, aflange Kjerner, omgivne af Protoplasma og forsynede med lange Cilier. Imellem Cylindercellerne sees i stor Mængde baade encellede Slimkjertler og Nematocyster. Bindevævslaget indenfor Ectodermet er noget bredere end paa den inkrusterede Del, ligesom de cirkulære Muskler synes at være stærkere udviklede, end paa denne.

Der er 12 Par fuldstændige Septa. Af disse er der 6 Par, der maa betragtes som de principale, Tab. XV. Fig. 3 *a*; de ere meget stærkere i Bygning, ere golde, og til dem hore de 2 Par Retningssepta, Tab. XV. Fig. 3 R, der ere stærkt ioinefaldende derved, at deres intraseptale Rum er meget vidt, ligesom de longitudinelle Muskler ere

is smooth, lustrous, and has likewise fine longitudinal furrows, and is also furnished with scattered cinclides through a couple of which acontia protrude.

The oral disc is almost plane, with an oblong, somewhat projecting mouth whose labiæ are thick and have 5 folds on each side of the rather broad oral angles (gonidial-grooves) (Pl. XV, fig. 1). The tentacles are placed in 3 alternating series, 24 in each, and are about the same length as the oral disc is broad, but they are, however, somewhat longer in the innermost series. The outermost series stands upon the uppermost margin of the column.

The colour. The bare part of the column is blue-violet, but its tentacular margin is somewhat paler, so that it appears as if it had an annulus round it. The oral disc is also blue-violet with lighter coloured rays and a lighter coloured annulus round the mouth. The tentacles are intense blue-violet with reddish extremities. The sheath has a greenish tinge, whilst the longitudinal folds shade a little to violet.

Phellia spitsbergensis was seated on Buccinum hydrophanum, and when it stretched itself somewhat out, it formed a cone or pillar with an arcuate top, but when it quite withdrew itself into the sheath a hemisphere, with a minute aperture in the middle, was produced (Pl. IV, fig. 8; Pl. XV, fig. 1).

A transversal section of the portion of the body clad with the sheath shows, that the sheath forms an outer layer, consisting of a viscid, mucous membrane in which sand and fragments of shells are encrusted (Pl. XV, fig. 2 *a*); and an inner layer, formed of a firm fibrillar membrane (cuticulum) (Pl. XV, fig. 2 *b*). This is firmly adherent to the ectoderm lying inside of it, which consists of rather short cylinder-cells poor in protoplasmic contents and without ciliæ (Pl. XV, fig. 2 *c*), and between which claviform unicellular mucous glands are observed. Inside of the ectoderm there is a broad fibrillar layer of connective-tissue, furnished with connective-tissue corpuscles and fine nutritory ducts (Pl. XV, fig. 2 *d*), and at about the middle of this layer of connective-tissue the circular muscles are embedded, forming thin fasciculi (Pl. XV, fig. 2 *e*). On the inner surface of the connective-tissue, the endothelium, with its long ciliæ, is secured as usual (Pl. XV, fig. 2 *f*). The bare part of the body presents, in transversal sections, a somewhat different picture. The ectoderm, here, consists of long cylinder-cells containing large oblong nuclei surrounded by protoplasm, and furnished with long ciliæ. Between the cylinder-cells a great abundance of both unicellular mucous glands and nematocysts are observed. The layer of connective-tissue inside of the ectoderm, is somewhat broader than on the encrusted portion, whilst its circular muscles appear also to be more powerfully developed than upon the latter.

There are 12 pairs of perfect septa. Of these there are 6 pairs which must be considered as the principal septa (Pl. XV, fig. 3 *a*); they are somewhat stronger in structure, are sterile, and to them belong the 2 pairs of directive septa (Pl. XV, fig. 3 R), which are strongly prominent, owing to their intraseptal space being very wide.

placerede paa den ydre Flade af hvert Septum og vende mod det interseptale Rum, imedens de transverselle Muskler dække næsten ganske den indre Flade og vende altsaa mod det vide, intraseptale Rum. De ovrige 4 Par principale Septa, nemlig 2 paa hver Side af Retningssepta, have Muskulaturen placeret ganske modsat, saaledes at de longitudinelle Muskler ere paa den indre, og de transverselle paa den ydre Flade, Tab. XV, Fig. 3 *a*. De longitudinelle Muskler ere henimod Svælget stærkest udviklede, hvor de forme sig i Buske, idet der fra Skillevæggen (Septum) udgaa listeformige Bindevævsforlængelser, hvorpaa Musklerne fæste sig. De andre 6 Par fuldstændige Septa maa vel ansees som sekundære, Tab. XV, Fig. 3 *b*; de ere stillede saaledes, at imellem hvert 2 Par principale Septa, altsaa i det principale Kammer, er 1 Par af de fuldstændige, sekundære Septa. Paa disse ere Længdemusklerne fæstede paa den indre Flade, vende mod hverandre i det intraseptale Rum, imedens Tværmusklerne dække Størstedelen af den ydre Flade i det interseptale Rum. Alle de fuldstændige Septa bære Mesenterialfilamenter; men imedens de 6 Par principale Septa ere golde, sees paa enkelte af de sekundære Septa Acontier.

Imellem hver 2 Par af samtlige fuldstændige Septa er der 1 Par ufuldstændige, der indtager knapt den halve Længde af det interseptale Rum, saa at dettes anden Halvdel, som vender mod Svælgroret, er frit, Tab. XV, Fig. 3 *c*. Disse ufuldstændige, tertiære Septa ere ligesom de fuldstændige forsynede med Længde- og Tværmuskler; de bære baade Acontier og Generationsorganer, og det i saa stor Mængde, at disse Organer udfylde en stor Del af det interseptale Rum, hvori de findes. Acontierne sidde øverst, Tab. XV, Fig. 3 *d*, og afvige ikke i Organisation fra de tidligere omtalte Acontier, men synes at være i større Mængde tilstede, end hos nogen af de forhen omtalte Phellia-arter. Nedenfor Acontierne, imod Gastralhulhedens Bund, sidde Kjønsorganerne, der danne lange, baandformige, sammenrullede Ovarier, Tab. XV, Fig. 3 *e*, hvori sees Æg i forskjellige Udviklingsstadier. Svælgroret er temmelig langt, og paa dets indre Flade forsynet med to temmeligt brede Svælggruber, hvis Epithel bestaar af lange Cylinderceller, der bære lange Cilier; den ovrige Del af Svælgfladen har stærke Længdefolder, beklædte med Cylinderceller, men hvis Cilier ere meget kortere. Imellem Cylindercellerne sees mange encellede Slimkjertler; men i Svælggruberne findes ingen saadanne paa det undersøgte Exemplar.

De 6 Par fuldstændige, principale Septa tage deres Begyndelse fra Centrum af Fodskivens indvendige Flade; de andre 6 Par fuldstændige Septa udspringe lidt udenfor Centrum og de 12 Par ufuldstændige Septa omtrent midt imellem Centrum og Peripherien.

whilst, also, the longitudinal muscles are placed on the outer surface of each septum and face towards the interseptal space, whilst the transversal muscles almost entirely cover the inner surface and consequently face towards the wide intraseptal space. The other 4 pairs of principal septa, viz. 2 upon each side of the directive septa, have their musculosity placed in quite a reverse manner; thus, the longitudinal muscles are upon the inner, and the transversal muscles upon the outer surface (Pl. XV, fig. 3 *a*). The longitudinal muscles are most developed in the neighbourhood of the gullet, where they form themselves into frutici, owing to fillet-formed connective-tissue prolongations upon which the muscles attach themselves issuing from the divisional wall (septum). The other 6 pairs of perfect septa must, I suppose, be considered as secondary septa (Pl. XV, fig. 3 *b*); they are placed in such manner that between each 2 pairs of principal septa, consequently in the principal chamber, there is 1 pair of perfect, secondary septa. Upon these the longitudinal muscles are secured on the inner surface, face towards each other in the intraseptal space, whilst the transversal muscles cover the greater part of the outer surface in the interseptal space. All the perfect septa carry mesenterial filaments; but whilst the 6 pairs of principal septa are sterile, acontia are observed upon some of the secondary septa.

Between every two pairs of all the perfect septa, there is 1 pair of imperfect septa, which occupy barely half the length of the interseptal space, so that its remaining half, which faces towards the œsophagus, is free (Pl. XV, fig. 3 *c*). These imperfect, tertiary septa are, like the perfect septa, furnished with longitudinal and transversal muscles; they carry both acontia and reproductive organs, and in such great abundance that these organs fill up a great part of the interseptal space in which they are found. The acontia are placed uppermost (Pl. XV, fig. 3 *d*), and do not differ in organisation from the acontia previously spoken of, but appear to be present in greater abundance than in any of the species of Phellia previously mentioned. Below the acontia, towards the bottom of the gastral cavity, the reproductive organs are situated, forming long ribbon-like coiled ovaries (Pl. XV, fig. 3 *e*), in which ova in various stages of development are observed. The œsophagus is rather long and is, upon its inner surface, furnished with two rather broad gullet-grooves whose epithelium consists of long cylinder-cells carrying long ciliæ. The remaining part of the gullet surface has strong longitudinal folds clad with cylinder-cells, but whose ciliæ are much shorter. Between the cylinder-cells numerous unicellular mucous glands are seen, but in the gullet-grooves no such glands were found in the specimen examined.

The 6 pairs of perfect, principal septa originate in the centre of the inner surface of the pedal disc; the other 6 pairs of perfect septa originate a little beyond the centre, and the 12 pairs of imperfect septa originate about half way between the centre and the periphery.

Findested.

Station 363. To Exemplarer, siddende paa Buccinum hydrophanum.

Artskarakter.

Phellia spitsbergensis er 15^{mm} hoi. Fodskiven rund, ikke synderlig bredere end Kolumnen med en tynd, jævn Rand. Kolumnen cylindrisk, beklædt indtil et Par Millimeter fra Mundskiven med en inkrusteret Skede, hvis øverste Rand er fri og forsynet med Læn defolder og Furer. Kolumnens nogne Del glat, furet paalangs, med spredte Cinclides. Mundskiven plan med en aflang, lidt fremspringende Mund; femfoldede Læber til hver Side af Mundvigene. 3 Rækker Tentakler, 24 i hver, omtrent saa lange som Mundskivens Bredde; de indre dog længst; den ydre Række paa Kolumnens øverste Rand. Farven: Kroppens nogne Del blaaviolet, men den tentakulære Kropsrand lysere. Mundskiven blaaviolet med lysere Straaler og en lysere Ring om Munden. Tentaklerne intens blaaviolette med rødlige Ender. Skeden grønlig med et svagt violet Underlag.

Habitat.

Station No. 363. Two specimens seated on Buccinum hydrophanum.

Specific characteristics.

Phellia spitsbergensis is 15^{mm} in height. The pedal disc round, not much broader than the column, has a thin, even margin. The column cylindric, clad, up to within a couple of millimetres from the oral disc, with an encrusted sheath, whose uppermost margin is free and furnished with longitudinal folds and furrows. The bare part of the column smooth, longitudinally furrowed, with scattered cinclides. The oral disc plane, with an oblong, slightly projectant mouth and finely folded labiæ upon each side of the oral angles. 3 series of tentacles, 24 in each, about as long as the oral disc is broad, the innermost series being, however, longest. The outermost series situated on the uppermost margin of the column. *The colour.* The bare part of the body blue-violet, but its tentacular margin is lighter-coloured. The oral disc blue-violet with lighter-coloured rays and a lighter-coloured annulus round the mouth. The tentacles intense blue-violet with reddish extremities. The sheath greenish with a faint violet-coloured substratum.

Kodioides [1] pedunculata.

Tab. VI, Fig. 3, 4; Tab. XXII, Fig. 8—11; Tab. XXIII, Fig. 1—4.

Legemet er pæreformet med en lang Stilk. Den øverste Del eller Kroppen er henved 20^{mm} hoi og omkring 12^{mm} bred paa Midten, men smalner betydeligt af nedad, saa at den ved Overgangen i Stilken kun er 4^{mm} bred. Opad bliver den ogsaa noget smalere, idet den gaar over til Mundskiven, hvor den bliver omtrent 8^{mm} bred. Stilken er mindst 30^{mm} lang og ender i en lidt aflang Fodskive, Tab. VI, Fig. 3, 4.

Kroppen er tæt bedækket med grov Sand og Biloculiner, saa det ikke er muligt at se den indenfor værende Hud, Tab. VI, Fig. 3, 4; men efterat Dyret er kommet i Alcohol, kan Krusten med nogenlunde Lethed borttages, og da viser det sig, at Kroppens Overflade er tæt besat med Sugevorter, der kunne inddrages og udskydes efter Omstændighederne, Tab. XXII, Fig. 8, og hvortil de fremmede Legemer ere fæstede. Paa mange Steder staa Sugevorterne saa tæt sammen, at de ved at trækkes ind danner en større eller mindre Grube, der er fyldt med Sandkorn, og i hvis Bund iagttages 2—4 Sugevorter,

[1] Κώδεια = Et Valmuehoved.

Kodiodes [1] pedunculata.

Pl. VI, fig. 3, 4; Pl. XXII, fig. 8—11; Pl. XXIII, fig. 1—4.

The animal is piriform with a long stem. The superior portion, or the body, is about 20^{mm} in height, and about 12^{mm} in breadth at the middle, but diminishes considerably in breadth downwards, so that at the point where it passes over into the stem it is only 4^{mm} in breadth. Towards the top it is also a little narrower at the point where it passes over into the oral disc, in which situation it is about 8^{mm} in breadth. The stem is at least 30^{mm} in length, and terminates in a slightly oblong pedal disc (Pl. VI, fig. 3, 4).

The body is closely covered with coarse sand and biloculina, so much so that it is impossible to observe the integument lying underneath (Pl. VI, fig. 3, 4); but after the animal has been placed in alcohol the crust may be removed without much difficulty, and it then appears that the surface of the body is closely covered with suckers which may be retracted and projected, according to circumstances (Pl. XXII, fig. 8), and to which the foreign bodies are adherent. In many places the suckers are placed so close that, upon being retracted, they form a larger or smaller hollow filled with grains of sand, in whose

[1] Κώδεια = A poppy head.

Tab. XXII, Fig. 8ª, der ere mere eller mindre indtrukne.

Mundskiven, som er nøgen og blottet for Grusbedækning, er lidt hvælvet og forsynet med Folder, der udstraale fra den lidt aflange Mund og blive bredere mod Peripherien. Tab. XXII, Fig. 8, hvor der er 2 Rækker meget korte, koniske og retraktile Tentakler — 12 i hver Række. Tentaklerne i den indre Række ere tykkere og lidt kortere end i den ydre. Munden er næsten rund med foldet Rand og uden Gonidiegrube.

Stilken er nøgen, rund, glat og glindsende, lader sig let sammentrykke og bliver noget bredere (tykkere) ned imod Fodskiven, Tab. VI, Fig. 3, 4; Tab. XXII, Fig. 8. Denne er lidt aflang, glat, noget hvælvet paa den ovre Flade, imedens den undre er lidt konkav og forsynet med fine Folder, der gaa vifteformigt fra Centrum mod Peripherien; den er fæstet til et lidet Stykke af Stilken af Bathycrinus Carpenteri.

Farven. Den inkrusterede Del af Kroppen er graagrøn, spillende lidt i det Violette; men borttages Krusten, viser Huden sig at være hvid. Mundskiven med Tentakler er bleg rosenrød. Stilken er næsten farvelos, imedens Fodskiven har et fint rødligt Skjær. Tab. VI, Fig. 3, 4.

Af dette ret mærkelige Dyr har Expeditionen kun 1 Exemplar fra en Dybde af 1050 Favne i den kolde Area. Det var i meget stormfulde Dage, saa Skibet var i stadig rullende Bevægelse, der i høi Grad vanskeliggjorde Undersøgelserne. Det lykkedes mig dog at faa Dyret tegnet levende og at faa gjort nogle Notiser med Hensyn til dets Ydre; men da det stedse holdt sig temmelig sammentrukket, uagtet jeg havde det i flere Dage i Observationskarret, kunde jeg intet bestemme angaaende Tentaklerne, — kun saameget iagttog jeg, at Stilken til enkelte Tider holdt sig ganske opret, til andre bøiede sig, imedens Kroppen udvidede og sammentrak sig — Bevægelser, som fulgtes af Stilken, saaledes nemlig, at naar Kroppen trak sig sammen, blev Stilken smalere, og naar den udvidede sig, svulmede Stilken op. I min Notisbog var Dyret opført blandt Zoantherne, med hvilke det havde adskillig Lighed, og det er derfor, at det paa Plancherne har faaet Plads iblandt disse. Da jeg kun havde et Exemplar at raade over, opstod Spørgsmaalet, om jeg skulde ofre dette i Videnskabens Tjeneste for muligens ved en anatomisk-histologisk Undersøgelse at kunne faa bestemme dets systematiske Plads, eller lade det blive staaende i Samlingen som en ubestemmelig Gjenstand. Jeg valgte det første, og nu er kun tilbage den øverste Del af Kroppen, samt Tværsnit af Kropsvæggen og hele Stilken med Fodskiven.

Den anatomisk-histologiske Undersøgelse. Ved at aabne Dyret efter Længden fra Mundaabningen til Stilkens Begyn-

bottom 2—4 suckers are observed (Pl. XXII, fig. 8ª), more or less retracted.

The oral disc, which is bare and free of any sandy covering, is a little arcuate, and is furnished with folds, which radiate from the slightly oblong mouth and become broader towards the periphery (Pl. XXII, Fig. 8); at which point there are 2 series of very short conical retractile tentacles — 12 in each series. The tentacles in the inner series are a little thicker and shorter than those of the outer series. The oral aperture is almost circular, has a folded margin and no gonidial recesses.

The stem is bare, round, smooth and shining, and may be easily compressed. It becomes somewhat broader (thicker) downwards towards the pedal disc (Pl. VI, fig. 3, 4; Pl. XXII, fig. 8). The latter is slightly oblong, smooth, somewhat arcuate on the upper surface, whilst its under surface is slightly concave, and is furnished with fine folds issuing, in fan-shape, from the centre to the periphery; it is secured to a small piece of the stem of Bathycrinus Carpenteri.

The colour. The encrusted portion of the body is greyish green with a violet play of colour, but if the crust is removed the integument appears to be white. The oral disc and the tentacles are pale rose-red. The stem is almost colourless, whilst the pedal disc has a fine reddish tinge (Pl. VI, fig. 3, 4).

The expedition obtained only one specimen of this very remarkable animal, at a depth of 1050 fathoms in the cold area. The weather was very stormy at the time, and the vessel had a constant heaving and rolling movement, which in a great degree obstructed the investigations. I was, however, fortunate enough to obtain the animal drawn in the live state, and to jot down some observations in regard to its exterior; but as it constantly kept itself pretty much shrunk together, although I had it for several days in the glass vessel for observation, I could determine nothing in respect of the tentacles, only so much did I observe viz, that the stem at some times kept itself quite erect and at other times became bent, whilst the body expanded and contracted — movements which were participated in by the stem in such manner, that when the body contracted the stem became attenuated and when the body expanded the stem became tumified. In my memorandum-book the animal was placed among the Zoanthidæ, to which it had considerable resemblance, and it is owing to this that it has been placed among them in the illustrative plates. As I only had one specimen at my disposal, the question arose whether I should sacrifice it in the service of science, in order, possibly, by an anatomo-histological investigation to be in a position to determine its systematic position, or whether I should let it remain uninjured in the collection as an object incapable of determination. I chose the first-named course, and, now, there only remains the uppermost part of the body, also a section of the body-wall, and the entire stem with the pedal disc.

The anatomo-histological examination. Upon dissecting the animal longitudinally, from the oral aperture to the

delse og ved at udvide Kropsvæg og Svælgrør til Siderne. Tab. XXII, Fig. 9, viste det sig, at de indre Dele vare mindre godt konserverede, idet en Del af Septa med deres Mesenterialfilamenter og Generationsorganer befandtes i en oplost Tilstand. Kun Septaernes Tilheftninger til den indre Kropsvæg og Svælgroret vare saavidt bevarede, at de kunde tjene til Undersogelse. Af denne fremgaar det, at der er 12 Par Septa, hvoraf 6 Par ere fuldstændige, det vil sige, inserere sig paa Svælgroret, Tab. XXII. Fig. 9 *a*, imedens de øvrige 6 Par ere ufuldstændige og strække sig henimod Svælgroret uden at naa dette, Tab. XXII. Fig. 9 *b*. Af de 6 Par fuldstændige Septa er der sandsynligvis 2 Par, som kunne ansees for Retningssepta, omendskjont jeg ikke med Bestemthed kan paavise dem; men der er 2 Par, som ere stillede saaledes, at de fæste sig paa Svælgrorets ydre, modsatte Sider og ere meget stærkere i Bygning end de øvrige, Tab. XXII. Fig. 9 *c*. Musklerne ere ødelagte saagodtsom paa alle Septa i den øvre Del af Gastrovaskularhulheden, saa der ingen Veiledning er at erholde ved dem, derimod skulle vi senere se, at Septaerne ere bedre konserverede i Stilken.

De ufuldstændige Septa ere noget smalere, staa indbyrdes tættere sammen, saa det intraseptale Rum er meget smalt, og strække sig paa nogle Millimeter nær hentil Svælgroret. Samtlige Septa bære Mesenterialfilamenter, hvoraf der kun findes Rester. De ufuldstændige Septa bære Generationsorganer.

Til et fuldstændigt Septum lige ved Svælgroret er fæstet en Acontie, der er overmaade rig paa Nematocyster, forresten bygget som sædvanligt; kun denne ene lykkedes det mig at finde, Tab. XXII, Fig. 10.

Svælgrørets indre Flade har stærkt udprægede Længdefolder og er beklædt med et bredt Epithel, Tab. XXII, Fig. 9 *d*; nogen Svælggrube var ikke at opdage. Ved at løfte det spaltede Svælgrør op sees de to Rækker af de indtrukne Tentakler, hvoraf de i den ydre Række ere temmelig medtagne.

Paa Tversnit af den inkrusterede Kropshud sees, at det ydre, tykke Dække dannes af en temmelig tyk, seig Slimmembran, hvori de fremmede Legemer ere indleirede, Tab. XXII, Fig. 11 *a*. Indenfor denne er et Epithel (Ectoderm), bestaaende af høie Cylinderceller, forsynede med Kjerne og Kjernelegeme, Tab. XXII, Fig. 11 *b*; Tab. XXIII, Fig. 2 *a*. Imellem disse Celler ligger en stor Mængde noget spredte, encellede Slimkjertler, der ere kolbeformede og fyldte med en kornet Masse, som for Størstedelen skjuler Kjernen, Tab. XXIII, Fig. 2 *b*, samt enkelte Nematocyster. I Ectodermet sees de for omtalte Sugevorter; de ere cylindriske, have paa den næsten tvers afskaarne Ende en Sugeskive og ere udvendig beklædte med et Epithel, hvis Celler ere noget mindre (lavere) end Ectodermets, Tab. XXIII, Fig. 2 *d*. Deres indvendige Væg er beklædt med næsten runde Celler, der have en

commencement of the stem, and upon widening the body-wall and the gullet-tube laterally (Pl. XXII, fig. 9), it appeared that the internal portions were indifferently well preserved, as a portion of the septa, with their mesenterial filaments and reproductive organs, were found to be in a putrid state. Only the septal attachments to the inner body-wall and the gullet tube were sufficiently well preserved that they could serve for purposes of investigation. From this investigation it appears, that there are 12 pairs of septa, of which 6 pairs are perfect, that is to say, they insert themselves on the gullet-tube (Pl. XXII, fig. 9 *a*), whilst the other 6 pairs are imperfect and extend towards the gullet-tube without, however, reaching it (Pl. XXII, fig. 9 *b*). Of the 6 pairs of perfect septa, there are probably 2 pairs that may be considered to be directive septa, although I am unable, with precision, to point them out; but there are 2 pairs placed in such a manner, that they secure themselves to the exterior opposite sides of the gullet-tube, and are much stronger in structure than the others (Pl. XXII, fig. 9 *c*). The muscles are destroyed upon nearly all the septa in the superior part of the gastro-vascular cavity, so that no assistance is to be had from them, but, on the other hand, we shall subsequently see that the septa are better preserved in the stem.

The imperfect septa are somewhat narrower, and are placed closer together and to each other, so that the intraseptal spaces are very narrow, and extend to within a few millimetres of the gullet-tube. All the septa carry mesenterial filaments, of which remains only are found. The imperfect septa carry reproductive organs.

An acontia is adherent to a perfect septum close to the gullet-tube, which is extremely rich in nematocysts, and otherwise constructed as usual. Only this single one have I been fortunate enough to find (Pl. XXII, fig. 10).

The inner surface of the gullet-tube has strongly distinguished longitudinal folds, and is covered with a broad epithelium (Pl. XXII, fig. 9 *d*). It was not possible to discover any gullet-groove. Upon raising the fissured œsophagus the 2 series of retracted tentacles are observed, of which those in the outer series are considerably damaged.

Upon transsection of the encrusted integument of the body it is seen, that the external thick covering is formed by a rather thick, viscid, mucous membrane, in which the foreign bodies are entrenched (Pl. XXII, fig. 11 *a*). Inside this there is an epithelium (ectoderm) consisting of high cylinder-cells furnished with a nucleus and nucleus corpuscle (Pl. XXII, fig. 11 *b*; Pl. XXIII, fig. 2 *a*). Between those cells there lie a great multitude of somewhat scattered unicellular mucous glands, claviform in shape, and filled with a granular substance, which for the greater part conceals the nucleus (Pl. XXIII, fig. 2 *b*), and also a few nematocysts. In the ectoderm are seen the previously mentioned suckers; they are cylindrical, and on the almost truncate extremity have a sucker disc; externally they are clad with an epithelium whose cells are somewhat less (lower) than those of the ectoderm (Pl. XXIII, fig. 2 *d*)

forholdsvis stor, rund Kjerne, samt Kjernelegeme. Tab. XXIII. Fig. 2 *d*. Indenfor Sugevorternes ydre Epithel, imellem dette og deres Bindevævslag, sees longitudinelle Muskelfibre at strække sig et godt Stykke op paa Sugevorten. Tab. XXIII. Fig. 2 *i*; disse Sugevorter ligge i en afgrændset Hule i Hudens Bindevæv, Tab. XXIII. Fig. 2 *e*. og ere, eftersom de ere mere eller mindre indtrukne, optagne af de fremmede Legemer. Tab. XXII. Fig. 11 *c*.

Indenfor Ectodermet er et bredt, hyalint Bindevævslag, Tab. XXII. Fig. 11 *d*; Tab. XXIII. Fig. 2 *f*. hvori sees mange fine Saftkanaler med deres Epithel, og i Midten af dette Bindevæv findes et temmelig bredt Belte af cirkulære Muskelfibre, der synes at danne Bundter, Tab. XXII, Fig. 11 *e*; Tab. XXIII, Fig. 2 *g*. Paa Bindevævets indre Væg er et Muskellag, dannet af Tver- og Længdemuskler, hvoraf de sidste ere meget tydelige og stærkt udviklede, Tab. XXII. Fig. 11 *f*. og dette Muskellag beklædes af et Endothel, bestaaende af cilierende Cylinderceller, der dog ikke ere saa høie som Ectodermets, men forsynede med lidt aflange Kjerner med Kjernelegemer, Tab. XXII. Fig. 11 *g*.

Paa Tversnit af Stilkens øverste Del sees Ectodermet at bestaa af meget høie, smale, cilierende Cylinderceller med store, aflange Kjerner, der indeslutte et næsten rundt Kjernelegeme og ere omgivne af en tynd, kornet Protoplasmamasse, Tab. XXIII. Fig. 3 *a*. Hverken Slimkjertler eller Nematocyster findes i Stilkens Ectoderm; men indenfor dette er et temmelig bredt Bindevævslag, rigt paa Bindevævslegemer og Ernæringskanaler. Tab. XXIII. Fig. 3 *b*. og i Midten af dette Bindevæv iagttages øverst paa Stilken svage, cirkulære Muskelfibre, der blive stærkere, rigere og danne Bundter, alt eftersom de komme længere ned, saa at de ved Overgangen til Foden ere meget udviklede. Tab. XXIII. Fig. 3 *c*. Fodskiven, der har samme Struktur som Stilken, er dog rigere paa Muskelfibre end denne.

Samtlige Septa udgaa fra Bunden af Gastrovascularhulheden, nemlig fra den indre Flade af Fodskiven. Tab. XXIII. Fig. 1 *a*, omtrent paa Midten af denne som parrede, smale, listeformige Fremspring; de strække sig langs Stilkens indre Flade, bundet til dennes Bindevæv, hvoraf de egentlig ere Forlængelser og ere lige brede i hele Stilkens Gastrovascularhulhed. Tab. XXIII. Fig. 4 *b*, som de kun udfylde halvt. Tab. XXIII. Fig. 4 *a*. Idet de forlade Stilkens Hulhed, blive de bredere langs Kropsvæggen, og her indtage de fuldstændige Septa en større og større Bredde, alt eftersom de komme op imod Underfladen af Mundskiven og Svælgrøret, imedens de ufuldstændige Septa synes ikke at indtage større Bredde, end de have i Stilkens øverste Del.

Their inside wall is clad with almost round cells containing a relatively large round nucleus, also a nucleus-corpuscle (Pl. XXIII. fig. 2 *d*). Inside the external epithelium of the suckers, between it and their connective-tissue layer, longitudinal muscle-fibres are seen to extend themselves a considerable distance up the suckers (Pl. XXIII, fig. 2 *i*); those suckers lie in a well defined cavity in the integumental connective-tissue (Pl. XXIII. fig. 2 *e*), and are, according as they are more or less retracted, occupied by the foreign bodies (Pl. XXII. fig. *c*).

Inside the ectoderm there is a broad hyaline connective-tissue layer (Pl. XXII. fig. 11 *d*; Pl. XXIII. fig. 2 *f*), in which are seen many slender nutritory ducts with their epithelium, and in the middle of this connective-tissue there is found a pretty broad belt of circular muscle-fibres, which appear to form bundles (Pl. XXII, fig. 11 *e*: Pl. XXIII, fig. 2 *g*). On the inner wall of the connective-tissue there is a musculous layer, formed of transversal and longitudinal muscles, of which the last-named are very prominent and strongly developed (Pl. XXII, fig. 11 *f*), and this musculous layer is clad with an endothelium consisting of ciliating cylinder-cells, which are, however, not so high as those of the ectoderm, and are furnished with slightly oblong nuclei and nucleus-corpuscles (Pl. XXII, fig. 11 *g*).

Upon transsection of the uppermost portion of the stem, the ectoderm is seen to consist of very high, narrow, ciliating cylinder-cells containing large oblong nuclei with an almost round nucleus-corpuscle surrounded by a thin granular protoplasmic substance (Pl. XXIII, fig. 3 *a*). Neither mucous glands nor nematocysts are found in the ectoderm of the stem, but inside it there is a pretty broad connective-tissue layer, rich in connective-tissue corpuscles and nutritory ducts (Pl. XXIII. fig. 3 *b*), and in the middle of this connective-tissue there are observed, in the uppermost part of the stem, delicate circular muscle-fibres, which become stronger and richer and form bundles according as they proceed downwards, so that at the transition to the pedestal they are well developed (Pl. XXIII. fig. 3 *c*). The pedal disc, which has the same structure as the stem, is, however, richer in muscle-fibres than it.

All the septa issue from the bottom of the gastrovascular cavity, viz. from the inner surface of the pedal disc (Pl. XXIII. fig. 1 *a*), about the middle of it, as paired, narrow, fillet-formed protuberances; they extend themselves along the inner surface of the stem, adherent to its connective-tissue of which they are really prolongations, and are uniform in breadth through the whole of the gastro-vascular cavity of the stem (Pl. XXIII. fig. 4 *b*), which they only half occupy (Pl. XXIII. fig. 4 *a*). As they pass from the cavity of the stem they become broader along the body-wall, and here the perfect septa occupy a greater and greater breadth according as they pass up towards the under surface of the oral disc and the œsophagus, whilst the imperfect septa do not appear to occupy a greater breadth than they have in the uppermost part of the stem.

Der er i Stilken to Par Septa, som udmærke sig fremfor de øvrige baade ved deres Stilling og ved deres Muskelanordning, og som maa betragtes som Retningssepta. Tab. XXIII, Fig. 4 *c*; de staa lige overfor hinanden og have deres Længdemuskler placerede paa den udvendige Side af hvert Septum, saaledes nemlig, at de vende fra hverandre i det interseptale Rum, Tab. XXIII, Fig. 4 *d*, imedens de transverselle Muskler ere fæstede til den indre Side og vende mod hverandre i det intraseptale Rum, Tab. XXIII, Fig. 4 *e*. Paa de øvrige 10 Septapar ere Længdemusklerne fæstede til den indre Side af ethvert Septum, saa at de vende mod hverandre i det intraseptale Rum, Tab. XXIII, Fig. 4 *f*, imedens de transverselle ere bundne til den ydre Side og vende til det interseptale Rum. Hvert Septum har i Midten en Bindevævslamelle, der er en Forlængelse af Hudens Bindevæv, Tab. XXII, Fig. 11 *i*; Tab. XXIII, Fig. 2 *h*, 3 *d*, og som tilligemed sine Muskellag er beklædt med et Endothel, der giver hele Gastrovascularhulheden sit Overtræk og bestaar af cilierende Cylinderceller, Tab. XXII, Fig. 11 *k*.

Generationsorganerne ere fæstede til Randen af de ufuldstændige Septa ved et løst Bindevæv og ere kun lidet udviklede. Hos det eneste Individ, jeg havde, fandtes kun Æggestokke, der dannede Ror, hvori de lidet udviklede Æg laa parvis, Tab. XXII, Fig. 11 *l*. Det tor hænde, at Kjønnet er særskilt.

Tentaklerne ere udvendigt beklædte med et Ectoderm, bestaaende af cilierende Cylinderceller, imellem hvilke sees en stor Mængde Nematocyster.

Findested.

Station 35. Kun et Exemplar.

Jeg har henført *Kodioides pedunculata* til Familien Phellidæ, omendskjønt jeg maa erkjende, at der ikke findes en saa udpræget Cuticula, som egentlig adskiller Familierne Phellidæ og Sagartidæ fra hinanden. Naar jeg ei vil danne en ny Familie, som jeg i dette Tilfælde ikke finder paakrævet, forekommer det mig, at den nærmest maa henføres til Phelliderne.

Slægtskarakter.

Legemet inkrusteret, pæreformet, med en lang, nogen Stilk, endende i en Fodskive. To Rækker faa, retraktile Tentakler. 12 Par Septa, hvoraf 6 Par fuldstændige. Sugevorter paa Kroppens inkrusterede Del. Ingen Svælgruber. Mesodermale Ringmuskler. Acontier.

Artskarakter.

Legemets øverste Del (Kroppen) henved 20^{mm} høi, 12^{mm} bred paa Midten; nedad mod Stilken kun 4^{mm} bred; opad mod Mundskiven 8^{mm} bred og stærkt inkrusteret med grov Sand og Foraminiferer. Indenfor Krusten en Mængde Sugevorter over hele Overfladen. Stilken er nogen, 30^{mm} lang.

There are two pairs of septa in the stem, which distinguish themselves from the others both by their position and by their muscular arrangement, and these must be considered to be directive septa (Pl. XXIII, fig. 4 *c*); they are placed exactly opposite each other, with their longitudinal muscles placed on the outer side of each septum in such a manner, that they face from each other in the interseptal space (Pl. XXIII, fig. 4 *d*); whilst the transversal muscles are secured to the inner surface, and face towards each other in the interseptal space (Pl. XXIII, fig. 4 *e*). In the other 10 pairs of septa the longitudinal muscles are secured to the inner side of each septum, so that they face towards each other in the intraseptal space (Pl. XXIII, fig. 4 *f*), whilst the transversal muscles are attached to the outer side and face towards the interseptal space. Each septum has in the middle a connective-tissue lamella, which is a prolongation of the integumental connective-tissue (Pl. XXII, fig. 11 *i*; Pl. XXIII, fig. 2 *h*, 3 *d*) and which, as well as its musculous layer, is clad with an endothelium that forms the covering of the entire gastro-vascular cavity, and consists of ciliating cylinder-cells (Pl. XXII, fig. 11 *k*).

The reproductive organs are attached to the margin of the imperfect septa by a loose connective-tissue, and are only little developed. In the single specimen I had, there were only ovaries to be found, which formed tubes in which the but slightly developed ova lay in pairs (Pl. XXII, fig. 11 *l*). It may perhaps be the case that the sexes are separated.

The tentacles are externally clad with an ectoderm consisting of ciliating cylinder-cells, between which a great multitude of nematocysts are observed.

Habitat.

Station No. 35. Only one specimen.

I have assigned *Kodioides pedunculata* to the family Phellidæ, altough I must acknowledge, that there is not found such a distinguished cuticulum as really divides the families Phellidæ and Sagartidæ from each other. When, therefore, I do not establish a new family, which I do not consider necessary in the present case, it appears to me that it will be most appropriate to assign it to the Phellidæ.

Generic characteristics.

The body encrusted, piriform, with a long bare stem terminating in a pedal disc. Two series, containing a few retractile tentacles. 12 pairs of septa, of which 6 pairs perfect. Suckers on the encrusted portion of the body. No gullet-groove. Mesodermal, annular muscles. Acontia.

Specific characteristics.

The uppermost part of the animal (body) about 20^{mm} in height, 12^{mm} in breadth at the middle, and downwards towards the stem only 4^{mm} broad; upwards towards the oral disc 8^{mm} broad; strongly encrusted with coarse sand and foraminifera. Inside the crust a multitude of suckers over the

endende i en lidt aflang Fodskive. Mundskiven lidt hvælvet, forsynet med fine Folder, udstraalende fra den runde Mund. Tentaklerne korte, i to Rækker, 12 i hver Række. Farven: Den inkrusterede Del graagron, spillende lidt i det Violette. Huden indenfor Krusten hvid; Mundskiven med Tentakler bleg rosenrod; Stilken næsten farvelos; Fodskiven har et fint, rodligt Skjær.

Cactosoma[1] abyssorum.

Tab. VI. Fig. 5; Tab. XXIII, Fig. 5—8.

Legemet kolleformet, cylindrisk, bredere i den overste Ende, meget smal i den nederste. Udstrakt er Dyret indtil 40^{mm} langt, 10^{mm} bredt i den overste Ende, men kun 5^{mm} i den nederste. Sammentrukken har det Pæreformen, og da er den overste Ende mindst 16^{mm} bred.

Størstedelen af Kolumnen har et tykt Overtræk af inkrusteret, grov Sand, Tab. VI, Fig. 5 *a*, kun den overste Del er nøgen i omtrent 4^{mm} Høide til Mundskiven, Tab. VI, Fig. 5 *b*; Tab. XXIII, Fig. 5 *a*. Men opimod denne nøgne Del har Kolumnen 6 temmelig brede, omtrent 6^{mm} lange, inkrusterede Ribber, Tab. VI, Fig. 5 *c*, imellem hvilke findes 6 ligesaa lange og brede Mellemrum, der ere nøgne, Tab. VI, Fig. 5 *d*.

Mundskiven er stærkt hvælvet, forsynet med 12 fra Munden udstraalende Folder, Tab. XXIII, Fig. 5, og i Midten sees den aflange Mund med foldede, næsten lappede Læber og to smale Mundvige (Gonidiefurer). Tentaklerne staa i to alternerende Rækker, 12 i hver Række, ere retraktile, lancetformede, brede ved Basis og med meget tilspidsede Ender; de ere omtrent 2^{mm} lange og $1{,}3^{mm}$ brede ved Grunden, Tab. VI, Fig. 5; Tab. XXIII, Fig. 5.

Fodskiven er lidt hvælvet og stærkt inkrusteret paa Overfladen med en rund, undulerende Rand, Tab. VI, Fig. 5; Tab. XXIII, Fig. 5, imedens Underfladen er lidt konkav, nøgen, fint foldet fra Centrum mod Peripherien og fæstet til en liden Sten.

Borttages den inkrusterede Overhud, hvilket kan ske med stor Lethed, saa fremtræder den egentlige Hud, der er næsten hvid, temmelig gjennemsigtig og forsynet med 12 fine Længdelinier, som antyde Insertionerne for Septa. Imellem disse Linier sees overalt paa Legemets Overflade en Mængde uregelmæssigt spredte Sugevorter, Tab. XXIII, Fig. 5 *b*, der tildels staa saa tæt sammen, at de ved at trække sig ind danne en større Grube, i hvis Bund iagttages 3—4 hvidagtige Punkter, der angive Sugevorternes Antal, Tab. XXIII, Fig. 5 *c*. Til disse Sugevorter ere mange af de grove Sandkorn fæstede.

[1] κάκτος = en pigget Plante σῶμα = Legeme.

whole surface. The stem is bare, 30^{mm} in length, and terminates in a slightly oblong pedal disc. The oral disc slightly arcuate, furnished with fine folds radiating from the circular mouth. The tentacles short, placed in two series; 12 in each series. *The colour*. The encrusted portion greyish-green with a violet play of colour. The integument below the crust white. The oral disc with tentacles pale rose-red. The stem almost colourless. The pedal disc has a fine reddish tinge.

Cactosoma[1] abyssorum.

Pl. VI. fig. 5; Pl. XXIII, fig. 5—8.

The body claviform, cylindrical, broadest in the uppermost extremity, very narrow in the lowest. When extended the animal measures up to 40^{mm} in length, 10^{mm} in breadth at the uppermost extremity but only 5^{mm} at the lowest. When contracted it has a piriform shape, and then its uppermost extremity is at least 16^{mm} in breadth.

The greater part of the column has a thick covering of encrusted coarse sand (Pl. VI, fig. 5 *a*); only the uppermost part is bare for about 4^{mm} in height next the oral disc (Pl. VI, fig. 5 *b*; Pl. XXIII, fig. 5 *a*). But up towards this bare part, the column has 6 rather broad — about 6^{mm} long — encrusted ribs (Pl. VI, fig. 5 *c*), between which there are 6 intervening spaces of similar length and breadth, which are bare (Pl. VI, fig. 5 *d*).

The oral disc is strongly arcuate, and is furnished with 12 folds radiating from the month (Pl. XXIII, fig. 5); in the middle the oblong mouth is seen, with folded, almost lobate labiæ and two narrow gonidial recesses (gonidial-grooves). The tentacles are placed in two alternating series, 12 in each series; they are retractile, lanciform, broad at the base, and have very acuminate extremities; they are about 2^{mm} in length, and $1{,}3^{mm}$ in breadth at the base (Pl. VI, fig. 5; Pl. XXIII, fig. 5).

The pedal disc is a little arcuate, strongly encrusted on the surface, and has a round undulating margin (Pl. VI, fig. 5; Pl. XXIII, fig. 5); whilst its under surface is a little concave, bare, finely folded from the centre towards the periphery, and is adherent to a small stone.

If the encrusted covering is removed, which can be done with great ease, then the integument-proper appears; this is almost white, rather transparent, and furnished with 12 fine longitudinal lines indicating the insertions of septa. Between those lines there is everywhere visible, on the surface of the body, a multitude of irregularly spread suckers (Pl. XXIII, fig. 5 *b*), partly placed so closely together that, on retracting themselves they form, in doing so, a considerable cavity, in whose bottom 3—4 whitish points are observed; these indicate the number of suckers (Pl. XXIII, fig. 5 *c*). Many of the coarse grains of sand are adherent to those suckers.

[1] κάκτος = a spiny plant = (The Cactus); and σῶμα = body.

Den nogne Del af Kolumnen tilligemed Mundskiven og Tentaklerne kan indtrækkes i Legemet, og naar saa den øverste Del af Kroppen lukkker sig, danne de 6 Ribber med deres nogne Mellemrum en Glorie med en fin Aabning i Midten, og Dyret faar derved saa megen ydre Lighed med en Zoanthide, at jeg ved den første, overfladiske Betragtning antog det derfor. Farven: Det inkrusterede Overtræk med Ribberne er brunt med morke, næsten sorte Punkter. Indenfor Overtrækket er Huden hvid, spillende lidt i det Rosenrode. Længdelinierne ere blegrode. Den nogne Del med Ribbernes Mellemrum er bleg rosenrod. Mundskiven er næsten hvid; omkring Munden er en rod Ring, hvorfra udgaa 12 fine, rosenrode Striber henimod Skivens Rand. Tentaklerne ere intens laxerode. Tab. VI. Fig. 5.

Ogsaa af dette interessante Dyr fandt jeg destoværre kun 1 Exemplar paa 457 Favnes Dyb — i den kolde Area — hvilket blev observeret og tegnet levende. Men ogsaa dette Unicum har jeg fundet nodvendigt at ofre paa Videnskabens Alter for at faa Kundskab om dets indre Bygning og derefter at bestemme dets systematiske Plads. Jeg har skaaret det tversover Midten af Kroppens nogne Del og opbevaret Størstedelen heraf med Mundskive og Tentakler i Alkohol; af hele den øvrige Kropsdel har jeg gjort Snitpræparater, som ogsaa opbevares.

Anatomisk-histologisk Undersøgelse. Paa Tversnittene af Kroppen sees det ydre, inkrusterede Overtræk at bestaa af en tyk Slimmembran, hvori de grove Sandkorn (fornemmelig Kvarts) ere indleirede. Tab. XXIII, Fig. 6 *a*. Slimmembranen er ganske løst fæstet til den indenfor værende Hud, uden nogen organisk Forbindelse. Indenfor det skedeformede Overtræk er et bredt Epithellag (Ectoderm), der dannes af meget høie, smale Cylinderceller med deres Kjerne og Kjernelegeme, Tab. XXIII, Fig. 6 *b*, og imellem hvilke iagttages en stor Mængde Nematocyster og Slimkjertler. Nematocysterne, der ere de almindelige med Spiraltraad, rage tildels ind i Slimmembranen, saa at, naar denne fjernes, følge mange med den, Tab. XXIII, Fig. 6 *c*. Slimkjertlerne ere kolbeformede, encellede, ligge tildels i Grupper og ere snart fyldte med en kornet Masse, saa at Kjernen skjules, snart ere de tomme og se ud som Vacuoler, Tab. XXIII, Fig. 6 *d*.

Indenfor Ectodermet er et bredt, fibrillært Bindevævslag, forsynet med Bindevævslegemer med flere Udløbere samt Ernæringskanaler, fyldte med Epithel, Tab. XXIII, Fig. 6 *e*, og omtrent i Midten af dette Bindevæv er et temmelig bredt Belte af stærke Cirkulærmuskler, der synes at ligge i Bundter, Tab. XXIII, Fig. 6 *f*. Paa den indre Flade af Bidevævslaget er et Muskellag, bestaaende af Tver- og Længdemuskler, hvoraf de sidste ere især fremtrædende, Tab. XXIII, Fig. 6 *g*, og som er beklædt med et temmelig bredt Endothel.

The bare part of the column, as well as the oral disc and tentacles, may be withdrawn into the body; and when the uppermost part of the body then closes itself, the 6 ribs with their bare intermediate spaces, form a halo having a minute aperture in the middle; in this way the animal acquires so much the external appearance of a Zoanthid, that on the preliminary, summary investigation I took it to be one. *The colour.* The encrusted covering and the ribs are brown, with dark, almost black points. Inside the covering the integment is white with a slight rose-red play of colour. The longitudinal lines are pale-red. The bare part and the spaces between the ribs are pale rose-red. The oral disc is almost white; round the mouth there is a red annulus from which 12 fine rose-red stripes issue towards the margin of the disc. The tentacles are bright salmon-red (Pl. VI, fig. 5).

Also of this interesting animal I found, unfortunately, only one specimen, at a depth of 457 fathoms — in the cold area — which was observed and drawn in the live state. But this *unicum*, also, I have found it necessary to offer as a sacrifice on the altar of science, in order to obtain a knowledge of its internal structure and determine its systematic position. I have transsected it at the middle of the bare part of the body, and preserved the greater part of this with the oral disc and tentacles in alcohol; of the entire remaining part of the body I have made sectional preparations, which have also been preserved.

Anatomo-histological examination. In the transversal sections of the body, the outer encrusted covering is seen to consist of a thick mucous membrane in which the coarse grains of sand (quartz principally) are entrenched (Pl. XXIII, fig. 6 *a*). The mucous membrane is quite loosely adherent to the integument lying inside, and has no organic connection with it. Inside the vaginate covering there is a broad layer of epithelium (ectoderm), formed of very high, narrow cylinder-cells with their nuclei and nucleus-corpuscles (Pl. XXIII, fig. 6 *b*), and between these a great multitude of nematocysts and mucous glands are observed. The nematocysts – which are the usual ones with spiral filaments — extend partially into the mucous membrane, so that, when it is removed, many of them follow along with it (Pl. XXIII, fig. 6 *c*). The mucous glands are claviform, unicellular, situated partly in groups, and are often filled with a granular substance, so that the nucleus is concealed; often they are empty and appear like vacuoli (Pl. XXIII, fig. 6 *d*).

Inside the ectoderm there is a broad, fibrillar connective-tissue layer, furnished with connective-tissue corpuscles having several prolongations, also nutritory ducts filled with epithelium (Pl. XXIII, fig. 6 *e*), and at about the middle of this connective-tissue there is a pretty broad belt of strong circular muscles, which appear to lie in bundles (Pl. XXIII, fig. 6 *f*). On the inner surface of the layer of connective-tissue there is a musculous layer, consisting of transversal and longitudinal muscles, the last-named being especially prominent (Pl. XXIII, fig. 6 *g*), and which is clad with a pretty broad endothelium.

Der er 12 Par Septa, hvoraf 6 Par ere fuldstændige, primære, det vil sige, de fæste sig paa Svælgroret; de øvrige 6 Par ere ufuldstændige. Af de 6 Par fuldstændige Septa ere de 2 Par Retningssepta. Samtlige Septa tage deres Begyndelse fra Bunden af Gastrovascularhulheden (den indre Flade af Fodskiven) og ere Fortsættelser af Hudens Bindevæv. De udbrede sig som sædvanligt langs Kropsvæggen, og imedens de fuldstændige Septa naa til Mundskiven og Svælgroret, hvor de fæste sig, naa de ufuldstændige Septa neppe op til Gastralhulhedens øverste Halvdel, Tab. XXIII, Fig. 7. De to Par Retningssepta fæste sig paa Svælgrorets ydre Side saaledes, at de staa modsat hverandre og svare til de omtalte Gonidiefurer. Tab. XXIII, Fig. 7 *a*, 8 *a*; de synes at være stærkere bygget end de øvrige og skille sig fra disse ved Muskelanordningen. Paa begge Sider af Bindevævslamellen, som danner Septumets Midtparti, Tab. XXIII, Fig. 7 *a*, 8 *b*, er der udviklede Længdemuskler, som skjule Tværmusklerne. Disse Længdemuskler ere paa den nederste Trediedel temmelig udprægede, Tab. XXIII, Fig. 7 *b*, 8 *c*, ligesom Bindevævslamellen her er temmelig bred; men saa bliver Septumet meget smalt et langt Stykke opover, og i denne Længde ere Musklerne kun lidet udviklede, Tab. XXIII, Fig. 7 *c*, 8 *d*. Naar det saa nærmer sig op imod Mundskiven for at gaa over paa Svælgroret, bliver det bredere, og Længdemusklerne antage da paa den ydre Flade ganske betydelige Dimensioner, saa at de her danne smukke Forgreninger i Form af en Fane, Tab. XXIII, Fig. 7 *d*, 8 *e*. Disse udviklede Længdemuskler paa Retningssepta vende fra hverandre i det interseptale Rum; paa de øvrige 4 Par fuldstændige Septa vende de mod hverandre i det intraseptale Rum, Tab. XXIII, Fig. 7 *e*.

Fra den brede Del af de fuldstændige Septa, ikke langt fra Svælgrorets nederste Ende, udgaar en Bindevævsstræng, der membranagtig udvider sig og følger Septumet et langt Stykke nedover Gastrovascularhulhedens nederste Trediedel, Tab. XXIII, Fig. 8 *f*, og i denne Bindevævsmembran ligge Mesenterialfilamenterne og Generationsorganerne, Tab. XXIII, Fig. 8 *g*. Det synes, som om samtlige fuldstændige Septa bære disse Organer, der ligge ved Siden af hinanden og adskille sig i Bygning ikke fra Actiniernes i Almindelighed. Kun Æggestokke med lidet udviklede Æg findes hos det undersøgte Individ, Tab. XXIII, Fig. 8 *h*.

De ufuldstændige Septa ere stillede saaledes, at et Par staar imellem to Par fuldstændige, Tab. XXIII, Fig. 7 *f*, 8 *i*. De udvide sig noget, ligesom deres Midtparti (Bindevævslamellen) bliver bredere, alt eftersom de naa op paa Kropsvæggen, og deres fri Rand, der vender indad i de primære Kamre, synes at være afrundet, Tab. XXIII, Fig. 7, 8. Ligesom paa de fuldstændige Septa, saaledes

There are 12 pairs of septa, of which 6 pairs are perfect and primary, that is to say they attach themselves to the œsophagus; the remaining 6 pairs are imperfect. Of the 6 pairs of perfect septa, there are 2 pairs of directive septa. All the septa have their origin in the bottom of the gastro-vascular cavity (the inner surface of the pedal disc), and are prolongations of the integumental connective-tissue. They distribute themselves, as usual, along the body-wall, and whilst the perfect septa reach to the oral disc and the œsophagus, where they attach themselves, the imperfect septa scarcely reach up to the gastral cavity's uppermost half (Pl. XXIII, fig. 7). The two pairs of directive septa attach themselves to the outer side of the œsophagus in such manner, that they stand opposite each other and correspond to the gonidial grooves previously spoken of (Pl. XXIII, figs. 7 *a*, 8 *a*). They appear to have a stronger structure than the others, and they distinguish themselves from them by their muscular arrangement. Upon both sides of the connective-tissue lamella, which forms the medial portion of the septa (Pl. XXIII, figs. 7 *a*, 8 *b*), there are well developed longitudinal muscles, which conceal the transversal muscles. These longitudinal muscles are pretty prominent on the lowest third-part (Pl. XXIII, figs. 7 *b*, 8 *c*), whilst, also, the connective-tissue lamella is here pretty broad; but then the septum becomes very narrow for a long way upwards, and in that portion the muscles are only little developed (Pl. XXIII, fig. 7 *c*, 8 *d*). When it then approaches towards the oral disc, in order to pass over to the œsophagus, it becomes broader, and the longitudinal muscles assume, then, on the outer surface, quite considerable dimensions, so that they form, here, beautiful ramifications in the form of a flag (Pl. XXIII, figs. 7 *d*, 8 *e*). Those developed longitudinal muscles on the directive septa, face from each other in the interseptal space; on the other 4 pairs of perfect septa they face towards each other in the intraseptal space (Pl. XXIII, fig. 7 *e*).

From the broad part of the perfect septa, not far from the lowest extremity of the œsophagus, there issues a connective-tissue cord, which dilates itself membranously and follows the septum a long way down the lowest third part of the gastro-vascular cavity (Pl. XXIII, fig. 8 *f*); and in this connective-tissue membrane the mesenterial filaments and the reproductive organs lie (Pl. XXIII, fig. 8 *g*). It appears as if all the perfect septa carry such organs; they lie alongside each other, and do not distinguish themselves in structure from those of the Actinidæ in general. Ovaries only, containing little developed ova, are to be found in the specimen examined (Pl. XXIII, fig. 8 *h*).

The imperfect septa are placed in such manner, that one pair is situated between two pairs of perfect septa (Pl. XXIII, figs. 7 *f*, 8 *i*). They expand themselves somewhat, whilst at same time their medial part (the connective-tissue lamella) becomes broader, according as they extend up the wall of the body, and their free margin, which faces inwards in the primary chambers, appears to be

ere ogsaa Musklerne paa de ufuldstændige ordnede. Længdemusklerne ere stærkt udviklede og beklæde ikke alene Septumets begge Sider, men ogsaa dettes fri Rand, hvorved et Tversnit af et saadant Septum faar Udseende af at være omgivet af en Glorie, Tab. XXIII, Fig. 8 *k*. Disse ufuldstændige Septa ere golde, hvad der er ganske ualmindeligt for Actinierne, imedens det synes at høre hjemme hos Zoanthiderne. Saavel Septa som hele Gastrovascularhulheden er beklædt med et Endothel, der især paa Kropsvæggen er meget bredt og bestaar af høie, cilierende Cylinderceller, Tab. XXIII, Fig. 7 *g*, 8 *l*, med deres Kjerne og Kjernelegeme.

Svælgrøret er kort, cylindrisk og har paa dets indre Flade fine Længdefolder, samt to tydelig udprægede Svælggruber, hvoraf den ene, sandsynligvis Bugfuren, er lidt bredere end den anden. Til disse Svælggruber svare de to Par Retningssepta saaledes, at hvert af disse fæster sig udvendig paa Svælgrørets nederste Ende paa et Punkt, der er netop modsat Randen af Svælggruben. Tentaklerne, ligesom Mundskiven, har et Ectoderm, imellem hvis Cylinderceller der er en stor Mængde Nematocyster, som især paa Tentaklerne ere i stor Mængde tilstede.

Findested.

Station 164. Et Exemplar.

Ogsaa med dette Dyr var jeg i stor Tvivl om, hvortil jeg skulde henføre det. Liggende sammentrukket i Observationskarret lignede det i høi Grad en Zoanthide, en Lighed, der forsvandt noget ved dets fulde Udstrækning, men som dog ikke ved den udvendige Undersøgelse ganske kunde opgives. Ved en noiere anatomisk Granskning viste det sig, at Cactosoma fjernede sig langt fra Zoanthidernes Familie, imedens den nærmede sig stærkt til Phellidernes; men heller ikke i denne Familie kunde den uden videre Bemærkning indlemmes; thi foruden at det inkrusterede Overtræk ikke egentlig er en organiseret Cuticula, saa er jo den Omstændighed, at det er de fuldstændige Septa, der ere fertile, noget der er fremmed for Familien. Heller ikke har den Acontier, hvilke jo skulde tilhøre Phelliderne. Cactosoma er, saa forekommer det mig, en Overgangsform, der stræber hen mod Zoanthiderne. Jeg har imidlertid for det Første henført den til Familien Phellidæ, Andres, senere kan den muligens komme til at danne en egen Familie.

Slægtskarakter.

Legemet kølleformet med inkrusteret Overtræk; den øverste Del nøgen. Udpræget Fodskive. Kroppens Overflade forsynet med Sugevorter. 2 Rækker retraktile Tentakler. 6 Par fuldstændige Septa, hvoraf 2 Par Retnings-

rounded (Pl. XXIII, figs. 7, 8). In the same manner as on the perfect septa, the muscles are also arranged on the imperfect ones. The longitudinal muscles are strongly developed, and clothe not only both sides of the septum but also its free margin, so that the section of such a septum acquires the appearance of being surrounded by a halo (Pl. XXIII, fig. 8 *k*). These imperfect septa are sterile, a feature quite uncommon in the Actidinæ, although it appears to be a feature of the Zoanthidæ. Both septa and the entire gastral cavity are clad with an endothelium which, especially on the wall of the body, is very broad, and consists of high ciliating cylinder-cells (Pl. XXIII, figs. 7 *g*, 8 *l*) with their nuclei and nucleus-corpuscles.

The œsophagus is short and cylindrical, and upon its inner surface has fine longitudinal folds, also two distinctly marked gullet-grooves, of which the one, probably the ventral furrow, is a little broader than the other. The two pairs of directive septa correspond to these gullet-grooves in such manner, that each of them attaches itself, externally, to the lowest extremity of the œsophagus, at a point which is exactly opposite the margin of the gullet-groove. The tentacles, as well as the oral disc, have an ectoderm between whose cylinder-cells there is a large multitude of nematocysts which are, especially on the tentacles, present in great numbers.

Habitat.

Station No. 164. One specimen.

Also in regard to this animal I was in great dubiety as to how it should be assigned. Lying contracted in the glass jar, it greatly resembled a Zoanthid, a resemblance that disappeared, somewhat, upon its complete extension, but could, however, not be quite abandoned on the external investigation. Upon a more perfect anatomical study it appeared, that Cactosoma was far removed from the family of Zoanthidæ, whilst it approached, considerably, to that of the Phellidæ, but not even in that family could it be included without further remark, because, besides the feature that its encrusted covering is not really an organic cuticulum, there is added, further, the circumstance, that it is the perfect septa which are fertile, a feature foreign to the family. Neither has it acontia, which is supposed to be a feature of Phellidæ. Cactosoma is, it appears to me, a transition-form striving towards the Zoanthidæ. I have, in the meantime, preliminarily assigned it to the family Phellidæ, Andres; perhaps by and bye it may come to form a family by itself.

Generic characteristics.

The body claviform, whith an encrusted covering, the uppermost part bare. Distinguished pedal disc. The surface of the body furnished with suckers. 2 series of retractile tentacles. 6 pairs of perfect septa, of which

septa, alle bærende Mesenterialfilamenter og Generationsorganer. 6 Par ufuldstændige, golde Septa. 2 Svælggruber. Mesodermale Cirkulærmuskler.

2 pairs are directive septa, all of them carrying mesenterial filaments and reproductive organs. 6 pairs of imperfect, sterile septa. 2 gullet-cavities. Mesodermal circular muscles.

Artskarakter.

Legemet cylindrisk, indtil 40^{mm} langt, 10^{mm} bredt i den overste Ende, 5^{mm} i den nederste; pæreformet i kontraheret Tilstand. Storstedelen af Kolumnen har et tykt, inkrusteret Overtræk (Skede); dens overste Del nogen. Mod Skedens overste Rand 6 inkrusterede Ribber, imellem hvilke nogne Mellemrum. Mundskiven hvælvet med en aflang Mund med foldede Læber og to Gonidiefurer. Tentaklerne korte i to Rækker, 12 i hver. Fodskiven hvælvet, med en rund og undulerende Rand. Kroppens Overflade besat med Sugevorter og forsynet med 12 Længdelinier. Farven: Den inkrusterede Skede med Ribberne brune med morke, næsten sorte Punkter. Indenfor Skeden er Huden hvid, spillende lidt i det Rosenrode. Længdelinierne blegrode. Den nogne Del bleg rosenrod. Mundskiven næsten hvid, omkring Munden en rod Ring, hvorfra udgaa 12 rosenrode Striber mod Mundskivens Rand. Tentaklerne intens laxerode.

Specific characteristics.

The body cylindrical, measures up to 40^{mm} in length, 10^{mm} in breadth at the uppermost extremity, 5^{mm} in breadth at the lowest; in contracted condition piriform in shape. The greater part of the column has a thick encrusted covering (sheath); its uppermost part bare. Towards the uppermost margin of the sheath 6 encrusted ribs, between which bare intermediate spaces. The oral disc arcuate, with an oblong mouth having folded labiæ and two gonidial grooves. The tentacles short, in two series, 12 in each. The pedal disc arcuate, with a round and undulating margin. The surface of the body covered with suckers, and furnished with 12 longitudinal lines. *The colour.* The encrusted sheath and the ribs brown, with dark, almost black points. Inside the sheath the integument is white with a slight play of rose-red colour. The longitudinal lines pale-red. The bare part pale rose-red. The oral disc almost white; round the mouth a red annulus from which 12 rose-red stripes issue towards the margin of the oral disc. The tentacles bright salmon-red.

Familie Andvakiadæ.

Hexactiniæ, langstrakte, siddende løse i Sandet, uden egentlig Fodskive, med Storstedelen af Kroppen inkrusteret; dennes overste, nogne Del, Mundskiven og Tentaklerne fuldstændig retraktile; faa Septa.

Family Andvakiadæ.

Hexactiniæ, elongated, seated loose in the sand, without any real pedal disc, the greater part of the body encrusted; the uppermost bare part of the body, the oral disc and the tentacles, completely retractile; few septa.

Andvakia[1] mirabilis, n. sp.

Tab. IV, Fig. 10, 11; Tab. XI.

Pl. IV, fig. 10, 11; Pl. XI.

Dyret har i udstrakt Tilstand nogen Lighed med et Overflodighedshorn; sammentrukket ligner det en krum Kolle. Tab. IV, Fig. 10; Tab. XI, Fig. 1, 2.

Legemet er 60—70^{mm} langt, 15^{mm} bredt i den overste Del og 4—5^{mm} i den nederste, hvor det ender i en særegen Skive. For at lette Beskrivelsen vil jeg, ligesom Gosse har gjort for Edwardsiernes Vedkommende, inddele hele Dyret i 3 Dele, nemlig den overste Del, Capitulum, den mellemste, Scapus, og den nederste, Physa.

Capitulum er nogent, cylindrisk, Tab. IV, Fig. 10 *a*; Tab. XI, Fig. 1 *a*, retraktilt, omtrent 8^{mm} langt og 12^{mm} bredt, halvt gjennemsigtigt og forsynet med Længdestriber, som angive Insertionerne for Skillevæggene (Septa).

In outstretched condition the animal has somewhat the resemblance of a cornucopia; contracted, it resembles a bent club (Pl. IV, fig. 10; Pl. XI, figs. 1, 2).

The body is 60—70^{mm} in length, 15^{mm} in breadth at the uppermost part, and 4—5^{mm} in breadth at the lowest part, where it terminates in a peculiar disc. To facilitate the discription, I will, as Gosse has done in respect of the Edwardsia, divide the complete animal into three parts, viz. the uppermost part, capitulum; the intermediate part, scapus; and the lowest part, physa.

The capitulum is bare, cylindric (Pl. IV, fig. 10 *a*; Pl. XI, fig. 1 *a*) retractile, about 8^{mm} in length and 12^{mm} in breadth, semi-transparent, and furnished with longitudinal stripes, which indicate the insertions of the

[1] Andvaka = Nomen tubæ Sverreris regis.

[1] Andvaka = Nomen tubæ Sverreris regis.

og imellem disse Længdestriber sees hist og her næsten runde Cinclides; opad gaar Capitulum over i Skiven, der er rund, fra 12—14^{mm} bred, kun svagt hvælvet. I Midten er den aflange Mund med 2 Gonidiegruber og foldede Læber med 6 lancetformede Folder paa hver Side af Mundvigene; hver Fold eller Flig har paa den aborale Side en temmelig dyb Fure. Tab. XI, Fig. 12 *a*. I hver Mundvig (Gonidiegrube) sees en liden Gonidialknude, Tab. XI, Fig. 12 *b*. Fra Munden udstraale temmelig tætstaaende, fine Linier hen til Peripherien, hvilke ligeledes antyde Skillevæggenes Insertioner paa Skiven. Dennes ydre Rand er jævn og forsynet med 2 Rækker korte, alternerende, retraktile Tentakler, 12 i hver Række. Tentaklerne i den inderste Række ere meget tykkere og kanske lidt længere, end de i den ydre Række, Tab. IV, Fig. 10. Nedad gaar Capitulum over i Scapus; denne er krumbøiet, omkring 50^{mm} lang, 10—12^{mm} bred foroven, men smalner betydeligt af, saa at den nederste Del, hvor den gaar over i Physa, kun er 5—6^{mm} bred. Tab. IV, Fig. 10 *b*; Tab. XI, Fig. 1, 2 *b*. Den er stærkt inkrusteret med Sand, Foraminiferer, Stumper af Skjæl samt smaa, sorte, haarde Legemer og ikke retraktil, men vel kontraktil; naar saa den overste Del, Capitulum, med Skive og Tentakler trækker sig ind, lukker Scapus sig ganske, saa at der kun sees en yderst fin Indsænkning i Centrum, hvori man med Loupen kan opdage en haarfin Aabning. Tab. XI, Fig. 2. Scapus kan forøvrigt forlænge og forkorte sig efter Dyrets Forgodtbefindende.

Physa udvider sig halvkugleformigt, er omtrent 15^{mm} bred og ligesom Scapus overalt inkrusteret paa lignende Maade som denne, Tab. IV, Fig. 10 *c*, 11 *a*. Den overste Flade er stærkt hvælvet, imedens den underste kun er lidet konvex; men forresten forandres Formen, eftersom den kontraheres mere eller mindre. Stundom antager den næsten Kugleformen, Tab. XI, Fig. 1 *c*, 2 *c*, til andre Tider bliver den temmelig flad, næsten skiveformig og ligner da Fodskiven paa en Phellia, Tab. IV, Fig. 10 *c*. Denne Del af Dyret er overmaade irritabel, saa at den mindste Berørelse fremkalder ikke alene Kontraktioner i selve Physa, men gjør, at Capitulum med Skive og Tentakler hurtigt trækker sig ind. Det var ganske interessant at se, hvorledes Physa skiftede Form, naar Dyret enten vilde fæste sig i Sandet, eller vilde forandre Sted. I første Tilfælde dannede den en Konus og borede sig paa den Maade et Stykke ned i Sandet, hvorefter den antog den udvidede Kugle- eller Skiveform og blev da ganske skjult af det overliggende Sand. Dyret stod da temmelig fast, udfoldede sig frodigt i Observationskarret og syntes i det Hele taget at befinde sig meget vel. Efter nogle Dages Forløb blev det uroligt; Physa forandrede atter Form, frigjorde sig fra Sandet, paa hvis Overflade hele Dyret nu laa og forsøgte ved Kontraktioner og ormformige Bevægelser af hele Kroppen at forandre Plads, hvilket ogsaa lykkedes. Nu

divisional walls (septa), and between these longitudinal stripes, almost round cinclides are here and there seen. At the top the capitulum passes over into the disc, which is round and from 12—14^{mm} in breadth, and only slightly arcuate. In the middle is the oblong mouth with 2 gonidial grooves and folded labiæ; there are 6 lanceolate folds upon each side of the oral angles, and each fold or flap has a rather deep furrow on its aboral side (Pl. XI, fig. 12 *a*). In each oral angle (gonidial groove) a small gonidial nodule is seen (Pl. XI, fig. 12 *b*). Rather closely placed, fine lines radiate from the mouth to the periphery, and these also indicate the insertions of the divisional walls on the disc. The outer margin of the disc is even, and is furnished with 2 series of short, alternating, retractile tentacles, 12 in each series. The tentacles in the innermost series are somewhat thicker and, perhaps, a little longer than those in the outer series (Pl. IV, fig. 10). Lower down the capitulum passes over into the scapus. The scapus is bent, measures about 50^{mm} in length, 10—12^{mm} in breadth at the top, but narrows considerably lower down, so that at the lowest part, where it passes over into the physa, it is only 5—6^{mm} in breadth (Pl. IV, fig. 10 *b*; Pl. XI, fig. 1, 2 *b*). It is strongly encrusted with sand, foraminifera, fragments of shells, and small, black, hard bodies, and is not retractile but, presumably, is contractile. When the uppermost part, capitulum with disc and tentacles, retracts, the scapus completely closes itself, so that only an exceedingly minute cavity is observed in the centre, in which, with the assistance of the magnifier, a capillary orifice may be seen (Pl. XI, fig. 2). The scapus can, besides, be lengthened and shortened at the will of the animal.

The physa expands itself hemispherically, and measures about 15^{mm} in breadth, and it is, like the scapus, everywhere covered with an encrustation in the same manner as that is (Pl. IV, fig. 10 *c*, 11 *a*). The uppermost surface is strongly arcuate, whilst the lowest one is only a little convex, but the form changes, however, according as it more or less contracts. Sometimes it assumes almost the spheriform (Pl. XI, fig. 1 *c*, 2 *c*), but at other times it becomes rather flat, almost discoidal, and then resembles the pedal disc of a Phellia (Pl. IV, fig. 10 *c*). This part of the animal is particularly sensitive, so that the slightest touch produces not only contractions in the physa itself, but also causes the capitulum, with disc and tentacles, to be quickly withdrawn. It was quite interesting to see how the physa changed shape when the animal was either about to secure itself in the sand or to change its situation. In the first-named case it formed a cone, and in that way bored itself a little way into the sand, after which operation it assumed the expanded spheriform or discoid form and was then quite hidden by the superincumbent sand. The animal then stood pretty firmly, and unfolded itself luxuriantly in the glass-jar, and appeared altogether to quite enjoy itself. After the expiry of a few days it became uneasy, the physa again changed its form, loosened itself from the sand upon whose surface

begyndte atter Befæstningsarbeidet paa den tidligere omtalte Maade.

Paa den overste, nogne Del (Capitulum) iagttages hos flere Exemplarer en snyltende Bryozoa, der sandsynligvis er ny, og som senere vil blive beskrevet af Professor G. Ossian Sars, der har Nordhavsexpeditionens Bryozoer til Bearbeidelse. Hele den nogne, cylindriske Del var paa enkelte Exemplarer tæt besat med Snylteren. Tab. XI, Fig. 1 *d*, der maatte finde sig i at drages ind i Scapus, saa ofte Capitulum trak sig sammen; og da Andvakia kunde holde sig sammentrukken i flere Dage under sit Fangenskab, var Bryozoen i den Tid fuldstændig arresteret.

Farven. Den inkrusterede Del er brunsort med isprængte dels hvide, dels gronne og rodlige Punkter. Den overste, nogne, cylindriske Del er svag laxerød, stundom ganske hvid med et fint Rosenskjær. Mundskiven sinoberrod med fine, morkere Linier. Tentaklerne samme Farve som Mundskiven, men lidt morkere ved Roden og lysere i Spidsen. Tages Krusten bort, er den underliggende Hud hvid, og da sees med Lethed Insertionerne af Septa, hvilket især er fremtrædende i Physa, naar denne er udspændt, Tab. XI, Fig. 1 *c*, 2 *c*.

Hudens Bygning afviger ikke særdeles meget fra Actiniernes i Almindelighed, især gjælder dette Slægten Phellia. Et Tversnit af den inkrusterede Del (Scapus) viser, at udenpaa det egentlige Ectoderm er der et Lag meget seigt Slim, hvori de mineralske Bestanddele ere tæt indleirede, Tab. XI, Fig. 5, 6 *a*. Dette Krustelag er flere Millimeter bredt og temmelig fast adhæreret til Epithelet, saa at det vanskeligt lader sig fjerne uden ved Skrabning, men Dyret kan delvis skille sig ved det, dog reproduceres det snart. Epithelet er paa enkelte Steder ligesom forkroblet; men i det Hele taget bestaar det af lange Cylinderceller med en forholdsvis liden, aflang Kjerne og et temmelig fattigt Protoplasmaindhold, Tab. XI, Fig. 5 *b*, 6 *b*. Imellem Epithelcellerne iagttages en Mængde encellede, flaskeformede Slimkjertler, der udmunde paa Overfladen, og som afgive den seige Slim, hvori de fremmede Legemer ere inkrusterede. Mange af disse Slimkjertler ere fuldproppede af en morkladen, finkornet Masse, der ganske skjuler Kjernen; andre have et meget tyndere Indhold, ere klarere, saa at Kjernen tydelig kan sees, og atter andre ere ganske tomme og ligne Vacuoler. Paa den overste, nogne Del (Capitulum) ere Epithelcellerne længere, forsynede med lange Cilier, og her iagttages foruden Slimkjertlerne tillige talrige Nematocyster.

Indenfor Ectodermet er overalt et bredt, fibrillært Bindevævslag, Tab. XI, Fig. 5 *c*, 6 *c*, som henimod dets indre Flade er forsynet med stærke, cirkulære Muskelfibre, Tab. XI, Fig. 5 *d*, 6 *d*, der beklædes tildels af Endothelet.

the complete animal now lay, and attempted, by contractions and vermicular movements of the whole body, to change situation, which was also successful. Now began again the work of securing itself, in the same manner as previously mentioned.

Upon the uppermost bare part (capitulum) there was observed, in several specimens, a parasitic Bryozoa, which probably is new, and will subsequently be described by Professor G. Ossian Sars, who has the Bryozoa of the North-Atlantic Expedition under investigation. The entire, bare, cylindrical part was, in some specimens, closely covered with the parasite (Pl. XI, fig. 1 *d*), which were obliged to submit to being drawn into the scapus every time the capitulum contracted itself, and as the Andvakia in its confinement may remain contracted for several days, the Bryozoa were during that time completely shut in.

The Colour. The encrusted portion is brown-black with partly white, partly green and reddish dots. The uppermost, bare, cylindrical portion is faint salmon-red colour, occasionally quite white with a fine rose tinge. The oral disc is cinnabar-red with fine darker coloured lines. The tentacles have the same colour as the oral disc, but are a little darker at the root and ligther coloured at the point. When the crust is removed the integument underneath is white, and the insertions of the septa are easily observed, and are especially prominent in the physa when it is expanded (Pl. XI, fig. 1 *c*, 2 *c*).

The structure of the integument does not differ very much from that of the Actinaria in general, and especially from that of the Phellia genus. A transversal section of the encrusted portion (scapus) shows, that outside the real ectoderm there is a layer of very viscid mucous, in which the mineral substances are closely embedded (Pl. XI, fig. 5, 6 *a*). This crust-layer is several millimetres broad, and rather firmly adherent to the epithelium, so that it is with difficulty removeable except by scraping it off; the animal can, however, to some extent cast it, but it is soon reproduced. The epithelium appears in some places as if it were deformed, but, taken generally, it consists of long cylinder-cells with a relatively small, oblong nucleus, and a rather poor protoplasmic contents (Pl. XI, figs. 5 *b*, 6 *b*). Between the epithelial cells a multitude of unicellular, bottle-shaped mucous glands are observed, which open on to the outer surface and supply the viscid mucous in which the foreign bodies are encrusted. Many of these mucous glands are quite stuffed with a darkly coloured, fine granular mass that quite conceals the nucleus; others, again, have a much thinner contents, are more pellucid, so that the nucleus can be distinctly seen, and, again, others are quite empty and resemble vacuoli. Upon the uppermost bare part (capitulum) the epithelial cells are longer and are furnished with long ciliæ, and here numerous nematocysts, besides the mucous glands, are also observed.

Inside of the ectoderm, there is, every where, a broad fibrillar layer of connective-tissue (Pl. XI, figs. 5 *c*, 6 *c*) which, towards its inner surface, is furnished with strong circular muscle-fibres (Pl. XI, fig. 5 *d*, 6 *d*), clothed, to

som danner lange Cylinderceller, der paa deres fri Ende har en temmelig lang Pidsk (Geissel). Ved Længdesnit, Tab. XI, Fig. 5 *d*, vise de endodermale Cirkulærmuskler sig at ligge i tykke Bundter.

Paa Tentaklerne er det egentlige Ectoderm noget bredere end paa Kroppen. Foruden de almindelige, lange, cylinderformede Epithelceller findes der imellem disse mange encellede, kolbeformede Slimkjertler, Tab. XI, Fig. 4 *a*, samt en Mængde Nematocyster, Tab. XI, Fig. 4 *b*. Indenfor Ectodermet, lige i Randen af det fibrillære Bindevævslag, er der et Lag stærke, longitudinelle Muskler, som bundtevis ligge ligesom indkapslede i Bindevævet, Tab. XI, Fig. 4 *c*. Fra dettes indre Flade udgaa Forlængelser i næsten alle Retninger, hvilke anastomosere med hverandre og danne derved et tæt Kanalsystem, hvis Vægge ere beklædte med Epithel, Tab. XI, Fig. 4 *d*. Paa et Tversnit faar denne Mængde Kanaler Udseende af et Netværk med store Masker, Tab. XI, Fig. 4 *d*. Det forekom mig, at der paa Bindevævslagets indre Flade, hvorfra de beskrevne Forlængelser udgaa, laa et yderst smalt Lag af transverselle Muskler, Tab. XI, Fig. 4 *e*; men det tor hænde, at det var Bindevævsfibriller, som let kan forvexles med Muskelfibriller.

Paa Kroppens nederste, inkrusterede og udvidede Ende (Physa) viser et Tversnit, at indenfor Ectodermet, Tab. XI, Fig. 9 *a*, eller rettere, just der, hvor dette stoder til Bindevævet, Tab. XI, Fig. 9 *b*, ligger et ganske særegent Lag, bestaaende af Grupper af store Celler med en meget stor Kjerne, omgivet af et rigt Protoplasma, Tab. XI, Fig. 9 *c*. Disse Celler ere lidt aflange og fra den Ende, der vender mod Ectodermet, udgaar jævnlig 1, sjelden 2 Udlobere, som tabe sig i eller imellem Ectodermcellerne. Foruden disse Celler, som antagelig ere Ganglieceller, findes der under eller bag dem et Belte af meget mindre, runde, temmelig klare Celler med deres Kjerne, hvilke ligesom hvile paa et smalt Stratum af yderst fine Fibriller, Tab. XI, Fig. 9 *d*. Jeg kan ikke henfore de her beskrevne Elementer til noget andet histologisk Væv end et Nerveapparats. Det lykkedes mig ikke at finde noget lignende paa Mundskiven eller omkring den overste Svælgrorsaabning, ihvorvel det er sandsynligt, at noget saadant findes der; imidlertid er det at lægge Mærke til, at denne nederste Del af Dyret er i hoieste Grad omfindtlig, saa at den letteste Berorelse her fremkalder stærke Kontraktioner og ormformige Bevægelser.

Der er 6 Par fuldstændige Septa, Tab. XI, Fig. 3, 8, 11, som tage sin Begyndelse i Bundens Centrum af Physa; hvert Pars Skillevægge ligge her saagodtsom i Berorelse med hinanden; efterhvert som de straaleformigt forlænge sig opover Scapus, vige de mere fra hinanden Tab. XI, Fig. 8, og blive bredere, saa at de, naar de have naaet op til Svælgroret, hvorpaa de feste sig, danne 2 lige brede Blade, der staa nogle Millimeter fra hinanden, Tab. XI, Fig. 3, 11 *a*. Af de 6 Par fuldstændige Septa er der

some extent, by the endothelium, which forms long cylinder-cells, which upon their free extremity have a rather long flagellum (Geissel). In longitudinal sections (Pl. XI, fig. 5 *d*), the endodermal circular muscles show themselves lying in thick fasciculi.

Upon the tentacles the real ectoderm is somewhat broader than on the body. Besides the usual, long cylindric-cells, there are found, amongst them, numerous unicellular, claviform mucous glands (Pl. XI, fig. 4 *a*), also a multitude of nematocysts (Pl. XI, fig. 4 *b*). Inside of the ectoderm, quite in the margin of the fibrillar layer of connective-tissue there is a layer of strong longitudinal muscles, which lie in fasciculi, encapsuled, as it were, in the connective-tissue (Pl. XI, fig. 4 *c*). From the inner surface of the connective-tissue, prolongations issue in almost all directions; these anastomoze with each other, and thus form a compact ductiferous system whose walls are clad with epithelium (Pl. XI, fig. 4 *d*). In a transversal section this mass of ducts acquires the appearance of a reticulation with large meshes (Pl. XI, fig. 4 *d*). It appeared to me that, upon the inner surface of the layer of connective-tissue from which the prolongations issue, there lay an extremely narrow layer of transversal muscles (Pl. XI, fig. 4 *e*), but it may be that these were connective-tissue fibrils, which can easily be mistaken for muscle fibrils.

In the lowest, encrusted and expanded extremity of the body (physa) a transversal section shows, that inside of the ectoderm (Pl. XI, fig. 9 *a*), or more correctly, just at the point where it meets the connective-tissue (Pl. XI, fig. 9 *b*) there lies a quite peculiar layer, consisting of groups of large cells with a very large nucleus surrounded by a rich protoplasm (Pl. XI, fig. 9 *c*). These cells are slightly oblong, and from the extremity that faces the ectoderm there issues, generally 1, seldom 2 prolongations, which loose themselves in, or between, the ectoderm cells. Besides those cells, which are probably ganglial cells, there is found below or behind them, a belt of much smaller, round, rather pellucid cells with their nuclei, which, as it were, rest upon a narrow stratum of extremely fine fibrils (Pl. XI, fig. 9 *d*). I can not relegate the elements here described to any other histological tissue than that of a nervous system. I did not succeed in finding any thing similar on the oral disc or round the uppermost œsophageal orifice, although it is probable that something of the kind is found there. It is, in the meantime, to be remarked, that this lowest part of the animal is sensitive in the highest degree, so that the least touch produces, here, strong contractions and vermicular movements.

There are 6 pairs of perfect septa (Pl. XI, figs. 3, 8, 11) which originate in the centre of the base of the physa; the divisional walls of each pair of septa lie here almost in contact with each other; as they prolong themselves gradually, radially, upwards over the scapus, they open out more apart from each other (Pl. XI, fig. 8) and become broader, so that when they have reached up to the œsophagus, upon which they secure themselves, they form 2 equally broad laminæ, which stand a few millimetres

2 Par, som adskille sig noget fra de ovrige, nemlig Retningssepta, der svare til Mundvigene eller Gonidierne. Septa staa her længere fra hinanden, hvorved Intraseptalrummet bliver storre, Tab. XI, Fig. 3, 11 *a*, og Muskelanordningen er forskjellig, idet de transverselle Muskler ere placerede paa den indre Flade, saa at de vende mod hinanden og udfylde for en liden Del Intraseptalrummet, Tab. XI, Fig. 3 *a*, imedens de longitudinelle Muskler sidde paa Skillevæggens ydre Flade og altsaa vende mod det tilgrændsende Interseptalrum, Tab. XI, Fig. 3 *b*. Paa de ovrige 4 Par Septa, Tab. XI, Fig. 3, 2, er Muskelanordningen ganske modsat. De longitudinelle Muskler sidde paa Skillevæggens indre Flade, vende mod hverandre i det intraseptale Rum, Tab. XI, Fig. 3 *c*, imedens de transverselle Muskler indtage den ydre Flade, Tab. XI, Fig. 3 *d*. Ved Skillevæggenes Udspring i Physa ere hverken de longitudinelle eller transverselle Muskler stærkt udviklede, men de blive stærkere, alt eftersom de komme længere op.

De transverselle Muskler danne en Membran, der er yderst tynd forneden, men opad imod Svælgroret bliver den tykkere og foldet, og udfylder for de 4 Septapars Vedkommende omtrent det halve Interseptalrum. De longitudinelle Muskler ere langt stærkere end de transverselle; opimod Svælgroret tiltage de stærkt i Tykkelse og danne en tyk Busk (Fane), der ganske udfylder Intraseptalrummene, Tab. XI, Fig. 3 *c*, 11 *b*. Naar man gjor et Tversnit af Dyrets overste Del, ser det ud, som om Svælgroret er omsluttet af tykke, hvidgule Soiler, der ere Længdemuskler i noget kontraheret Tilstand, Tab. XI, Fig. 10 *b*, 11 *b*. Samtlige fuldstændige Septa bære Mesenterialfilamenter, som ere temmelig korte, proptrækkerformigt optrukne og strække sig kun et lidet Stykke nedenfor Svælgrorets nederste Del, i hvis Nærhed de udspringe, lige ved Randen af de longitudinelle Musklers Fane, Tab. XI, Fig. 10 *a*, 11 *c*.

Imellem hvert 2 Par af de fuldstændige Septa i Interseptalrummet er et Par sekundære, ufuldstændige Septa, der ogsaa tage deres Udspring i Bunden af Physa, Tab. XI, Fig. 8 *a*, 10 *c*, og ere her knapt en halv Millimeter brede, men blive snart smalere, idet de fortsætte sig opad, hvor de sees som smale, listeformige Fremspring, der gaa lige op paa Mundskiven, Tab. XI, Fig. 8 *a*, 10 *c*, 11 *d*. Disse sekundære Septa ere forsynede med baade Længde- og Tvermuskler, Tab. XI, Fig. 3 *e*, af hvilke dog de sidste ere yderst lidet udviklede og vanskelige at iagttage, da de bestaa af kun enkelte Fibre. De longitudinelle derimod ere stærkere og have et Leie, der er modsat det paa de fuldstændige Septa; de ere nemlig placerede paa Skillevæggens udvendige Flade og vende mod de interseptale Rum. Paa disse listeformede, ufuldstændige Septa er langs hele Kroppens indre Flade fæstet Acontier i storre og mindre Afstand, Tab. XI, Fig. 10 *d*, og længst ned

apart from each other (Pl. XI, fig. 3, 11 *a*). Of the 6 pairs of perfect septa, there are 2 pairs that distinguish themselves somewhat from the others viz. directive septa, which correspond to the oral angles or gonidia. The septa stand, here, farther apart from each other, causing the intraseptal space to be larger, (Pl. XI, fig. 3, 11 *a*) and the muscular arrangement is different, as the transversal muscles are placed on the inner surface, so that they face towards each other and to a small extent fill the intraseptal space (Pl. XI, fig. 3 *a*); whilst the longitudinal muscles are seated upon the outer surface of the divisional wall and, consequently, face towards the adjacent interseptal space (Pl. XI, fig. 3 *b*). Upon the remaining 4 pairs of septa (Pl. XI, fig. 3, 2) the muscular arrangement is quite the reverse. The longitudinal muscles are seated on the inner surface of the divisional wall, and face towards each other in the intraseptal space (Pl. XI, fig. 3 *c*), whilst the transversal muscles occupy the outer surface (Pl. XI, fig. 3 *d*). At the origin of the divisional walls in the physa neither the longitudinal nor the transversal muscles are strongly developed, but they become stronger, progressively, as they extend farther up.

The transversal muscles form a membrane, which is extremely thin below, but at the top, towards the œsophagus, becomes thicker and folded and, as far as regards the 4 pairs of septa, fills about one half of the interseptal space. The longitudinal muscles are far stronger than the transversal ones; up in the proximity of the œsophagus, they increase greatly in thickness and form a thick frutex (flag) which quite fills the intraseptal spaces (Pl. XI, fig. 3 *c*, 11 *b*). When one makes a transversal section of the uppermost part of the animal, it appears as if the œsophagus is enclosed by thick, whity-yellow pillars; these are longitudinal muscles in somewhat contracted condition (Pl. XI, fig. 10 *b*, 11 *b*). All the perfect septa carry mesenterial filaments, which are rather short, corkscrew shaped when retracted, and stretch themselves only a little way down the lowest part of the œsophagus, in the neighbourhood of which they originate, just at the margin of the longitudinal, muscular frutex (Pl. XI, fig. 10 *a*, 11 *c*).

Between each 2 pairs of the perfect septa in the interseptal space, there is a pair of secondary, imperfect septa that also originate in the bottom of the physa (Pl. XI, fig. 8 *a*, 10 *c*) and which are, here, scarcely half a millimetre in breadth, but quickly become narrower as they proceed upwards, where they appear as small, fillet-formed prominences that pass quite up and on to the oral disc (Pl. XI, fig. 8 *a*, 10 *c*, 11 *d*). These secondary septa are furnished with both longitudinal and transversal muscles (Pl. XI, fig. 3 *e*), of which the last-named are, however, extremely little developed and difficult to be observed, as they consist of only a few fibres. The longitudinal muscles are, upon the other hand, stronger, and are seated in a reverse manner to those on the perfect septa; thus, they are placed on the outer surface of the divisional wall, and face towards the interseptal space. Upon these fillet-formed, imperfect septa, along the inner surface of the

mod Gastralhulhedens Bund udspringe Generationsorganerne. Kun hos et Dyr lykkedes det at iagttage Æggestokke, der vare yderst lidet udviklede.

De cirkulære Muskler, som ere endodermale, ligge paa Gastralhulhedens Væg i regelmæssige, baandformige Bundter, adskilte ved et meget smalt Mellemrum, hvori sees dels runde, dels aflange Aabninger (Cinclides). I disse sees paa et Par Steder Acontier at være indtrængte. Om disse Aabninger perforere Huden eller kun trænge et Stykke ind i Bindevævet, kan jeg ikke afgjøre. Vel findes der lignende Aabninger paa Kroppens ydre Flade, men hvorvidt disse korrespondere med de indre Aabninger, har jeg ikke kunnet overbevise mig om; thi ved Tversnit er det ikke lykkedes at paavise en saadan Kommunikation; sandsynligt er det imidlertid, da jeg har fundet Acontier siddende saavel i indre som i ydre Aabninger. Svælgrøret er cylindrisk, omtrent en Trediedel saa langt som hele Dyrets Længde; det er foldet paa langs og forsynet med 2 Gonidiegruber, der udgaa fra Mundvigene og strække sig lige ned til Svælgets nederste, fri Ende.

Den ovenfor leverede Beskrivelse vil formentlig godtgjøre, at Andvakia, ikke uden at gjøre Vold paa Systemet, vil kunne henføres til nogen af de hidtil opstillede Familier og endnu mindre til nogen kjendt Slægt, imedens den vistnok maa henføres til den store Tribus, Hexactiniæ, Hertwig. Andvakia maa i flere Henseender tiltrække sig Opmærksomheden og ikke mindst derved, at den tyder hen paa at være en Overgangsform. I sin indre Bygning har den adskilligt tilfælles med Sagartiderne og Phelliderne, imedens den i det Ydre afviger væsentlig. Men selv den indre Bygning er ved sine faa og næsten rudimentære, listeformige, ufuldstændige Septa og ved sine stærkt udprægede, endodermale Cirkulærmuskler saa yderst forskjellig fra Sagartidernes Familie, at den ikke kan indregistreres i denne.

Ligesaa meget som den i sit Ydre afveg fra Sagartiderne, ligesaa meget synes den netop ved sit Ydre at nærme sig Gruppen Edwardsia; dens Legeme kan jo med Lethed inddeles i den af Gosse for Slægten Edwardsia benyttede Tredeling, hvilken jeg ogsaa har gjort Brug af; men det er dog kun ved en overfladisk Betragtning, at Sammenligningen med Edwardsia kan holdes oppe. Hele den indre Bygning er jo grundforskjellig. Edwardsierne have nemlig 8 Septa, hvoraf 2 Par ere Retningssepta, imedens de øvrige 4 Septa ere enkle og optræde ikke parvis. Alle Septa ere forsynede med Generationsorganer; Tentaklerne ere simple og i Almindelighed flere i Antal, end der er Septa. Men helt anderledes forholder det sig med Andvakia, hvilket tydeligt nok fremgaar af Beskrivelsen, og som det derfor her er unødigt at gjentage.

entire body, acontia are seated at longer or shorter intervals (Pl. XI, fig. 10 *d*), and quite at the bottom of the gastral cavity the reproductive organs appear. Only in a single animal was I fortunate enough to observe ovaries, which were, however, extremely little developed.

The circular muscles, which are endodermal, lie upon the wall of the gastral cavity in regular, ribbon-like fasciculi, separated by a very narrow interval in which partly round, partly oblong appertures are seen (cinclides). In these apertures acontia are observed, at a couple of places, to have forced themselves in. Whether those apertures perforate the integument or only penetrate partially into the connective-tissue, I cannot determine. It is true that similar apertures are found upon the outer surface of the body, but how far these correspond whith the internal apertures, I have been unable to satisfy myself, as, upon transversal section, it has not been possible to demonstrate a correspondence in communication: such is however probable, as I have found acontia seated in both the inner and outer apertures. The œsophagus is cylindrical and about one third part of the length of the entire animal; it is longitudinally folded and furnished with 2 gonidial grooves that issue from the oral angles and stretch themselves right down to the lowest, free extremity of the gullet.

The description given above will, it is hoped, demonstrate, that Andvakia cannot, without doing violence to the system, be relegated to any of the hitherto established families, and still less to any known genus, whilst it must certainly be relegated to the great tribe, Hexactiniæ, Hertwig. Andvakia must, in several respects, attract attention, none the less from its indication of being a transition-form. In its internal structure it has several things in common with the Sagartidæ and Phellidæ, whilst in its externals it differs materially. But even the inner structure is, owing to its few and almost rudimentary, fillet-formed, imperfect septa and its strongly distinguished endodermal circular muscles, so extremely different from the family of Sagartidæ that it cannot be registered as one of its members.

Just as much as it, in its externals, differs from Sagartidæ, does it appear, and just in its externals too, to approach the group Edwardsia. Its body, for instance, can with ease be divided into the triple division made use of by Gosse for the genus Edwardsia, and which I have also availed myself of, but it is only upon a cursory examination that the comparison with Edwardsia can be maintained. The entire inner structure is, indeed, radically different. The Edwardsia have, for instance, 8 septa, of which 2 pairs are directive septa, whilst the other 4 septa are single, and do not appear in pairs. All the septa are furnished with reproductive organs. The tentacles are plain and, in general, more numerous than the septa. But the case is perfectly different in Andvakia, which is distinctly enough shown by the description, and is, therefore, needless to repeat here.

Endelig er Ligheden storst med den i Zoanthidernes Gruppe indlemmede Familie, Sphenopidæ, Hertwig, hvis Slægt Sphenopus, Steenstrup, er en ganske mærkelig, solitær Zoanthide. Det er først ved Hertwigs Undersøgelser, at man er kommen til Vished om dens systematiske Stilling; men det er ogsaa kun i det Ydre, at der findes nogen Lighed; thi den indre Bygning er jo helt forskjellig. Hertwig karakteriserer Zoanthiderne saaledes: Actiniaria with numerous septa of two different kinds, smaller, imperfect, sterile micro-septa, and larger perfect macro-septa furnished with reproductive organs and mesenteric filaments; the two kinds usually placed alternately, so that each pair is composed of a larger and a smaller septum; two pairs of directive septa at the ends of the saggital axis, one pair containing only macro-septa, the other only micro-septa; only one œsophageal groove, corresponding to the larger directive septa; animals usually forming colonies; wall usually traversed by ectodermal canals, and having the outside encrusted with foreign bodies. Sammenlignes nu denne Karakteristik med den, jeg har leveret af Andvakia, springer den store Forskjel strax i Øinene, og det paa en saadan Maade, at der ikke kan blive Tale om at indlemme den i Gruppen Zoanthidæ, Hertwig.

Finally, resemblance is greatest with the family Sphenopidæ, Hertwig, included in the Zoanthidæ group, whose genus Sphenopus, Steenstrup, is a quite peculiar, isolated Zoanthid. It is only in consequence of Hertwig's investigations we have attained certainty as to its systematic position; but it is only in the externals that a resemblance is found, as the inner structure is indeed quite different. Hertwig characterises the Zoanthidæ thus: „Actiniaria with numerous septa of two different kinds, smaller, imperfect, sterile micro-septa, and larger perfect macro-septa furnished with reproductive organs and mesenteric filaments; the two kinds usually placed alternately, so that each pair is composed of a larger and a smaller septum; two pairs of directive septa at the ends of the saggital axis, one pair containing only macro-septa, the other only micro-septa; only one œsophageal groove corresponding to the larger directive septa; animals usually forming colonies; wall usually traversed by ectodermal canals and having the outside encrusted with foreign bodies." If that characteristic description is compared with the one I have given of Andvakia, the great difference is immediately apparent, and, in such a manner, that there can be no thought of including Andvakia in the group Zoanthidæ, Hertwig.

Findested.

Husøen, Sognefjord. 100—150 Favne. Sandbund. Mange Exemplarer.

Habitat.

Husøen, Sognefjord. Depth 100—150 fathoms. Sandy bottom. Numerous specimens.

Slægtskarakter.

Andvakiadæ med 6 Par fuldstændige, golde Septa; 6 Par ufuldstændige, næsten rudimentære Septa, bærende Acontier og Generationsorganer; stærkt udviklede, endodermale Cirkulærmuskler. Cinclides.

Generic characteristics.

Andvakiadæ with 6 pairs of perfect, sterile septa; 6 pairs of imperfect almost rudimentary septa, carrying acontia and reproductive organs; strongly developed, endodermal circular muscles. Cinclides.

Artskarakter.

Legemet lig et Overflodighedshorn, 60—70^{mm} langt, 15^{mm} bredt i den øverste Ende, 4—5 i den nederste. Capitulum nogent, cylindrisk, retraktilt, 8^{mm} langt, 12^{mm} bredt, halvt gjennemsigtigt, forsynet med Længdestriber, imellem hvilke hist og her Cinclides. Mundskiven rund, 12—14^{mm} bred, i Midten en aflang Mund med 2 Mundvige og 6 lancetformede Læbefolder paa hver Side af disse. I hver Mundvig en liden Gonidieknude. To Rækker korte, alternerende, retraktile Tentakler, 12 i hver Række. Scapus krumboiet, omkring 50^{mm} lang, 10—12^{mm} bred foroven, 5—6^{mm} forneden, stærkt inkrusteret, ikke retraktil, men vel kontraktil; naar Capitulum er indtrukket, lukker Scapus sig foroven. Physa udvider sig halvkugleformigt, er omtrent 15^{mm} bred og overalt inkrusteret, meget irritabel og forandrer let Form. Farven: Den inkrusterede Del brunsort med isprængte, dels hvide, dels gronne og rødlige

Specific characteristics.

The body resembles a cornucopia, 60—70^{mm} in length, 15^{mm} in breadth at the uppermost end, and 4—5^{mm} at the lowest end. The capitulum bare, cylindric, retractile, 8^{mm} long, 12^{mm} broad, semi-transparent, furnished with longitudinal stripes; between which cinclides here and there visible. The oral disc round, 12—14^{mm} broad; in its middle an oblong mouth with 2 oral angles, and 6 lanceolate labial folds on each side of these. In each oral angle a small gonidial nodule. Two series of short, alternating, retractile tentacles, 12 in each series. Scapus bent, about 50^{mm} in length, 10—12^{mm} broad at the top, 5—6^{mm} broad at the foot, strongly encrusted, non-retractile, but, presumably, contractile. When the capitulum is retracted the scapus closes itself at the top. The physa expands itself hemispherically, is about 15^{mm} in breadth, and is encrusted all over, very sensitive, and readily changes form.

Punkter. Capitulum svagt laxerodt, stundom ganske hvidt. Mundskiven sinnoberrod med fine, morkere Linier. Tentaklerne samme Farve, dog noget morkere ved Grunden, lysere i Spidsen.

Subfamilie Halcampidæ, Andres.

Halcampoides abyssorum.

Tab. V, Fig. 1; Tab. XV, Fig. 4—11; Tab. XVI, Fig. 1—3.

Legemet, der er langstrakt, cylindrisk, omkring 70^{mm} langt og 12^{mm} bredt i den forreste Del, ender temmelig spids, tapformigt, Tab. V, Fig. 1. Den midterste Del af Kroppen (Scapus) er tykkest, indtil 15^{mm}. Hele Kolumnen omgiven af en membranagtig Skede, der udvendig er infiltreret med Ler og Skaller af Foraminiferer, men indvendig glattere og mere eller mindre fast adhæreret til Kroppens Overflade. Denne Skede er dog ikke fastere heftet til Kroppen, end at den ved stærk Skylning med Sovand losrives, saa at kun enkelte Flækker blive tilbage, Tab. V, Fig. 1 *a*.

Naar Dyret er udstrakt, og Tentaklerne udfoldede, viser Kolumnens øverste Del sig at være nogen og rager $5—6^{mm}$ over Skedens Rand, Tab. V, Fig. 1 *b*. Denne forreste, nogne Del (Capitulum) er glindsende og forsynet med 12 Længdefurer, som opimod Mundskiven blive dybere og bredere, Tab. XV, Fig. 5 *a*, og imellem disse Furer sees Længdefelter, hvori findes uregelmæssigt spredte Sugevorter, der ligge nedsænkede i Huden og ere saa smaa, at de kun iagttages under stærk Loupe, Tab. XV, Fig. 5 *b*. Borttages Skeden, saa viser det sig, at de nævnte Furer strække sig lige til Kolumnens bagerste Ende, ligesom Kroppens Overflade overalt er forsynet med de samme Længdefelter og Sugevorter, som paa den nogne Del.

Den bagerste Ende (Physa) er konisk tilspidset, temmelig kontraktil, forandrer let Form, idet den udvides og sammentrækkes, uden nogensinde at kunne indtrækkes, og er paa sin yderste Spidse forsynet med en rund Aabning, som ligeledes udvider og sammentrækker sig. Denne Sammentrækning og Udvidning er temmelig uregelmæssig, og ved Kontraktionen sees en fin Vandstraale at jages ud af Aabningen, Tab. V, Fig. 1; Tab. XV, Fig. 4.

Mundskiven er lidt hvælvet og har 12 Folder, der udgaa fra den noget aflange Mund, hvor de ere temmelig smale, men blive bredere henimod Kropsranden, Tab. XV, Fig. 6, som er afrundet og jævn.

Tentaklerne sidde i en Række omkring Skivens Rand; de ere lange, tilspidsede, 12 i Antal og kunne trækkes fuldkommen ind i Kroppen, Tab. V, Fig. 1.

The Colour. The encrusted portion brown-black, dotted with partly white, partly green and reddish points. The oral disc cinnabar-red with fine, darker lines. The tentacles the same colour, but somewhat darker at the base, lighter at the point.

Subfamily Halcampidæ, Andres.

Halcampoides abyssorum.

Pl. V, fig. 1; Pl. XV, figs. 4—11; Pl. XVI, figs. 1—3.

The body is elongate and cylindrical; measures about 70^{mm} in length, and 12^{mm} in breadth at the anterior part, and terminates rather pointedly in coniform (Pl. V, fig. 1). The medial part of the body (scapus) is the thickest, measuring about 15^{mm} in thickness. The entire column is surrounded by a membranous sheath infiltrated, exteriorly, with clay and shells of foraminifera, but whose interior surface is smooth and more or less firmly adherent to the outer surface of the body. This sheath is, however, not more firmly adherent to the body, than that it may be removed by a strong deluging with seawater, so that only a few patches are then left behind (Pl. V, fig. 1 *a*).

When the animal is extended and the tentacles unfolded, the upper part of the column appears bare, and reaches $5—6^{mm}$ beyond the margin of the sheath (Pl. V, fig. 1 *b*). This anterior, bare part (capitulum), is shiny, and furnished with 12 longitudinal furrows, which up towards the oral disc become deeper and broader (Pl. XV, fig. 5 *a*); and between those furrows longitudinal folds are observed, in which irregularly scattered suckers are found lying embedded in the integument, and so small that they can only be observed with the aid of a powerful magnifying glass (Pl. XV, fig. 5 *b*). If the sheath is removed it then appears, that the furrows mentioned extend themselves quite to the posterior extremity of the column, whilst, also, the external surface of the body is everywhere furnished with similar longitudinal folds and suckers as on the bare portion.

The posterior extremity (physa) is conically acuminated, rather contractile, changes its form whilst expanding and contracting, without at anytime being capable of retraction. At its extreme point it is furnished with a round aperture, which also expands and contracts itself. This contraction and expansion is rather irregular, and during contraction a fine jet of water is seen to be ejected from the aperture (Pl. V, fig. 1; Pl. XV, fig. 4).

The oral disc is slightly arcuate and has 12 folds, which issue from the somewhat oblong mouth, where they are rather narrow, but become broader towards the margin of the body (Pl. XV, fig. 6), which is rounded and even.

The tentacles are situated in a series round the margin of the disc; they are long, acuminated, 12 in number, and may be completely retracted into the body (Pl. V, fig. 1).

Farven. Skeden er graagron, dels lysere, dels morkere efter Lerets Beskaffenhed, hvormed den er infiltreret. Kolumnen er bleg rosenrod, naar den er udstrakt, men sammentrukken er den morkere rosenrod; i den bagerste Ende spiller den lidt i det Violette. Længdefurerne ere lidt morkere rod end Mellempartierne. Mundskiven har Kroppens Farve. Tentaklerne ere næsten morkerode, spillende noget i det Karmosinrode. Tab. V, Fig. 1.

Ved Tversnit viser Skeden sig at være dannet af en Slimmembran, hvori Ler og andre fremmede Legemer ere indleirede. Denne Slimmembran er meget tynd, seig og fastklæbet til Kropshuden uden egentlig at være organisk bunden til denne, saaledes som Tilfældet er hos Slægten Phellia. Det synes mere som om Sugevorterne holde den fast; thi netop hvor disse findes, sees altid Rester af Membranen, naar den forresten er bortskyllet, Tab. V, Fig. 1.

Kropshudens ydre Flade har et temmelig bredt Ectoderm, der bestaar af lange Cylinderceller, Tab. XV, Fig. 7 *a*, som paa den nogne, overste Del have temmelig lange Cilier, ligesom der her er en stor Mængde Nematocyster og encellede Slimkjertler. Paa den Del af Kroppen, som er bedækket af den inkrusterede Slimmembran, ere Nematocysterne yderst sjeldne, imedens Slimkjertlerne ere her ligesaa hyppige som paa den nogne Del. Indenfor Ectodermet er et bredt, fibrillært Bindevævslag med mange Bindevævslegemer og fine Ernæringskanaler, Tab. XV, Fig. 7 *b*; henimod den indre Flade af dette Bindevæv iagttages et forholdsvis bredt Belte, bestaaende af cirkulære Muskler, Tab. XV, Fig. 7 *c*. Hvorvidt Muskelfibrillerne samle sig i Bundter eller ere leirede lige ved Siden af hverandre, er vanskeligt at afgjore; paa Længdesnittet synes det første at være Tilfældet, Tab. XV, Fig. 8 *a*. Endothelet, som beklæder Gastralhulhedens Flade, bestaar af lange Cylinderceller, der bære lange Cilier.

Der er 6 Par fuldstændige Septa, som tage deres Begyndelse i den bagerste Ende, omkring Sluttemuskelen for Caudalaabningen, Tab. XV, Fig. 9 *a*, hvor de ere meget smale, men blive alt bredere og bredere, jo længer de komme op, saa at de omtrent paa Midten af Gastralhulhedens Flade ere 3^{mm} brede, Tab. XV, Fig. 9 *b*, men aftage nu noget i Bredden, idet de fæste sig paa Svælgroret, Tab. XV, Fig. 9 *c*, *d*, og blive atter meget smale ved Insertionen paa Mundskiven, Fig. 9 *e*. Af disse Septa er der 2 Par, der udpræge sig som Retningssepta og ere fæstede til Svælgrorets Bug- og Rygside, Tab. XV, Fig. 10 *a*; de øvrige 4 Par ere fæstede 2 paa hver Side af Svælgroret, Tab. XV, Fig. 10 *b*. Samtlige Septa ere som sædvanligt forsynede med Længde- og Tvermuskler.

Paa Retningssepta ere Længdemusklerne placerede paa den ydre Flade og vende fra hverandre i det inter-

The colour. The sheath is greyish-green, lighter or darker in colour according to the nature of the clay with whih it is infiltrated. The column is pale rosy-red when it is extended, but dark rosy-red when contracted; in the posterior extremity it has a slightly violet play of colour. The longitudinal furrows are a little darker in colour than the intermediate parts. The oral disc has the same colour as the body. The tentacles are almost dark red with a slight crimson-red play of colour (Pl. V, fig. 1).

In transversal sections the sheath appears to be formed of a mucous membrane, in which clay and other foreign bodies are entrenched. This mucous membrane is very thin and viscid, and is firmly glued to the integument of the body without, however, being really organically attached to it, like what is the case in the genus Phellia. It looks more as if the suckers held it fast, as, just at the points where they are met with, remains of the membrane are always observed when in all other parts it is washed off (Pl. V, fig. 1).

The external surface of the integument of the body has a rather broad ectoderm, consisting of long cylinder-cells (Pl. XV, fig. 7 *a*), which, upon the bare, uppermost part have pretty long ciliæ, whilst, here, also, there is a great abundance of nematocysts and unicellular mucous glands. On the part of the body covered by the encrusted mucous membrane, the nematocysts are extremely rare, whilst the mucous glands are, here, as frequent as upon the bare part. Inside of the ectoderm there is a broad, fibrillous, connective-tissue layer with numerous connective-tissue corpuscles and fine nutritory ducts (Pl. XV, fig. 7 *b*); and towards the inner surface of this connective-tissue there is observed, a relatively broad belt, consisting of circular-muscular fibres (Pl. XV, fig. 7 *c*). It is difficult to determine whether the muscle fibrils collect themselves into bundles or are seated alongside each other. In longitudinal sections the first-named arrangement seems to be the case (Pl. XV, fig. 8 *a*). The endothelium that clothes the surface of the gastral cavity, consists of long cylinder-cells carrying long ciliæ.

There are 6 pairs of perfect septa, which have their origin in the posterior extremity, round the sphincter of the caudal aperture (Pl. XV, fig. 9 *a*); they are, here, very narrow, but become broader and broader the farther they extend upwards, so that, at about the middle of the surface of the gastral cavity they are 3^{mm} in breadth (Pl. XV, fig. 9 *b*), but then diminish somewhat in breadth as they secure themselves upon the gullet-tube (Pl. XV, fig. 9 *c*, *d*) becoming, again, very narrow at the insertion on the oral disc (Pl. XV, fig. 9 *e*). Of these septa there are 2 pairs that distinguish themselves as directive septa, and which are secured to the ventral and dorsal side of the gullet-tube (Pl. XV, fig. 10 *a*); the other 4 pairs of septa are secured, 2 upon each side of the gullet-tube (Pl. XV, fig. 10 *b*). All the septa are furnished, as usual, with longitudinal and transversal muscles.

On the directive septa, the longitudinal muscles are seated on the outer surface, and face from each other in

septale Rum, Tab. XV, Fig. 10 *c*, imedens Tvermusklerne sidde paa den indre Flade og vende mod hverandre i det intraseptale Rum, Tab. XV, Fig. 10 *d*. Paa de ovrige Septa ere Musklerne stillede netop modsat; saaledes ere Længdemusklerne fæstede til den indre Flade og vende mod hverandre i det intraseptale Rum, og Tvermusklerne paa den ydre Flade, vendende fra hverandre i det interseptale Rum.

Længdemusklerne ere i en overordentlig Grad udviklede; de ere indtil 2^{mm} brede, hvor de naa Svælgrøret, Tab. XV, Fig. 9 *f*, 10 *c*, men aftage i Bredde op imod Mundskiven, paa hvis indre Flade de fæste sig. De indtage mindst to Trediedele af Septumets Flade, imedens dennes ene Trediedel henimod den fri (indre) Rand er blottet for Muskler og danner et Længdefelt, hvori Mesenterialfilamenterne og Kjønsorganerne ere situerede. Men imedens Længdemusklerne ikke ganske naa Septumets indre, fri Rand, saa strække de sig udover den ydre Insertionsrand hen paa Gastralvæggens indre Flade, Tab. XV, Fig. 10 *f*, hvortil de synes at være klæbede ved løse Bindevævstraade og bidrage til at danne de fremtrædende Længdefelter imellem Furerne, der antyde Insertionerne for Septa. Længdemusklerne ere dannede af en stor Mængde Muskelfibre, som ere fæstede til forgrenede Bindevævsforlængelser, udgaaende fra Septum, Tab. XV, Fig. 10 *e*, *f*; de transverselle Muskler ere forholdsvis kun lidet udviklede, indtage saagodtsom hele Fladen af Septum og dække denne i Form af en tynd, fint foldet Membran.

Samtlige Septa bære Mesenterialfilamenter og Kjønsorganer. Mesenterialfilamenterne udspringe fra den nederste Del af Svælgroret, Tab. XV, Fig. 9 *i*, og følge som en slangeformig Streng den fri Rand af Septum ligetil sammes bagerste Ende, Tab. XV, Fig. 9 *g*. Kjønsorganerne bestaa af i Proptrækkerform sammenrullede Baand og ere placerede indenfor Mesenterialfilamenterne, mellem disse og Længdemusklerne, i den bagerste Trediedel af Gastralhulheden, Tab. XV, Fig. 9 *h*. De undersøgte to Exemplarer havde Æggestokke, hvori Æggene i forskjellige Udviklingsstadier laa i Rækker, to og to ved Siden af hinanden. Det er sandsynligt, at Kjønnet er adskilt; thi Testikler vare ikke at opdage.

Svælgroret er ganske særegent; det har temmelig tykke, muskulose Vægge, er lidt fladtrykt, stærkt foldet, og paa dets ydre Flade, der bekledes af Endothelet, ligesom delt i tolv Felter, som Følge af Septainsertionerne, Tab. XV, Fig. 9, imedens den dorsale og ventrale Side er temmelig udvidet, hvorved hele Svælgroret faar en næsten firkantet Form, Tab. XV, Fig. 10 *g*; især gjælder denne Udvidning den ventrale Del, der allerede paa Svælgrorets ydre Flade viser sig som et bredere Længdefelt med en Fure paa hver Side. Men paa Svælgrørets indre Flade fremtræder Særegenheden tydeligere. Her viser det sig, at Svælgroret ikke som sædvanligt danner en eneste Hulhed,

the interseptal space (Pl. XV, fig. 10 *c*); whilst the transversal muscles are seated on the inner surface and face towards each other in the intraseptal space (Pl. XV, fig. 10 *d*). Upon the remaining septa the muscles are placed in exactly the reverse manner; thus, the longitudinal muscles are secured to the inner surface and face towards each other in the intraseptal space, and the transversal muscles on the outer surface, facing from each other in the interseptal space.

The longitudinal muscles are developed in a very high degree; they measure up to 2^{mm} in breadth at the point where they reach the gullet-tube (Pl. XV, fig. 9 *f*, 10 *c*), but diminish in breadth up towards the oral disc, upon the inner surface of which they secure themselves. They occupy at least two-thirds part of the surface of the septum, whilst the remaining third part, towards the free (inner) margin, is devoid of muscles and forms a longitudinal area in which the mesenterial filaments and reproductive organs are situated. But whilst the longitudinal muscles do not quite reach to the inner, free margin of the septum, they, yet, stretch themselves beyond the outer insertional margin to the inner surface of the gastral wall (Pl. XV, fig. 10 *f*), to which they appear to be glued by loose connective-tissue filaments, and aid in forming the prominent longitudinal areas between the furrows that indicate the insertions of the septa. The longitudinal muscles are formed of a great multitude of muscle fibres secured to the ramified connective-tissue prolongations proceeding from the septum (Pl. XV, fig. 10 *e*, *f*). The transversal muscles are, relatively, only little developed, and occupy almost the entire surface of the septum, covering it in the form of a thin fine folded membrane.

All the septa carry mesenterial filaments and reproductive organs. The mesenterial filaments issue from the lowest part of the gullet-tube (Pl. XV, fig. 9 *i*), and follow, like a sinuous cord, the free margin of the septum quite to its posterior extremity (Pl. XV, fig. 9 *g*). The reproductive organs consist of cork-screw shaped, coiled ribbons, and are situated inside of the mesenterial filaments, between these and the longitudinal muscles, in the posterior third part of the gastral cavity (Pl. XV, fig. 9 *h*). The two specimens examined had ovaries, in which the ova, in various stages of development, lay in series, two and two alongside each other. It is probable that the sexes are separated, as testicles could not be detected.

The gullet-tube is quite peculiar; it has rather thick musculous walls, is somewhat adpressed, strongly folded, and on its external surface, which is clad with endothelium, divided, as it were, into 12 areas, in consequence of the septal insertions (Pl. XV, fig. 9), whilst the dorsal and ventral side is pretty much dilated, giving to the entire gullet-tube an almost quadrangular form (Pl. XV, fig. 10 *g*); this dilation is specially prominent on the ventral part, which, already on the outer surface of the gullet-tube, shows itself as a broadish longitudinal area with a furrow on each side. But on the inner surface of the gullet-tube the peculiarity appears still more prominently. Here, it

men at denne er ved et temmelig bredt Bindevæv delt efter Længden i to, Tab. XV. Fig. 10 *h*, 11 *h*, saaledes, at den ene Hulhed, der følger Bugsiden, er betydeligt trangere end den anden, som er mere end tredobbelt saa vid. Denne smalere Hulhed dannes af et Rør, der er næsten halvcirkelformet, hvorved den afrundede Del, Tab. XV. Fig. 11 *a*, kommer til at vende ud i Gastralhulheden, imedens den mere tversafskaarne, Tab. XV. Fig. 10 *h*, 11 *b*, stoder til den øvrige Del af Svælgroret, Tab. XV. Fig. 10 *i*, 11 *d*. Dette trangere Rør, der maa ansees som en Rectum, ender foroven lidt under Mundaabningen og forneden lidt ovenfor Svælgrorets nederste, fri Rand, og er paa hele sin indre Flade beklædt med lange Cylinderceller, som hver bærer en lang Pidske, Tab. XV. Fig. 11 *e*. Hulheden i Rectum er opfyldt dels af Slim, Tab. XV. Fig. 11 *f*, dels af Ler, blandet med Skaller af Foraminiferer, Tab. XV. Fig. 11 *g*. Den bredere Del, det egentlige Svælgrør, udfylder Størstedelen af den forreste Tredjedel af Gastralhulheden, er stærkt foldet, Tab. XV. Fig. 10 *i*, og udvider sig temmelig betydeligt langs Rygsiden, saa at den her danner en Slags Svælggrube, Tab. XV. Fig. 10 *k*, hvortil svarer paa den ydre Side det dorsale Par Retningssepta, Tab. XV. Fig. 10 D. D., imedens de ventrale Retningssepta ere fæstede til Rectum, Tab. XV. Fig. 10 V. Den indre Flade af Svælgroret er beklædt med et Epithel, der er temmeligt forskjelligt fra det, der tapetserer Rectum; Cylindercellerne, Tab. XV. Fig. 11 *h*, ere meget kortere, forsynede med temmelig korte Cilier, og imellem disse Celler iagttages mange encellede Slimkjertler, men Svælggruben gjør dog nogen Undtagelse herfra, idet Cylindercellerne her nærme sig noget de i Rectum.

Ved et Tværsnit gjennem Dyrets bageste Ende viser Aabningen sig at være omgiven af stærke Muskelfibre, der danne en Sphincter, Tab. XVI. Fig. 1 *a*; hvorvidt disse Muskelfibre ere Udløbere fra Længde- eller Tværmusklerne, kan jeg ikke med Bestemthed afgjøre; men det synes som om Længdemusklerne sende Fibre derhen, imedens jeg ikke har kunnet iagttage saadanne fra Tværmusklerne.

Tentaklerne have et temmelig bredt Ectoderm, der dannes af lange Cylinderceller forsynede med Cilier, Tab. XVI. Fig. 2 *a*, og imellem hvilke sees en Mængde encellede, flaskeformede Slimkjertler, dels tomme som Vacuoler, dels med Kjerne og kornet Indhold, Tab. XVI. Fig. 2 *b*, samt Nematocyster med deres Spiraltraade, Tab. XVI. Fig. 2 c. Indenfor Ectodermet er et Lag stærke Længdemuskler, Tab. XVI. Fig. 2 *d*; men imellem Muskellaget og Ectodermet sees et yderst smalt, fintkornet Lag, der er overskaarne Nervefibriller, Tab. XVI. Fig. 2 *e*. Længdemusklerne hviler paa Bindevævet, som danner et temmelig bredt Lag, Tab. XVI. Fig. 2 *f*, paa hvis indre Flade er leiret et Belte af transverselle Muskler, Tab. XVI. Fig. 2 *g*.

appears that the gullet-tube does not form, as usual, a single cavity, but is divided longitudinally, by a rather broad connective-tissue, into two (Pl. XV, figs. 10 *h*, 11 *b*), so that the one cavity, which follows along the ventral side, is considerably narrower than the other, which is more than three times as wide. This narrower cavity is formed by a tube which is almost semi-circular in form, causing the rounded portion (Pl. XV. fig. 11 *a*) to face outwards in the gastral cavity, whilst the more truncated part (Pl. XV. figs. 10 *h*, 11 *b*) unites to the remaining part of the gullet-tube (Pl. XV, figs. 10 *i*, 11 *d*). This narrowish tube, which must be regarded as a rectum, terminates, at the top, a little below the oral aperture, and, at the bottom, a little above the lowest free margin of the gullet-tube, and is, upon its entire inner surface, clad with long cylinder-cells, each of which carries a long flagellum (Pl. XV, fig. 11 *e*). The cavity in the rectum is partly filled with mucous (Pl. XV, fig. 11 *f*), and partly with clay mixed with shells of foraminifera (Pl. XV, fig. 11 *g*). The broader part — the real gullet-tube — occupies the greater part of the anterior third-part of the gastral cavity and is strongly folded (Pl. XV, fig. 10 *i*); it dilates itself, rather considerably, along the dorsal side, so that it, there, forms a kind of gullet-groove (Pl. XV, fig. 10 *k*) to which the dorsal pair of directive septa on the outer side correspond (Pl. XV, figs. 10 D. D.), whilst the ventral directive septa are secured to the rectum (Pl. XV, fig. 10 V.). The inner surface of the gullet-tube is clad with an epithelium, considerably different from that coating the rectum; the cylinder-cells (Pl. XV, fig. 11 *h*) are much shorter, are furnished with rather short ciliæ, and between those cells many unicellular mucous glands are observed, but the gullet-groove forms somewhat an exception, as here the cylinder-cells approach somewhat to those of the rectum.

In a transversal section through the posterior extremity of the animal, the aperture appears to be surrounded by strong muscle-fibres that form a sphincter (Pl. XVI, fig. 1 *a*); whether those muscle-fibres are prolongations of the longitudinal or transversal muscles, I have been unable to determine with certainty, but it appears as if the longitudinal muscles sent fibres in that direction, whilst I have not been able to detect a similar relation in the transversal muscles.

The tentacles have a pretty broad ectoderm, formed of long cylinder-cells furnished with ciliæ (Pl. XVI, fig. 2 *a*), and between which a multitude of unicellular bottle-shaped mucous-glands, partly empty, like vacuoli, partly containing nucleus and granular contents (Pl. XVI, fig. 2 *b*) are seen, and also nematocysts with their spiral filaments (Pl. XVI, fig. 2 *c*). Inside of the ectoderm there is a layer of strong longitudinal muscles (Pl. XVI, fig. 2 *d*), but between the musculous layer and the ectoderm there is seen an extremely narrow, finely granular layer composed of transsected nerve fibrils (Pl. XVI, fig. 2 *e*). The longitudinal muscles rest on the connective-tissue, which forms a rather broad layer (Pl. XVI, fig. 2 *f*), upon whose inner surface there

der beklædes af meget lange, cilierende Cylinderceller, Tab. XVI, Fig. 2 *h*, som rage langt ind i Tentakelens Lumen.

Nervesystemet har meget tilfælles med det, som Brodrene Hertwig have paavist at tilhøre Actinierne [1]. Det bestaar, om man saa vil, af to Lag, der dog ere knyttede nøie til hinanden. Det har sine store Vanskeligheder at fremstille Nervesystemet hos Cœlenterater, som i længere Tid have været opbevarede i Spiritus, naar man ikke fra første Stund har præpareret Gjenstandene for saadanne Undersøgelser, og i de fleste Tilfælde lykkes det aldeles ikke. Men hos et ganske ungt Exemplar af Halcampoides abyssorum var jeg saa heldig ved Hjælp af Osmiumsyre og Hæmatoxylin at faa en Del af Nervesystemet fremstillet. Paa Tversnit af Mundskiven, lige ved Grunden af Tentaklerne eller maaske rettere imellem disse, sees umiddelbart under Ectodermet flere Grupper af større og mindre Ganglieceller, hvilke korrespondere med hverandre og synes at danne et Net af Nervefibriller, der udsende Grene i alle Retninger. De store Ganglier have en oval Form, ere forsynede med en stor, næsten rund Kjerne med Kjernelegeme og omgivne af et tæt kornet Protoplasma, Tab. XVI, Fig. 3 *a*; fra den brede Ende af disse Ganglier udløbe to Grene, der ere fyldte med Protoplasma, og som, idet de forlænge sig til Siderne, dele sig i flere Smaagrene, hvoraf flere udbrede sig dels i Ectodermet, dels i Muskellaget, Tab. XVI, Fig. 3 *b*. Fra den smalere Ende udløber kun en Gren, Tab. XVI, Fig. 3 *c*, der er tyk, og som et Stykke fra dens Udspring udsender flere meget fine Grene, der dels forene sig med hinanden indbyrdes, dels korrespondere med lignende Grene fra tilgrændsende Ganglier, hvorved et Nervenet dannes, som sender Grene opover til Tentaklerne og nedover Kroppen, Tab. XVI, Fig. 3 *d*, imedens den tykke, enkle Gren løber nedover paa Svælgroret og synes at tabe sig dels i dette, dels i Musklerne paa Septa. De mindre Ganglier ere knapt halvt saa store, men have omtrent samme Form som de store; de danne ligeledes Grupper, der synes dels at alternere med de store med Hensyn til Stedet, hvor de ligge, saaledes nemlig, at en Gruppe store Ganglier afvexle med en Gruppe smaa, Tab. XVI, Fig. 3 *e*, og dels støde direkte til de store, Tab. XVI, Fig. 3 *a*, hvoraf der synes at være 6 Grupper. Disse smaa Ganglier have lignende Udløbere som de store, ere forsynde med en stor Kjerne med sit Kjernelegeme og fyldte med Protoplasmakorn, Tab. XVI, Fig. 3 *f*; de bidrage i væsentlig Mon til at danne det ovenfor omtalte Nervenet, der vistnok udbreder sig over Dyrets hele Legeme; thi paa alle de Tversnit, jeg tog fra de forskjellige Legemsdele, viste der sig altid imellem Ectodermet og det dertil stødende Bindevæv et smalt, finkornet Belte, som neppe kunde være noget andet end overskaarne Nervefibriller; derimod

[1] Die Actinien, anatomisch und histologisch mit besonderer Berücksichtigung des Nervenmuskelsystems untersucht von Oscar Hertwig und Richard Hertwig. Jenaische Zeitschrift für Naturwissenschaft. 13 B. Pag. 481. Jena 1879.

is embedded a belt of transversal muscles (Pl. XVI, fig. 2 *g*) clad with very long ciliating cylinder-cells (Pl. XVI, fig. 2 *h*) that extend far into the channel of the tentacles.

The nervous system has much in common with that which the Brothers Hertwig have shown to belong to Actinidæ [1]. It consists, if we may say so, of two layers, which are, however, closely united to each other. It is attended with great difficulty to present the nervous system in Cœlenterata that have been for some time preserved in alcohol, if we have not, from the first, prepared the subjects specially for such investigation, and in most cases it provés impossible. But in quite a young specimen of Halcampoides abyssorum I was fortunate enough, with the assistance of osmic acid and hæmatoxylin, to obtain a portion of the nervous system presented. In a transversal section of the oral disc, just at the base of the tentacles, or, perhaps, more correctly speaking, between them, there are observed, immediately underneath the ectoderm, several groups of larger and smaller ganglial cells, which correspond with each other and appear to form a reticulation of nerve-fibrils that send out branches in all directions. The large ganglia have an oval form, are furnished with a large, almost round, nucleus with nucleus-corpuscle, and are surrounded by a compact granular protoplasm (Pl. XVI, fig. 3 *a*); from the broad extremity of those ganglia two branches issue, which are filled with protoplasm, and which, while prolonging themselves to the sides, divide into several small branches, of which several distribute themselves, partly in the ectoderm and partly in the musculous layer (Pl. XVI, fig. 3 *b*). From the narrow extremity only one branch issues (Pl. XVI, fig. 3 *c*); this is thick, and a little way from its origin sends out several fine branches that partly unite reciprocally to each other, or partly correspond with similar branches from neighbouring ganglia, causing a nervous reticulation to be formed, which sends branches upwards to the tentacles and down along the body (Pl. XVI, fig. 3 *d*), whilst the thick solitary branch passes down the gullet-tube and appears to lose itself partly in it, and partly in the muscles of the septa. The smaller ganglia are scarcely half the size, but have about the same form as the large; they also form groups, which appear to partly alternate with the large ganglia with regard to locality, and are seated in such manner, that a group of large ganglia alternates with a group of small (Pl. XVI, fig. 3 *e*), or partly unites directly to the large ones (Pl. XVI, fig. 3 *a*), of which there appear to be 6 groups. These small ganglia have similar prolongations to the large ones, and are furnished with a large nucleus and its corpuscle, and are filled with protoplasmic granules (Pl. XVI, fig. 3 *f*); they contribute, in a special degree, to form the nervous reticula-

[1] Die Actinien, anatomisch und histologisch mit besonderer Berücksichtigung des Nervenmuskelsystems untersucht von Oscar Hertwig und Richard Hertwig. Jenaische Zeitschrift für Naturwissenschaft, 13 B. Pag. 481. Jena 1879.

fandt jeg ikke uden paa Mundskiven Ganglier. Paa Mundskiven er der antagelig 12 Gangliegrupper, 6 store og 6 smaa, som synes at være forbundne med hverandre med Udlobere, eller rettere med Nervefletninger, udgaaende fra den ene Gruppe til den anden, og fra disse Grupper have da hele den ovrige Nerveudbredning sit Udspring. Naar jeg har benyttet Ordet „antagelig“ eller „synes“, er det, fordi jeg paa Grund af manglende Material ikke vovede at udtrykke mig med storre Bestemthed.

tion before mentioned, which it is certain distributes itself over the entire body of the animal, as, in all the transversal sections I took from the different parts of the body, there always appeared, between the ectoderm and the connective-tissue uniting with it, a narrow, finely granulated belt, which could scarcely be anything else than transsected nerve-fibrils; on the other hand I found no ganglia except on the oral disc. On the oral disc there are, presumably, 12 ganglial groups, 6 large and 6 small ones, which appear to be connected with each other by prolongations, or, more correctly, by nervous pleats issuing from the one group to the other, and in those groups the whole of the remaining nervous distribution takes its origin. That I make use of the words „presumably“ and „appears“, is caused by the fact, that I dared not, in the absence of sufficient material, express myself more decisively.

Findested.

Station 164. Et Exemplar.
— 200. Et voxent og 3 smaa Exemplarer.

Habitat.

Station No. 164. One specimen.
— „ 200. One adult and three small specimens.

Slægtskarakter.

Legemet langstrakt, cylindrisk, endende tapformigt med en rund Caudalaabning og forsynet med en tynd, inkrusteret Skede. En Tentakelrække. 6 Par fuldstændige Septa, bærende Mesenterialfilamenter og Generationsorganer. Udprægede endodermale Cirkulærmuskler. Svælgroret delt efter Længden.

Generic characteristics.

The body elongate, cylindrical, terminating conically in a round caudal aperture, and furnished with a thin encrusted sheath. One tentacular series. Six pairs of perfect septa, carrying mesenterial filaments and reproductive organs. Distinct endodermal circular muscles. The gullet-tube divided longitudinally.

Artskarakter.

Legemet langstrakt, cylindrisk, 70^{mm} langt, 12^{mm} bredt; den forreste Del ender tapformigt med en rund Aabning. Storstedelen af Kolumnen omgiven af en tynd, inkrusteret Skede, kun dens overste Del er nogen og forsynet med 12 Længdefurer, imellem hvilke brede Længdefelter med spredte Sugevorter. Mundskiven hvælvet og har 12 Folder, straalende ud fra den aflange Mund mod Peripherien. 12 lange, retraktile Tentakler i en Række. Kroppens overste, nogne Del med Mundskive og Tentakler kan indtrækkes i Skeden. Farven: Skeden graagron. Kolumnen bleg rosenrod, i dens bagerste Ende spillende lidt i det Violette. Længdefurerne lidt morkere end Mellempartierne. Mundskiven har Kroppens Farve. Tentaklerne næsten morkerode, spillende i det Karmosinrode.

Specific characteristics.

The body elongate, cylindrical, measures 70^{mm} in length, and 12^{mm} in breadth in the anterior part, terminates conically with a round aperture. The greater part of the column surrounded by a thin encrusted sheath, only its uppermost part is bare and furnished with 12 longitudinal furrows, between which there are broad longitudinal areas with scattered suckers. The oral disc arcuated, has 12 folds radiating from the oblong mouth towards the periphery. Twelve long, retractile tentacles in one series. The superior, bare portion of the body with oral disc and tentacles may be retracted into the sheath. *The colour.* The sheath grey-greenish. The column pale rosy-red at the posterior extremity, with a violet play of colour. The longitudinal furrows a little darker than the intermediate areas. The oral disc has the same colour as the body. The tentacles are almost dark-red with a crimson red play of colour.

Jeg har fundet det nodvendigt at danne en ny Slægt for det ovenfor beskrevne Dyr, omendskjont det har adskilligt tilfælles med den af Gosse opstillede Slægt „Halcampa“,

I have found it necessary to form a new genus for the above-described animal, although it has several features in common with the genus „Halcampa“, established by

der karakteriseres saaledes: „Column long, slender, cylindrical, or swollen at the inferior extremity, which appears to be imperforate; no distinct margin. Surface without loopholes, but studded with minute suckers. Disk flat. Radii distinct. Tentacles of one kind, few (less than twenty), marginal or submarginal, cylindrical, obtuse, perfectly retractile. Mouth simple. No obvious gonidial development" [1]. Nogen anatomisk Undersogelse har Gosse ikke anstillet, saavidt det kan erfares; men han henforer Slægten til Familien Ilyanthidæ, hvilket ogsaa Richard Hertwig gjor, der paa det Exemplar, han beskriver under Navn af Halcampa clavus, [2] har foretaget baade anatomiske og histologiske Undersogelser. Han har paavist, at Halcampa horer til Hexactiniernes store Gruppe, idet den har 6 Par fuldstændige Septa og saaledes væsentlig adskiller sig fra Edwardsierne, der af tidligere Forfattere have været henforte til Familien Ilyanthidæ.

Men det tor vel være et Sporgsmaal, hvorvidt Hertwig's Halcampa virkelig kan henfores til Gosse's; thi allerede i det Ydre frembyder Halcampa clavus mærkelige Afvigelser fra den typiske Slægt; saaledes den Kreds af Huller, der findes paa den bagerste Del, samt Mangel paa et cuticulært Overtræk, og det kan hænde, at ved en anatomisk Undersogelse af Gosse's Slægt endnu flere og væsentligere Afvigelser ville kunne findes. Hertwig gjor opmærksom paa en Særegenhed, han fandt hos Halcampa clavus, den nemlig, at af de 12 Septa var 4 mindre end de 8, noget han mener har Betydning i morphologisk Henseende, da det tyder hen paa, at Halcampa nærmer sig stærkt Slægten Edwardsia og danner muligens et Led imellem denne og Hexactinierne. Denne Særegenhed ved Septa omtaler ogsaa Strethill Wright i sin Beskrivelse over en parasitær Halcampa, der lever paa Meduser og er kaldet Halcampa Fultoni [3]. Han kalder de 4 mindre Septa intermediære Septa; men her kan atter reises det Sporgsmaal, om Wright's Form virkelig er en Halcampa; thi den er unegtelig i flere Henseender forskjellig baade fra Gosse's og Hertwig's. Halcampa Fultoni mangler cuticulært Overtræk, har en tydelig Aabning i den bagerste Ende, er forsynet med Acontier (Thread-cells of the septal bands) og har endelig en ganske særegen Osophagus.

Det forekommer mig, at Halcampa Fultoni nærmer sig meget mere den af mig beskrevne Halcampoides abyssorum, og det tor hænde, at den ved nærmere Undersogelser bliver at henfore til denne ny opstillede Slægt. Som det fremgaar af min Beskrivelse, har Halcampoides abyssorum ikke Wright's intermediære Septa eller Hertwig's 4 mindre Septa; dens 6 Par Septa have samme Størrelse, og kun Retningssepta adskille sig fra de ovrige væsentlig ved Muskelanordningen. Halcampoides abyssorum har ligesom Halcampa Fultoni en tydelig Aabning i den bagerste

[1] The British Sea-Anemones and Corals. Ph. H. Gosse. London 1866, pag. 246.

[2] l. c. Pag. 92.

[3] Ann. & Magazine of Nat. History Vol. VIII, Third Ser. 1861, pag. 133. Halcampa Fultoni by Dr. Strethill Wright.

Gosse, which is thus characterized „Column long, slender, cylindrical, or swollen at the inferior extremity, which appears to be imperforate; no distinct margin. Surface without loopholes, but studded with minute suckers. Disk flat. Radii distinct. Tentacles of one kind, few (less than twenty), marginal or submarginal, cylindrical, obtuse, perfectly retractile. Mouth simple. No obvious gonidial development" [1]. Gosse does not appear to have made any anatomical investigation, but he relegates the genus to the family Ilyanthidæ, which Richard Hertwig also does, who, with the specimen he describes under the name of Halcampa clavus [2], has made both an anatomical and histological investigation. He has shown that Halcampa belongs to the large group of Hexactinidæ, as it has 6 pairs of perfect septa, and thus materially distinguishes itself from the Edwardsiæ, which have, by previous writers, been assigned to the family Ilyanthidæ.

But there may, perhaps, be a question whether Hertwig's Halcampa can really be assigned to Gosse's, as, already in its exterior, Halcampa clavus presents remarkable divergencies from the generic type; for instance, the group of loopholes that are observed on its posterior part, and the absence of cuticular covering; and, it may be, that upon anatomical investigation of Gosse's genus, still further and more material divergencies will be found. Hertwig draws attention to a peculiarity he found in Halcampa clavus, viz. that of the 12 septa four were smaller than the other eight, a feature that he thinks to be of importance in morphological respects, as it indicates that Halcampa approaches greatly to the genus Edwardsia, and possibly forms a link between it and Hexactinidæ. This peculiarity in the septa is also mentioned by Strethill Wright, in his description of a parasitic Halcampa that exists upon Medusæ, designated Halcampa Fultoni [3]. He calls the 4 small septa intermediary septa, but here, again, the question may be raised, whether Wright's form is really a Halcampa, as it differs, undeniably, in several respects, both from Gosse's and Hertwig's. Halcampa Fultoni has no cuticular covering, has a distinct aperture in the posterior extremity, is furnished with acontia (thread-cells of the septal bands), and, finally, has quite a peculiar œsophagus.

It appears to me that Halcampa Fultoni approaches somewhat nearer to Halcampoides abyssorum, described by me, and it may happen that, on closer investigation, it will have to be assigned to that newly established genus. As appears from my description, Halcampa abyssorum has not Wright's intermediary septa, nor Hertwig's 4 small septa: its 6 pairs of septa are uniform in size, and the directive septa alone distinguish themselves materially from the others, principally in their muscular arrangement. Halcampoides abyssorum has, like Halcampa Fultoni, a distinct

[1] The British Sea-Anemones and Corals. Ph. H. Gosse. London, 1866. Pag. 246.

[2] l. c. Pag. 92.

[3] Ann. & Magazine of Nat. History. Vol. VIII. Third Ser. 1861, pag. 133. Halcampa Fultoni by Dr. Strethill Wright.

Ende, og jeg er tilboielig til at antage, at Svælgroret hos den sidste er ligesom hos Halcampoides abyssorum i sit Indre delt i to Længdekanaler, eller med andre Ord, at det har differentieret sig i Osophagus og Rectum. Skulde dette vise sig at være Tilfældet, saa mener jeg, at Tilnærmelsen er saa stor, at de Betænkeligheder, som endnu maatte være tilstede ved at overføre Halcampa Fultoni til Slægten Halcampoides med Lethed maa kunne overvindes.

Dr. Angelo Andres [1] har i en Afhandling over Halcampa Claparedii, Panc. paa det klareste godtgjort, at denne Panceris Form ingen Halcampa er, men en Edwardsia, idet han konstaterer den af Allmann [2] gjorte Iagttagelse, at Edwardsia har 8 Septa og saaledes maa danne en egen Type, forskjellig fra Hexactinierne. Dr. Andres henfører Slægten Halcampa ikke til Familien Ilyanthidæ, Gosse; men danner en ny Underfamilie for den, nemlig Halcampidæ, under den store Gruppe Actininæ, og som forekommer mig at være ret vel begrundet, ligesom den passer bedre for min Slægt, hvorfor jeg for denne har optaget Andres Underfamilie „Halcampidæ".

Tribus II. Edwardsiæ, Hertwig.

Familie **Edwardsinæ**, Andres.

Subfamilie Edwardsiæ, Andres.

Slægt Edwardsioides, mihi.

Edwardsioides vitrea.

Tab. V, Fig. 3; Tab. XVI, Fig. 4—10.

Legemet er langtstrakt, cylindrisk, 45—50^{mm} langt, 8^{mm} bredt. Scapus er noget opsvulmet paa Midten og har et yderst tyndt, grønligt, membranost Slimovertræk, der danner en Slags Skede, Tab. V, Fig. 3 *a*; Tab. XVI, Fig. 4 *a*, men er forresten meget lost bundet til den underliggende Hud. Denne er forsynet med 8 fine Længdefurer, Tab. V, Fig. 3; Tab. XVI, Fig. 4 *b*, imellem hvilke sees noget ophoiede Længdefelter, paa hvilke iagttages en stor Mængde yderst smaa Sugevorter, der staa i temmelig regelmæssige Tværrækker, Tab. XVI, Fig. 4 *c*. Disse Sugevorter ere saa smaa, at de først ved stærk Loupe blive ret synbare; de kunne udstrække sig i mindst 1 Millimeters Længde, og naar de trækkes ind, sees de som et lidet, hvidt Punkt i Midten af en lidt aflang Fordybning, Tab.

[1] Mittheilungen aus der zoologischen Station, Neapel 1881, 2 B., pag. 123. Intorno all Edwardsia Claparedii, Mem. dell. dott. Angelo Andres.

[2] Allmann. On the structure of Edwardsia. Qvaterly Journal of microscopical Science, Vol. XII, N. Series, pag. 394. London 1872.

aperture in the posterior extremity, and I am disposed to assume that the gullet-tube in the last-named is, as in Halcampoides abyssorum, divided, in its interior, into longitudinal canals, or in other words, that it has differentiated into an œsophagus and a rectum. Should this prove to be the case, then I think that the approximation is so close, that the difficulties which still remain in assigning Halcampa Fultoni to the genus Halcampoides may easily be surmounted.

Dr. Angelo Andres has, in his Memoir [1] on Halcampa Claparedii, Panc, in the clearest manner proved, that that form of Panceris is no Halcampa, but an Edwardsia, as he confirms the observations made by Allmann [2], that Edwardsia has 8 septa and must thus form a separate type, differing from the Hexactinidæ. Dr. Andres does not assign the genus Halcampa to the family Ilyanthidæ, Gosse, but forms a new sub-family for it, viz. Halcampidæ, under the great group Actinidæ, and it appears to me that this is well warranted, whilst, at same time, it suits better for my genus, wherefore I have, for it, accepted Andres's sub-family „Halcampidæ".

Tribus II. Edwardsiæ, Hertwig.

Family **Edwardsinæ**, Andres.

Subfamily Edwardsiæ Andres.

Genus Edwardsioides, mihi.

Edwardsioides vitrea.

Pl. V, fig. 3; Pl. XVI, fig. 4—10.

The body elongate, cylindrical, 45—50^{mm} in length, and 8^{mm} in breadth. The scapus is somewhat swollen at the middle, and has an extremely thin, greenish, membranous mucous covering that forms a kind of sheath (Pl. V, fig. 3 *a*; Pl. XVI, fig. 4) but, otherwise, is very loosely connected to the subjacent integument. It is furnished with 8 fine longitudinal furrows (Pl. V, fig. 3; Pl. XVI, fig. 4 *b*), between which, somewhat elevated, longitudinal areas are observed, upon which a great multitude of extremely small suckers are situated in rather regular transversal series (Pl. XVI, fig. 4 *c*). These suckers are so small, that they first become visible on application of a powerful magnifying glass; they are capable of extending themselves at least 1 millimetre, and when they are retrac-

[1] Mittheilungen aus der zoologischen Station, Neapel 1881, 2 B., pag. 123. Intorno all Edwardsia Claparedii, Mem. dell. dott. Angelo Andres.

[2] Allmann. On the Structure of Edwardsia. Quarterly Journal of microscopical Science, Vol. XII, N. Series, pag. 394. London 1872.

XVI. Fig. 5 *a*. Det omtalte, membranose Overtræk er slimet, svagt inkrusteret med Ler og har opad en skarpt begrændset Rand. Tab. V. Fig 3 *b*; Tab. XVI. Fig. 4 *d*, imedens det nedad ikke har nogen saadan Begrændsning, men er forovrigt saa tyndt, at naar Dyret er fuldt udstrakt, forsvinder det næsten ganske for Øiet.

Physa er afrundet, blæreformigt opsvulmet og for Storstedelen blottet for Overtræk; men ogsaa den har 8 fine Furer, der svare til Længdefurerne paa Scapus og ligesom samle sig omkring en navleformet Fordybning, som ikke er perforeret, Tab. XVI. Fig. 4 *e*. Physa er vel kontraktil, forsaavidt den udvider og sammentrækker sig, men den kan ikke indtrækkes eller skjules af Skeden, og der findes paa dens Overflade imellem Furerne lignende Sugevorter som paa Scapus, men de ere her meget sparsomme.

Capitulum er cylindrisk, 8^{mm} langt, aldeles blottet for Overtræk, yderst gjennemsigtigt, glasklart og forsynet med 8 fine Længdefurer, Fortsættelse af de paa Scapus, og imellem hvilke findes ligesaa mange, lidt ophøiede Længdefelter, hvori sees spredte Sugevorter. Tab. V. Fig. 3; Tab. XVI, Fig. 4 *f*. Længdefurerne dele sig i to opimod Capitulums overste, afrundede Rand, der bærer Tentaklerne.

Mundskiven er hvælvet og har 8 fine Furer, imellem hvilke findes ophøiede Folder, der gaa fra Munden og straale ud mod Skedens Peripheri, hvor Furerne dele sig i to og korrespondere med de todelte Furer fra Capitulum, Tab. XVI. Fig. 4. Munden danner en Tverspalte og er lidt fremspringende. Tentaklerne ere omtrent 8^{mm} lange, temmelig spidse og staa ved Grunden tæt i hinanden. De danne en Række, 16 i Antal, og ere meget retraktile.

Farven. Scapus har et fint, grønligt, gjennemsigtigt Overtræk. Huden indenfor er næsten glasklar, spillende svagt i det Røde med blege, lyserøde Længdefurer. Naar Dyret er fuldt udstrakt, har Capitulum et svagt rosenrødt Skjær, hvilket ogsaa er Tilfældet med Physa. Mundskiven er rosenrød med 8 blege Furer. Tentaklerne ere smukt høirøde, Tab. V. Fig. 3.

Dyret ligger løs i det sandholdige Ler og ser udstrakt ormagtigt ud; men naar Tentaklerne ere indtrukne, og Legemet er udspændt af Vand, som Tilfældet var, da det kom op af Skraben, er det omtrent 24^{mm} langt og 12^{mm} bredt og saa fuldstændigt glasklart, at de røde Tentakler og Mesenterialfilamenterne kunde sees, og det lignede da overordentlig meget en Myriotrochus brevis, som jeg ved første Øiekast ogsaa antog det for.

Ved Tversnit viser det sig, at den inkrusterede Overhud er dannet af en seig, slimagtig Masse, hvori er indleiret fin Sand og Ler, uden at der kunde opdages nogen organiske

ted they appear as a small white point in the middle of a small oblong depression (Pl. XVI, fig. 5 *a*). The membranous covering mentioned is mucous, slightly encrusted with clay, and has at the top a sharply defined margin (Pl. V, fig 3 *b*; Pl. XVI, fig. 4 *d*), whilst in the inferior part it has no such margin, but, otherwise, is very thin, and when the animal is fully extended almost entirely disappears to the eye.

The physa is rounded, sac-formed, swollen, and for the greater part is without any covering; but it, also, has 8 fine furrows, which correspond to the longitudinal furrows on the scapus and, as it were, collect round an imperforate navel-shaped depression (Pl. XVI, fig. 4 *e*). The physa is indeed contractile, in as much that it expands and contracts itself, but it can not be retracted or be concealed by the sheath, and on its outer surface, between the furrows, similar suckers to those of the scapus are found, but are, here, much more rare.

The capitulum is cylindrical, 8^{mm} in length, perfectly devoid of covering, extremely transparent, clear as glass, and is furnished with 8 fine longitudinal furrows, continuations of the furrows of the scapus, between which occur the same number of slightly elevated longitudinal areas, in which scattered suckers are observed (Pl. V, fig. 3; Pl. XVI, fig. 4 *f*). The longitudinal furrows divide themselves into two up towards the capitulum's superior, rounded margin, which carries the tentacles.

The oral disc is arcuate and has 8 fine furrows, between which elevated folds are found, issuing from the mouth and radiating to the periphery of the disc, where the furrows divide into two and correspond with the two divided furrows of the capitulum (Pl. XVI, fig. 4). The mouth forms a transversal fissure and is slightly protuberant. The tentacles are about 8^{mm} in length, rather pointed, and are, at the base, situated close to each other. They form a series, 16 in number, and are very retractile.

The colour. The scapus has a fine, greenish, transparent covering. The integument inside is almost as clear as glass, with a faint play of reddish colour, and has pale light-red longitudinal furrows. When the animal is fully extended, the capitulum has a faint rosy-red tinge, which is also the case with the physa. The oral disc is rosy-red, and has 8 pale furrows. The tentacles are a beautiful bright-red colour (Pl. V, fig. 3).

The animal lies loose in the sandy clay and, when extended, appears vermiform; but when the tentacles are retracted and the body dilated with water, as was the case when the specimen came up in the dredge, it is about 24^{mm} in length and 12^{mm} in breadth, and so perfectly transparent, like glass, that the red tentacles and the mesenterial filaments may be observed; it then appeared extremely like a Myriotrochus brevis, which I, also, at the first glance assumed it to be.

In transversal sections it is seen, that the encrusted outer covering is formed of a viscid, mucous mass, in which fine sand and clay are embedded, but without any

Elementer i samme; heller ikke var det muligt at finde nogen organisk Forbindelse imellem dette Overtræk og den indenfor liggende Hud, hvortil det syntes at være fæstet dels ved sin Klæbrighed og dels ved de paa Kroppens Overflade værende Sugevorter. Men at dette Overtræk bestaar af en sammenhængende Slimmembran, sees bedst derved, at saasnart Dyret var kommet i Alkohol, stodtes denne Overhud af overalt, og ved da at undersoge den, viste den sig som en grøn, tynd, gjennemsigtig Membran, hvori var leiret de omtalte fremmede Legemer, samt en Mængde Nematocyster og en Del Cylinderceller, der vare losrevne fra Ectodermet og fulgte med det membranose Overtræk, Tab. XVI, Fig. 10. Nematocysterne slynge sine Spiraltraade aabenbart ud igjennem den tynde Membran, som desuden paa enkelte Steder synes at have runde Aabninger, hvorigjennem Sugevorterne kunne strække sig ud.

Hudens ydre Flade er dækket af et Ectoderm, bestaaende af Cylinderceller med deres Kjerne og Kjernelegeme og forsynede med Cilier. Saavidt jeg kunde iagttage, var dette Tilfældet overalt, baade der hvor Overtrækket fandtes, og hvor Huden var uden saadant, Tab. XVI, Fig. 6 *a*. Imellem Cylindercellerne findes encellede Slimkjertler, som dog ikke synes at være i nogen særdeles stor Mængde tilstede, især gjælder dette Capitulum og Physa, samt Nematocyster, der optræde i stor Mængde paa Tentaklerne.

Indenfor Ectodermet er et temmelig bredt, fibrillært Bindevævslag, som er rigt paa Bindevævslegemer, dels med enkelte, dels med flere Udlobere, samt fine Ernæringskanaler, med hvilke de nys nævnte Udlobere korrespondere, Tab. XVI, Fig. 6 *b*. Disse fine Saftkanaler ere altid forsynede med et Epithel, hvis aflange Celler saagodtsom ganske udfylde Lumenet. Henimod den indre Flade af Bindevævslaget iagttages et bredt Belte af Cirkulærmuskler, Tab. XVI, Fig. 6 *c*, der danne temmelig stærke Bundter, som paa enkelte Steder synes at rage ind paa den indre Flade, der er beklædt med Endothelet. Dette bestaar af temmelig lange Cylinderceller, forsynede med Kjerne, Kjernelegeme og Cilier, samt et Endothel, som bekleder hele Gastrovascularhulheden og de i denne liggende Organer.

Fra den indre Væg af det omtalte Bindevæv udspringe 8 Septa, der i Bunden af Gastralhulheden ere temmelig smale, men blive jo længere de komme op paa Kroppen bredere og bredere, indtil de fæste sig paa Svælgroret. Disse 8 Septa staa saa langt fra hverandre, at de nok kunne betragtes som isolerede og ikke parrede. Imidlertid ere de 4 af dem stillede saaledes, at de muligens kunne ansees for 2 Par, som baade ifolge deres Stilling og Muskelanordning maa blive Retningssepta, Tab. XVI, Fig. 7 *a*. De ere fæstede til den Del af Svælgroret, der svarer til Mundvigene, og de to Svælggruber, som jeg har Grund til at antage ere tilstede. Da jeg ikke havde mere end 1 Exemplar til Undersogelse, har jeg, for ikke ganske at odelægge dette, gjort Tversnit kun igjennem den halve Del

organic elements being seen in these; neither was it possible to detect any organic connection between this covering and the integument situated within, to which it appeared to be attached, partly by its stickiness, and partly by means of the suckers on the outer surface of the body. But that this covering consists of a continuous mucous membrane is best observed from this fact, that as soon as the animal was placed in alcohol the covering was everywhere thrown off, and, upon examination then, appeared to be a green, thin, transparent membrane, in which the foreign bodies mentioned were embedded, also a multitude of nematocysts and some cylinder-cells which were torn away from the ectoderm and accompanied the membranous covering (Pl. XVI, fig. 10). The nematocysts evidently twine their spiral threads out through the thin membrane, which appears in a few places, also, to have round apertures through which the suckers may stretch themselves out.

The outer surface of the integument is covered by an ectoderm, consisting of cylinder-cells with their nucleus and nucleus-corpuscle and furnished with ciliæ. So far as I could observe this was everywhere the case, both where the covering was present and also where it was absent (Pl. XVI, fig. 6 *a*). Between the cylinder-cells unicellular mucous glands were found, which did not, however, appear to be present in any particularly great abundance, especially on the capitulum and physa, also nematocysts, which appear in great abundance on the tentacles.

Inside of the ectoderm there is a rather broad, fibrillous layer of connective-tissue, partly with a few, partly with many prolongations, also fine nutritory ducts with which the prolongations just mentioned correspond (Pl. XVI, fig. 6 *b*). These fine nutritory ducts are always supplied with an epithelium whose oblong cells almost quite fill the channel. Towards the inner surface of the layer of connective-tisse, a broad belt of circular muscles is observed (Pl. XVI, fig. 6 *c*), which form pretty strong bundles that in some places appear to reach inwards to the inner surface, which is clad with the endothelium. This consists of rather long cylinder-cells, furnished with nucleus, nucleus-corpuscle and ciliæ, also an endothelium that clothes the entire gastro-vascular cavity and the organs situated in it

From the inner wall of the connective-tissue spoken of, 8 septa issue, which, in the bottom of the gastral cavity, are rather narrow, but become broader and broader the farther up the body they extend, until they attach themselves to the gullet-tube. These 8 septa stand so far apart, that they may almost be regarded as isolated and not in pairs However, 4 of them are placed in such a manner, that they may possibly be regarded as 2 pairs, which, both from their position and muscular arrangement, must be directive septa (Pl. XVI, fig. 7 *a*). They are secured to the part of the gullet-tube that corresponds to the oral angles and the two gullet-grooves which I have reason to believe are present. As I had not more than a single specimen for my investigations, I have, in order

af Kroppen, og paa denne kan iagttages en Svælggrube, Tab. XVI, Fig. 7 *b*, saa det er meget sandsynligt, at den anden findes paa den ikke gjennemskaarne Del.

De to Par Retningssepta ere meget stærkere udviklede, end de øvrige. De longitudinelle Muskler ere fæstede paa den ydre Flade, vende fra hinanden i det interseptale Rum og ere meget brede, især henimod Svælgroret, Tab. XVI, Fig. 7 *c*, men de indtage dog ikke ganske hele Septumets Flade; thi henimod dennes indre Rand er der et Længdebelte, som er frit for Muskler, og hvori Mesenterialfilamenterne og Generationsorganerne ligge. Længdemusklerne ere egentlig fæstede paa en Mængde listeformige Bindevævsudløbere, hvorfor de ogsaa i Tversnit vise sig som smukke Buske, Tab. XVI, Fig. 7 *c*. De transverselle Muskler synes at være lidet udviklede; de ligge som en tynd, fint foldet Membran paa Septumets indre Flade, der vender mod det intraseptale Rum, Tab. XVI, Fig. 7 *d*. De øvrige 4, mere isolerede Septa, der altsaa ikke blive at betragte som parrede, fæste sig paa Svælgrorets Sider; deres Længdemuskler ere fæstede paa den indre Flade og vende mod det intraseptale Rum, netop modsat de paa Retningssepta og ere forøvrigt lidet forskjellige fra dem, imedens Tværmusklerne findes paa den ydre Flade og vende mod det interseptale Rum. Samtlige Septa bære Mesenterialfilamenter og Generationsorganer.

Mesenterialfilamenterne strække sig fra den nederste Ende af Svælgroret og lige ned til Bunden af Gastralhulheden langs Septums fri Rand i proptrækkerformede Slyngninger, beklædte af Cylinderepithel med lange Cilier. Imellem Mesenterialfilamenterne og Længdemusklerne, Tab. XVI, Fig. 8 *a*, i det fri Længdefelt, ligge Kjønsorganerne, Tab. XVI, Fig. 8 *b*, *c*.

Testiklerne ere fæstede øverst, lige ved Svælgroret, og strække sig 12—15^{mm} nedover (bagover), og have under stærk Loupeforstørrelse et tverstribet, fint punkteret, mørkt Udseende, Tab. XVI, Fig. 7 *e*, 8 *b*. Ved stærk Forstørrelse (Zeisse: Apochrom. — Obj. 4,0^{mm}, Comp. Ocul. XII) sees disse mørke Striber at bestaa af lange Rør, hvis Membran er yderst tynd, og hvis indre Flade er beklædt med et Epithel, bestaaende af runde Celler med en rund Kjerne og Kjernelegeme, Tab. XVI, Fig. 9 *a*. I en stor Del af disse Celler sees en, sjelden to Spermatozoer, der have et næsten cirkelrundt, temmelig mørkt Hoved og en Hale, som er 4—5 Gange saa lang som Hovedet er bredt, Tab. XVI, Fig. 9 *b*. Men desforuden iagttages tætte Grupper af Spermatozoer, der have forladt Cellerne, ligge ganske fri og flyde tildels enkeltvis omkring i Synsfeltet, Tab. XVI, Fig. 9 *c*. Mange af Cellerne ere overmaade klare, saa den indeni liggende Spermatozo er let at se; men andre Celler ere meget mørkere, have et rigere Protoplasmaindhold, og disse synes ikke at indeholde nogen

not to entirely destroy it, only made the transversal section through the half part of the body, and in this a gullet-groove may be observed (Pl. XVI, fig. 7 *b*); it is very probable, therefore, that the other groove is found on the portion not transsected.

The two pairs of directive septa are somewhat more strongly developed than the others. The longitudinal muscles are attached to the outer surface, and face from each other in the interseptal space; they are very broad, especially towards the gullet-tube (Pl. XVI, fig. 7 *c*), but do not quite occupy the entire surface of the septum, as, towards its inner margin, there is a longitudinal belt devoid of muscles, and in which mesenterial filaments and reproductive organs are situated. The longitudinal muscles are really secured to a multitude of fillet-formed connective-tissue prolongations, for which reason they, in transversal sections, appear as beautiful tufts (Pl. XVI, fig. 7 *c*). The transversal muscles appear to be little developed; they lie as a thin, finely folded membrane on the inner surface of the septum, which faces towards the intraseptal space (Pl. XVI, fig. 7 *d*). The remaining 4, more isolated septa, which consequently are not to be regarded as pairs, secure themselves to the sides of the gullet-tube; their longitudinal muscles are secured to the inner surface and face towards the intraseptal space, exactly the reverse of those on the directive septa, and are otherwise little divergent from them, whilst the transversal muscles are found on the outer surface and face towards the interseptal space. All the septa carry mesenterial filaments and reproductive organs.

The mesenterial filaments extend from the lowest extremity of the gullet-tube, and right down to the bottom of the gastral cavity along the free margin of the septum, in cork-screw formed spirals, clad with cylinder-epithelium having long ciliæ. Between the mesenterial filaments and the longitudinal muscles (Pl. XVI, fig. 8 *a*), in the free longitudinal area, lie the reproductive organs (Pl. XVI, fig. 8 *b*, *c*).

The testicles are attached at the top, exactly at the gullet-tube, and stretch themselves 12—15^{mm} downwards (posteriorly) and have, under a powerful magnifying glass, a transversally striped, finely dotted, dark appearance (Pl. XVI, figs. 7 *e*, 8 *b*). On powerful magnification (Zeisse: Apochrom. — Obj. 4,0^{mm} Comp. Ocul. XII) those dark stripes are seen to consist of long tubes, whose membrane is extremely thin, and whose inner surface is clad with an epithelium consisting of round cells with a round nucleus and nucleus-corpuscle (Pl. XVI, fig. 9 *a*). In a great many of those cells there is seen one, rarely two, spermatozoa, with an almost circular-round, pretty dark head, and a tail which is 4—5 times as long as the head is broad (Pl. XVI, fig. 9 *b*). But, besides these, compact groups of spermatozoa, which have abandoned the cells, lie quite free and float around, partly isolated, in the area of vision (Pl. XVI, fig. 9 *c*). Many of the cells are extremely transparent, so that the spermatozoa lying within are easily observed, but other cells, again, are much

Spermatozo, idetmindste var den ikke til at opdage. Endelig findes der ikke saa faa Celler, hvori kun Spermatozoens Hoved er at iagttage, og dette er endog meget mindre end paa de fuldt udviklede Spermatozoer og synes at været udgaaet fra Cellekjernen, der da har afsnoret sig, hvilket sidste dog kun er en Formodning.

Nedenfor Testiklerne sees i det for omtalte, fri Længdebelte Æggestokkene, der i Bygning ikke ere væsentlig forskjellige fra Actinidernes i Almindelighed: de danne lange, baandformige, noget sammenrullede Ror, hvori Æggene ligge i forskjellige Udviklingsstadier, i Regelen to og to sammen, Tab. XVI, Fig. 8 *c*, og i enkelte Æg er Furingen allerede gjennemgaaet og Embryonaldannelsen begyndt.

Svælgroret er cylindrisk, temmelig foldet paalangs og sandsynligvis forsynet med to Svælggruber. Som tidligere antydet er der kun foretaget Tversnit igjennem den halve Krop med Svælgror, og paa dette Tversnit sees en tydelig udpræget Svælggrube, tapetseret med lange Cylinderceller, der bære lange Pidske-Cilier (Geissel)* Tab. XVI, Fig. 7 *b*, imedens Siderne af Svælgroret have kortere Cylinderceller med finere Cilier. Den udvendige Flade af Svælgroret er som sædvanligt beklædt med Endothel, lig det, der beklæder hele Gastralhulheden. Imellem Endothelcellerne, der beklæde Septa, Mesenterialfilamenterne og Generationsorganerne findes spredte Nematocyster, ligesom der paa Svælgrorets indre Side, imellem Epithelcellerne, findes encellede Slimkjertler.

Saavel i Svælgroret som i Gastralhulheden fandtes en hel Del Foraminiferer, ligesom der besynderligt nok fandtes en Bladknop af en Sphagnum, der var berøvet alt Protoplasma, saa at kun det smukt netformige, farvelose Væv, der danner Cellevæggene, var tilbage. Denne Moseknop maa vel være sunket ned paa dette store Dyb (2742 Fod) fra en eller anden Strandbred, og er da omsider tornet ind i Dyrets Ernæringskreds, hvor den sammen med Foraminifererne er slugt ned i Fordoielsestrakten. Her er den sandsynligvis under Fordoielsesprocessen bleven berøvet Protoplasmaet, der er gaaet over i Ernæringsvædsken, imedens det ufordoielige Cellulosevæv er blevet tilbage. Det er høist rimeligt, at Bladknoppen er kommen ned i Gastrovascularhulheden i temmelig frisk og uskadt Tilstand: thi naar undtages, at et Blad var veget noget ud fra de øvrige, befandtes den med Hensyn til Formen i uforandret Tilstand.

Findested.

Station 164. Et Exemplar.

Slægtskarakter.

Legemet cylindrisk, ormformigt, forsynet med 8 Længdefurer og Mellemrummene tæt besatte med Sugevorter.

darker, have a richer protoplasmic contents, and these do not appear to contain any spermatozoa, at all events none could be detected. Finally, not a few cells are found in which only the head of the spermatozoon can be observed, and this is even much less than in the fully developed spermatozoa, and appears to have proceeded from the cellular nucleus, which has thus constricted itself, but that is only a supposition.

Below the testicles the ovaries are seen situated in the longitudinal belt previously mentioned, and in structure they are not essentially different from that of Actinidæ in general; they form long, ribbon-shaped, somewhat coiled tubes, in which the ova lie in various stages of development, generally two and two together (Pl. XVI, fig 8 *c*); in a few ova the segmentation had already taken place and the embryonal formation begun.

The gullet-tube is cylindrical, somewhat folded longitudinally, and is probably furnished with two gullet-grooves. As previously stated, transversal section has only been made through one half of the body and the gullet-tube, and in this section a distinctly marked gullet-groove is observed, coated with long cylinder-cells carrying long flagellate ciliæ (Geissel) (Pl. XVI, fig. 7 *b*), whilst the sides of the gullet-tube have shorter cyllinder-cells with finer ciliæ. The exterior surface of the gullet-tube is, as usual, clad with endothelium similar to that which clothes the entire gastral cavity. Between the endothelial cells that clothe the septa, the mesenterial filaments and the reproductive organs, scattered nematocysts are found, whilst, also, upon the inner side of the gullet-tube, between the epithelial cells, unicellular mucous glands are found.

In the gullet-tube also, as well as in the gastral cavity, a large number of foraminifera were found, whilst also, strangely enough, there was found a leaf-bud of a sphagnum, deprived of all protoplasm, so that only the beautiful, reticulated, colourless tissue that forms the walls of the cells was left. That moss-bud must certainly have sunk to this great depth (457 fath.), and have proceeded from some shore or other, and then been drawn within the region of the animal's feeding ground, where, together with the foraminifera, it has been drawn into the digestive funnel. Here, it has probably during the process of digestion been deprived of its protoplasm, which has passed into the nutritory fluid, whilst the indigestible cellular tissue has been left. It is extremely probable that the leaf-bud has arrived in the gastro-vascular cavity in a pretty fresh and undamaged condition, because, with the exception that a leaf had separated a little from the rest, it was found to be unchanged in form.

Habitat.

Station No. 164. One specimen.

Generic characteristics.

The body cylindrical, vermiform, furnished with 8 longitudinal furrows and the intervals closely occupied by

Scapus har et tyndt, gjennemsigtigt Overtræk. Capitulum nogen med en Række marginale, retraktile Tentakler. Physa liden og ikke retraktil. 8 Septa. Cirkulærmusklerne endodermale. Hermaphrodit.

Artskarakter.

Legemet 40—50^{mm} langt, 8^{mm} bredt, cylindrisk. Scapus lidt opsvulmet paa Midten, forsynet med et tyndt, gjennemsigtigt, membranost Overtræk, samt 8 Længdefurer, imellem hvilke 8 Længdefelter, tæt besatte med Sugevorter, der næsten danne Tværrækker. Physa afrundet, blæreformigt opsvulmet, for Storstedelen nogen og ikke retraktil. Capitulum retraktilt, cylindrisk, 8^{mm} langt, nogent, glasklart med lignende Furer og Sugevorter som paa Scapus. Mundskiven hvælvet med 8 fine Furer, imellem hvilke 8 ophoiede Folder, straalende ud fra den aflange Mund mod Peripherien, hvor Furerne dele sig i to. Tentaklerne 16 i en Række, marginale, meget retraktile, omtrent 8^{mm} lange. Farven: Scapus har et fint, grønt, gjennemsigtigt Overtræk. Huden indenfor næsten glasklar, spillende svagt i det Røde med blege, lyserøde Længdefurer. Naar Dyret er fuldt udstrakt, har Capitulum og Physa et svagt rosenrødt Skjær. Mundskiven rosenrød med 8 blege Furer. Tentaklerne smukt rosenrøde.

Ved den første Undersøgelse af det ovenbeskrevne Dyr – det vil sige, da jeg paa Expeditionen havde faaet det op af Skraben og ned i Observationskarret, og det der havde udfoldet sig, antog jeg det for en Halcampa, som det jo i sit Ydre lignede meget. Men ved nøiere Granskning, og især ved den anatomiske Undersøgelse, maatte jeg opgive dette: thi det viste sig da, at Dyret ei alene ikke kunde henføres til den nævnte Slægt, men at det endog maatte ud af Ilyanthidernes Familie. De 8 Septa maa nødvendigvis her gjøre Udslaget, og jeg har derfor nu indlemmet det i Familien Edwardsinæ, Andres, som kun har to Slægter, Edwardsia, Qvatref. og Edwardsiella, Andres. Men hvormeget det end nærmer sig den første, kan jeg dog ikke henføre det dertil; thi baade det tynde, gjennemsigtige Overtræk og Sugevorterne, i Forening med den Omstændighed, at Physa er forholdsvis lidet blottet og ikke kontraktil, forekommer mig at være Karakterer, der ei tilhører Slægten Edwardsia, men meget mere er fælles for Slægten Halcampa, hvortil den dog af tidligere anførte Grunde ikke kunde henføres. Jeg har derfor dannet en ny Slægt, nemlig Edvardsioides, der forekommer mig at kunne danne et Led mellem Slægterne Halcampa og Edwardsia.

suckers. The scapus has a thin transparent covering. The capitulum bare, with a series of marginal retractile tentacles. The physa small and non-retractile. 8 septa. The circular muscles endodermal. Hermaphrodite.

Specific characteristics.

The body 40—50^{mm} in length, 8^{mm} in breadth, cylindrical. The scapus somewhat swollen at the middle, furnished with a thin, transparent, membranous covering, also 8 longitudinal furrows, between which 8 longitudinal areas closely occupied by suckers, which form nearly transverse series. The physa rounded, swollen in sac-form, for the greater part exposed and non-retractile. The capitulum retractile, cylindrical, 8^{mm} in length, bare, clear as glass, with furrows and suckers like those on the scapus. The oral disc arcuate, with 8 fine furrows, between which 8 elevated folds, radiating from the oblong mouth towards the periphery, where the furrows divide into two. The tentacles 16 in number, situated in a single series, marginal, very retractile, about 8^{mm} in length. *The colour.* The scapus has a fine, green, transparent covering. The internal integument clear as glass, with a faint play of red colour, and with pale light-red longitudinal grooves. When the animal is fully extended the capitulum and physa have a faint rosy-red lustre. The oral disc rosy-red with 8 pale grooves. The tentacles beautiful rosy-red.

Upon the preliminary examination of the above-described animal; that is as soon as I had, when on the North Atlantic Expedition, obtained it from the dredge and deposited it in the glass vessel for observation, and it had there unfolded itself; I took it to be a Halcampa, which it, indeed, in external appearance much resembled. But upon closer examination, and especially upon anatomical investigation, I found myself forced to abandon that view, as it then appeared, that not only was it impossible to assign the animal to that genus, but that it, also, could not belong to the family of the Ilyanthidæ. The 8 septa must necessarily determine the point here, and I have therefore included it in the family of the Edwardsinæ, Andres, which has only two genera, Edwardsia Qvartref. and Edwardsiella, Andres. But however much it approaches to the first-named, I can yet not assign it to it, as both the thin transparent covering and the suckers, in combination with the circumstance that the physa is relatively little exposed and non-retractile, appear to me to be charactistics that do not pertain to the genus Edwardsia, but are much more common to the genus Halcampa, to which, however, for reasons previously stated, it could not be relegated. I have, therefore, formed a new genus viz. Edwardsoides, which appears, to me, to serve as a link between the genera Halcampa and Edwardsia.

Edwardsia Andresi.[1] n. sp.

Tab. V, Fig. 5; Tab. XX.

Legemet er i udstrakt Tilstand med Tentaklerne 90^{mm} langt.

Scapus er cylindrisk, 50^{mm} lang, 8—10^{mm} bred paa den midterste Del og forsynet med 8 Længderibber. Det har et tyndt men fast membranost Overtræk, som danner en tæt sluttende Skede, Tab. V, Fig. 5; Tab. XX, Fig. 1, hvori Dyrets begge Ender kunne indtrækkes. Paa Ribberne, der ikke ere synderlig fremspringende, naar Dyret er helt udstrakt og i fuld Vigor, sees en Række koniske Papiller, som især blive tydelige under Kontraktionerne, hvorved de ligesom fremskydes. De staa dels enkeltvis efter hverandre, dels sees to ved Siden af hinanden, og da blive Længderækkerne paa de Steder noget undulerende, Tab. XX, Fig. 1 *a*. Hvorvidt disse Papiller kunne indtrages, kan jeg ikke afgjore, da jeg ei har iagttaget en saadan Bevægelse; men at de under Kroppens Kontraktioner skydes stærkt frem, er sikkert; de blive da mere koniske, og paa deres Spids sees ved Hjælp af Loupen en yderst fin Aabning.

Physa danner en ægformig, aldeles vandklar Blære, med 8 lidet fremtrædende Linier, der ere Fortsættelser af Ribberne paa Scapus, og paa hvilke lignende Papiller sees, men som staa meget mere spredte end paa Scapus, Tab. XX, Fig. 1 *b*. Den er udstrakt 10^{mm} lang, 8^{mm} bred, og kan fuldstændig inddrages i Scapus.

Capitulum er 14^{mm} langt, 6^{mm} bredt, lidt smalere op imod Mundskiven. Det er cylindrisk, fuldkommen vandklart og saa gjennemsigtigt, at Svælgroret godt kan sees. Det har ligesom Physa 8 fine Længdelinier, der opad ere Fortsættelser af Ribberne paa Scapus, og som ligeledes ere forsynede med spredte Papiller, Tab. XX, Fig. 1 *c*. Disse Linier, som strække sig opad til Mundskiven, dele sig der og omfatte Tentaklernes Grund. Mundskiven noget hvælvet, og paa dens Midte iagttages en lidt aflang Mundaabning, som under Kontraktionerne bliver rund og danner da paa Grund af de foldede Læber en Roset. Tentaklerne, hvoraf der er 12, staa i en Række, ere retraktile, 16—20^{mm} lange, tynde, meget tilspidsede, yderst let bevægelige og trække sig meget hurtigt ind ved den letteste Berørelse. Ved en pludselig Overraskelse boies Tentaklerne hurtigt ned i Svælgroret, som da med Capitulum inddrages i Scapus.

Farven: Scapus er gron med enkelte brungule Partier. Det er egentlig det skedeformige Overtræk, som har denne Farve; thi den egentlige Cutis er aldeles farvelos. Capitulum er vandklart, fuldstændigt gjennemsigtigt, saa at

[1] Dr. Angelo Andres.

Edwardsia Andresi.[1] n. sp.

Pl. V, fig. 5; Pl. XX.

When in extended condition the body, including the tentacles, measures 90^{mm} in length.

The scapus is cylindrical, 50^{mm} in length, 8—10^{mm} in breadth at the medial portion, and is furnished with 8 longitudinal ribs. It has a thin, but firm, membranous covering, which forms a closely-fitting sheath (Pl. V, fig. 5; Pl. XX, fig. 1) into which both the extremities of the animal may be withdrawn. Upon the ribs, which are not particularly prominent when the animal is fully extended and in full vigour, a series of conical papillæ is visible, which become especially distinct during the contractions, which, cause them, as it were, to be projected. They are placed, partly singly, one after the other, partly two alongside each other, and in that case the longitudinal series become somewhat undulating (Pl. XX, fig. 1 *a*). Whether these papillæ are capable of retraction or not I have been unable to determine, as I have not observed such a movement, but it is certainly the case that during the contractions of the body they are strongly projected; they become, then, more conical, and at their point an extremely minute aperture may be seen with the aid of a magnifying glass.

The physa forms an ovate, almost translucent vesicle with 8 little-prominent lines, which are prolongations of the ribs of the scapus, and upon which similar papillæ as on it are visible, but here they are placed much more spread than on the scapus (Pl. XX, fig. 1 *b*). When extended it measures 10^{mm} in length and 8^{mm} in breadth, and it may be completely withdrawn into the scapus.

The capitulum measures 14^{mm} in length and 6^{mm} in breadth, but is a little narrower up towards the oral disc. It is cylindrical, perfectly translucent, and so transparent that the gullet-tube may easily be seen. It has, like the physa, 8 fine longitudinal lines that, at the top, are prolongations of the ribs of the scapus, and which are also furnished with scattered papillæ (Pl. XX, fig. 1 *c*). These lines, which extend themselves upward to the oral disc, divide here and enclose the base of the tentacles. The oral disc is somewhat arcuate, and in its middle is observed a slightly oblong oral aperture, which during the contractions becomes round, and forms then, owing to the folded labiæ, a rosette. The tentacles, of which there are 12, are placed in one series; they are retractile, 16—20^{mm} in length, thin, very acuminate, and extremely mobile; and they withdraw themselves with great rapidity at the slightest touch. On a sudden surprise the tentacles are bent quickly down into the œsophagus, which, with the capitulum, is then withdrawn into the scapus.

The colour. The scapus is green with a few brownish yellow patches. Properly speaking it is the vaginate covering that has this colour, as the cutis-proper is perfectly colourless. The capitulum is pellucid, and perfectly

[1] Dr. Angelo Andres.

det brune Svælgrør skinner igjennem. Mundskiven er brun, noget lysere end Oesophagus. Tentaklerne ere ligeledes vandklare, men have paa Enderne en svag violet Farve, der som en fin Linie strækker sig noget nedover den adorale Side, ligesom de ved Grunden have en brun Ring. Hele Capitulum med Tentaklerne er forresten ganske uden Farve og antager mod Lyset et blaaligt Skjær. Ved den øverste Rand af Capitulum er en Kreds af temmelig intens brune Punkter, som sidde to og to sammen paa en melkehvid Bund, hvorved det faar Udseende af to Ringe, — en brun og en hvid, nedenfor den brune.

Det skedeformige Overtræk paa Scapus er ikke organisk forbundet med Dyrets Hud, men er klæbet fast til denne ved en meget seig Slim, hvori der inkrusteres en Mængde fremmede Legemer, alt efter Bundens Beskaffenhed. Tab. XX, Fig. 3. 5 *a*. Men denne Slim kan fortættes til en fast Membran, saaledes som Tilfældet er hos flere Phellia-arter.

Ved Tværsnit af Kroppens Hud viser sig den histologiske Bygning, paa faa Undtagelser nær, at være ens overalt. Ectodermet bestaar af temmelig høie Cylinderceller, der paa Capitulum og Physa ere forsynede med Cilier, imedens de paa Scapus synes at være uden saadanne. Tab. XX, Fig. 3 *b*, 5 *b*. Imellem disse Ectodermceller sees ægformede, encellede Slimkjertler, dels tyldte med en kornet Masse, der ganske skjuler Kjernen, dels tomme.

Indenfor Ectodermet er et bredt Lag fibrillært Bindevæv, hvori iagttages Bindevævslegemer med Udløbere, samt fine Ernæringskanaler med Epithel, Tab. XX, Fig. 3 *c*, 5 *c*, og henimod den indre Flade af dette Bindevæv er et smalt Belte af cirkulære Muskler, Tab. XX, Fig. 3 *d*. Paa selve den indre Flade er et Muskellag fæstet, bestaaende af Tver- og Længdemuskler. Tværmusklerne ere temmelig udviklede, samlede i Bundter, Tab. XX, Fig. 4 *a*, som afskjæres af de 8 stærkt fremtrædende Længdemuskler, Tab. XX, Fig. 4 *b*. Dette Muskellag er beklædt med et Endothel, dannet af høie Cylinderceller, forsynede med Cilier, Tab. XX, Fig. 3 *e*, 5 *e*. Paa Physa og Capitulum er Bindevævslaget noget smalere end paa Scapus.

Men foruden de her nævnte Elementer findes der indleiret i Huden de tidligere omtalte Papiller. De have en ganske særegen Organisation; i selve Bindevævet danne de en fast Kapsel, der er ægformig, afsluttet indad, men forlænge sig udad, hvor de udmunder paa Kroppens Overflade, Tab. XX, Fig. 3 *f*, 5 *f*. Fra Kapselens indre Væg udgaa Bindevævsforlængelser i alle Retninger, og i disse sees stærkt udviklede, stjerneformige Bindevævslegemer med Kjerne og Kjernelegeme. Fra disse Bindevævslegemer udsendes fine Udløbere, der anastomosere med Udløbere fra tilgrændsende Bindevævslegemer, hvorved der dannes et

transparent, so that the brown gullet-tube becomes visible through. The oral disc is brown, somewhat lighter in colour than the œsophagus. The tentacles are also pellucid, but have at the extremities a faint violet colour, which, like a fine line, extends a short way down the adoral side, whilst, also, they have a brown annulus at the base. The entire capitulum and tentacles are, otherwise, quite colourless, and acquire when turned to the light a bluish tinge. At the uppermost margin of the capitulum there is a ring of rather intense-brown dots, placed two and two together on a milk-white ground, imparting the appearance of a double ring — a brown one, and a white one below the brown one.

The vaginate covering of the scapus is not organically united with the integument of the animal; it is firmly glued to it by a very viscid mucous, in which there are a multitude of foreign bodies, according to the nature of the sea-bottom, encrusted (Pl. XX, fig. 3, 5 *a*). But this mucous is capable of being condensed into a firm membrane, in the same manner as happens in several of the Phellia species.

A section of the integument of the body shows, that the histological structure, with only slight exceptions, is everywhere the same. The ectoderm consists of rather high cylinder-cells which, on the capitulum and physa, are furnished with ciliæ, whilst on the scapus they appear to have none (Pl. XX, fig. 3 *b*, 5 *b*). Between those ectoderm cells, oviform unicellular mucous glands are observed, partly filled with a granular substance that quite conceals the nucleus, or partly empty.

On the inside of the ectoderm there is a broad layer of fibrillous connective-tissue, in which connective-tissue corpuscles with prolongations are observed, also slender nutritory ducts with epithelium (Pl. XX, fig. 3 *c*, 5 *c*), and towards the inner surface of this connective-tissue there is a narrow belt of circular muscles (Pl. XX, fig. 3 *d*). On the inner surface, itself, there is a musculous layer adherent, consisting of transversal and longitudinal muscles. The transversal muscles are pretty well developed, and are collected into bundles (Pl. XX, fig. 4 *a*) which are cut across by the 8 strongly-prominent longitudinal muscles (Pl. XX, fig. 4 *b*). This musculous layer is clad with an endothelium formed of high cylinder-cells furnished with ciliæ (Pl. XX, figs. 3 *e*, 5 *e*). On the physa and capitulum the layer of connective-tissue is somewhat narrower than on the scapus.

But, in addition to the elements just named, there are also found entrenched in the integument the papillæ previously spoken of. The papillæ have quite a peculiar organisation. In the connective-tissue itself they form a firm capsule, ovate in shape, terminated inwards, but prolonged outwards, where they debouch on the surface of the body (Pl. XX, figs. 3 *f*, 5 *f*). From the inner wall of the capsule connective-tissue prolongations issue in all directions, and in these, strongly developed, stelliform connective-tissue corpuscles with nuclei and nucleus corpuscles are seen. From these connective-tissue corpuscles slender

Net, som udfylder Storstedelen af Kapselen. Tab. XX, Fig. 3 *g*, 5 *g*. Saavel Kapselens indvendige Side som hele Netværket er beklædt med et Epithel, bestaaende af smaa runde Celler, der har en rund, næsten central Kjerne, Tab. XX, Fig. 3 *h*, 5 *h*. I Maskerne af dette Net sees kortere eller længere, stavformede Legemer, Nematocyster, som i sit Indre har en fin Traad, der ikke er spiralvunden. Tab. XX, Fig. 5 *i*, 6. Disse Nematocyster samle sig efterhaanden imod Kapselens ydre Ende, hvor Nettet er sparsommere og Maskerne langt større, og hvor de ligge tildels pyramideformigt, med den spidse Del af Pyramiden vendt mod Aabningen. Tab. XX, Fig. 5 *i*. Kun paa et Par Papiller saa jeg Nematocyster ligge dels i Aabningen, dels udenfor denne.

Det synes, som om Nematocysterne dannes og udvikles inden disse Kapsler at Epithelialbeklædningens Celler. I Maskerne sees nemlig Nematocyster i forskjellige Størrelser, og fra den runde Epithelcelle kan iagttages Overgange til forlængede Celler, der efterhaanden antage Stavform, hvori den fine Traad bliver synbar, Tab. XX, Fig. 5 *k*. Disse mærkelige Organer, som tør være ganske eiendommelige for Slægten Edwardsia, ihvorvel noget tilnærmelsesvis nok kan findes hos enkelte Actinider, ere visselig blevne overseede af Storstedelen af de Forfattere, der have beskjæftiget sig med denne Dyreslægt: kun Dr. Andres[1] har skjænket dem sin fulde Opmærksomhed. Han beskriver dem som Nematocystbatterier uden dog at angive deres indre Bygning. Naar ikke andre Forfattere have antydet disse Organer, saa mener Andres, at det kan have sin Grund i, at ikke alle Arter af Slægten Edwardsia ere forsynede med dem; men jeg betvivler, at dette er Grunden; thi hos alle de Arter, jeg har havt Anledning til at observere, findes disse Papiller, dog mere eller mindre fremtrædende.

Fra den indre Kropsvæg udgaa 8 Septa, der ere Forlængelser af Kropshudens Bindevæv (Stützmembran, Lamelle de soutien), og lobe fra den bagerste Ende op til Mundskivens Underflade og derfra over paa Svælgroret, paa hvilke sidste to Steder de fæste sig, Tab. XX, Fig. 2 *a*. De ere meget smale i den bagre Ende, men blive alt bredere og bredere, indtil de fæste sig paa Osophagus, Tab. XX, Fig. 7 *a*, hvorved de dele den forreste Del af Gastrovascularhulheden i 8 Kamre, Tab. XX, Fig. 7 *b*. Disse Septa, der alle ere fuldstændige, forsaavidt de fæste sig paa Svælgroret, ere ikke gjennemborede, som saa hyppigt ere Tilfældet hos Actiniderne, saa at Kamrene ei kommunicere indbyrdes med hinanden; de ere enkle, ikke

[1] Interno all' Edwardsia Claparedii (Halcampa Claparedii, Panc.). Memoria dell. dott. Angelo Andresi. Mitheilungen aus der zoolog. Station zu Neapel. 2 Band. pag. 123. Leipzig 1881.

prolongations are sent forth, which anastomoze with prolongations from adjacent connective-tissue prolongations, producing a reticulation, which fills the capsule for the greater part (Pl. XX, fig. 3 *g*, 5 *g*). Both the internal side of the capsule as well as the entire reticulation, are clad with an epithelium consisting of small round cells, containing a round, almost central nucleus (Pl. XX, figs. 3 *h*, 5 *h*). In the meshes of this reticulation are seen, shorter or longer rod-like corpuscles, nematocysts that internally have a fine filament, but which is not spirally coiled (Pl. XX, figs. 5 *i*, 6). These nematocysts gradually collect towards the outer extremity of the capsule, where the reticulation is coarser and the meshes far larger, and there they lie, partly pyramidiform, with the pointed part of the pyramid turned towards the aperture (Pl. XX, fig. 5 *i*). Only in the case of a couple of papillæ did I observe nematocysts situated partly in the aperture, partly outside it.

It appears as if the nematocysts are formed and developed inside those capsules, from the cells of the epithelial covering. In the meshes we find, thus, nematocysts of various sizes, and from the round epithelial cells, transitions to prolongated cells may be observed, which gradually assume the rod-shape in which the fine filament becomes visible (Pl. XX, fig. 5 *k*). Those remarkable organs, which are probably quite peculiar to the genus Edwardsia, although a considerable resemblance to them may perhaps be found in a few Actinidæ, have certainly been overlooked by the greater number of writers who have occupied themselves with the study of this animal genus; Dr. Andres[1] alone has devoted his full attention to them. He describes them as nematocyst-batteries without, however, indicating their internal structure. The fact that other writers have omitted to indicate those organs may be owing, Dr. Andres thinks, to this, that not all the species of the genus Edwardsia are supplied with them, but I question whether that is the reason, as in all the species that I have had an opportunity of observing, those papillæ have been found, although more or less prominent.

From the inner wall of the body 8 septa issue: these are prolongations of the connective-tissue of the integument of the body (stützmembran; Lamelle de soutien) and pass from the posterior extremity up to the inferior surface of the oral disc and thence over to the gullet-tube, upon which two last-named places they secure themselves (Pl. XX, fig. 2 *a*). They are very narrow at the posterior extremity, but become broader and broader until they secure themselves to the œsophagus (Pl. XX, fig. 7 *a*), dividing, thus, the anterior portion of the gastro-vascular cavity into 8 chambers (Pl. XX, fig. 7 *b*). These septa, which are all perfect ones, in so far that they attach themselves to the gullet-tube, are not perforated, as so often

[1] Interno all' Edwardsia Claparedii (Halcampa Claparedii, Panc.). Memoria dell. dott. Angelo Andresi. Mitheilungen aus der zoolog. Station zu Neapel. 2 Band. pag. 123. Leipzig 1881.

parrede, staa lige langt fra hinanden og ere forsynede med Længde- og Tvermuskler.

Længdemusklerne ere fæstede til Bindevævslister, der udgaa fra Septumets ene Flade, men stundom ser det ud paa Tversnit, som de udgaa fra begge; de danne Buske, der især ere stærke ved Udspringet paa den indre Kropsvæg, Tab. XX, Fig. 7 *c*, og ved Septumets Tilhæftning til Svælgroret, Tab. XX, Fig. 7 *d*, imedens de ere meget tynde og ikke danne Buske paa Septumets hele Midtparti, Tab. XX, Fig. 7 *e*, men ligesom dele sig ved deres Udspring, saaledes nemlig, at et temmelig tykt Parti følger Septumet og danner derved de 8 Længdemuskler paa den indre Kropsvæg, imedens det andet Parti danner Længdemusklerne paa Septum. Tvermusklerne ere fæstede til Septum paa den modsatte Side af Længdemusklerne i Form af en meget tynd, fintfoldet Membran, som tildels er dækket af Længdemusklerne.

Jeg har ikke med min bedste Villie været istand til at finde, at nogen af disse Septa optræder som Retningssepta; thi paa de Exemplarer, jeg har undersøgt, synes alle Septa at være lige, idet baade Størrelsen og Muskelanordningen er ens for dem alle, Tab. XX, Fig. 7, 8, 9. Der er ingen Vexlen, saaledes som i Almindelighed er Tilfældet hos Actinierne, nemlig at Længdemusklerne sidde snart paa høire, snart paa venstre Side af Septa, alt i Overensstemmelse med de udprægede Retningssepta. Dr. Andres fremstiller Forholdet af Musklerne paa Septa hos Edwarsia Claparedii helt anderledes, end jeg har fundet, og mere i Overensstemmelse med Septaanordningen hos Actinierne. Han udtrykker sig saaledes: „Tratto characteristico è l'incongruenza rapporto al setto; nella porzione gastrica è sviluppato egualmente dall' un lato è dall' altro, al disotto si riduce tutto su una faccia er per vero secondo una legge costante: cioè che tre setti di seguito portano il fascio muscolare a destra, il susseguente lo porta a sinistra, il quinto ancora a destra e gli ultimi tre di nuovo a sinistra; cosicchè due paia di setti sono congruenti fra loro e due paia sono solo simmetrici."

Samtlige Septa bære Mesenterialfilamenter, Tab. XX, Fig. 2 *b*, der tage deres Udspring fra den nederste, fri Ende af Osophagus og slynge sig bagover langs den fri Rand til henimod Physa. I Bygning ere de fuldstændig overensstemmende med Actiniernes Mesenterialfilamenter og adskille sig ikke fra dem.

Ved Siden af Mesenterialfilamenterne sees hist og her, især mod deres bagre Ender, Acontier, der ligeledes ere fæstede til Septa. De ere runde, slangeformigt oprullede Organer, der hænge som Proptrækkere frit i Gastralhulheden, Tab. XX, Fig. 8 *c*, og ere tæt besatte med Nematocyster, hvoraf en Mængde havde udslynget sine Traade, Tab. XX, Fig. 10. Disse Acontier benyttes her

is the case in Actinidæ, so that the chambers do not, among themselves, communicate with each other; they are single, not paired, and are placed at uniform distances apart from each other, and are furnished with longitudinal and transversal muscles.

The longitudinal muscles are secured to connective-tissue fillets, which issue from the one surface of the septum, but occasionally it appears, in sections, as if they issue from both surfaces; they form tufts, which are especially prominent at the origin in the inner wall of the body (Pl. XX, fig. 7 *c*), and at the attachment of the septum to the gullet-tube (Pl. XX, fig. 7 *d*), while they are very thin, and do not form tufts in the entire medial portion of the septum (Pl. XX, fig. 7 *e*), but, as it were, divide at their origin, in such a manner, that a pretty thick portion follows the septum, and thus forms the 8 longitudinal muscles on the inner wall of the body, while the other portion forms longitudinal muscles on the septum. The transversal muscles are secured to the septum on the opposite side of the longitudinal muscles, in the form of a very thin, finely folded membrane, which is partly covered by the longitudinal muscles.

In spite of all my efforts I have been unable to discover that any of those septa act as directive septa, as in the specimens I have examined, all the septa appear to be alike, inasmuch that both size and muscular arrangement are the same in them all (Pl. XX, figs. 7, 8, 9). There is no variety, such as is usually the case in Actinidæ, as, for instance, that the longitudinal muscles are placed sometimes on the dextral, sometimes on the sinistral side of the septa, in conformity with the distinctly prominent directive septa. Dr. Andres presents the muscular relations of the septa in Edwardsia Claparedii quite differently to what I have observed, and more in conformity with the septal arrangement in Actinidæ. He expresses himself thus: „Tratto characteristico è l'incongruenza rapporto al setto; nella porzione gastrica è sviluppato egualmente dall' un lato è dall' altro, al disotto si riduce tutto su una faccia er per vero secondo una legge constante: cioè che tre setti di seguito portano il fascio muscolare a destra, il susseguente lo porta a sinistra, il quinto ancora a destra e gli ultimi tre di nuovo a sinistra; cosicchè due paia di setti sono congruenti fra loro e due paia sono solo simmetrici."

All the septa carry mesenterial filaments (Pl. XX, fig. 2 *b*), which have their origin in the lowest free extremity of the œsophagus, and twine themselves backwards along the free margin until in proximity of the physa. In structure they have a perfect conformity with the mesenterial filaments of the Actinidæ and do not differ from them.

At the sides of the mesenterial filaments there are seen here and there, especially towards their posterior extremities, acontia, which are also attached to the septa; they are round, serpentine coiled organs, hanging freely, like corkscrews, in the gastral cavity (Pl. XX, fig. 8 *c*) and are closely beset with nematocysts, of which a great many had shot forth their filaments (Pl. XX, fig. 10).

visselig som Vaaben til at dræbe de Smaavæsener, der som Næringsmidler føres ind i Gastralhulheden.

Foruden Mesenterialfilamenter og Acontier ere ogsaa Generationsorganerne bundne til Septa; men om alle ere forsynede dermed, kan jeg ikke afgjøre, da jeg kun har iagttaget dem paa 4. Æggestokkene ligge temmelig langt bag, næsten imod Enden af Mesenterialfilamenterne, og have meget tilfælles med dem hos Actinierne. De bestaa af lidt fladtrykte, baandformige Cylindre, der slynge sig bagover langs Septumets fri Rand, bundne ved et tyndt Bindevæv til denne og ere i sit Indre beklædte med et Epithel, dannet af runde, kjerneholdige Celler, Tab. XX, Fig. 9 *c*. Æggene, der udvikle sig af Epithelcellerne, ligge dels to og to sammen, dels enkeltvis og ere i forskjellige Udviklingsstadier. Embryonerne sprænge Æggestokkens Hinder, falde ned i Gastrovascularhulheden, hvor de opholde sig nogen Tid, for derefter gjennem Osophagus at drage ud i det Fri. Testiklerne ligge længere bag, omtrent ved Begyndelsen af Physa; de ere yderlig smaa, kun synbare gjennem Mikroskopet, have et kamformigt Udseende, Tab. XX, Fig. 9 *d*, og ere ligesom Æggestokkene ved et løst Bindevæv bundne til Septa, Tab. XX, Fig. 11 *a*, i det Længdefelt, som findes imellem Længdemuskelen, Tab. XX, Fig. 11 *b*, og den indre, tildels fri Rand af Septumet. Ved stærk Forstørrelse vise de sig at bestaa af en Samling cylinderformede Blindsække, Tab. XX, Fig. 11 *c*, hvis indvendige Væg er beklædt med runde Celler, hvori en rund Kjerne med sit Kjernelegeme, Tab. XX, Fig. 11 *d*. I Hulheden sees en Samling af mere og mindre udviklede Spermatozoer, der ere pæreformige med et aflangt Hoved og en kort Hale, Tab. XX, Fig. 11 *e*. De ligge hyppigst to og to sammen, men ogsaa enkeltvis, og synes at dannes af Epithelcellernes Kjerne, da denne i mange Celler havde forlænget sig og nærmet sig Spermatozoernes Form.

Osophagus, der er cylindrisk, foldet, indtager i Længden omtrent den forreste Trediedel af Gastrovascularhulheden, og paa den ydre Væg, der er beklædt med et Epithel af cilierende Cylinderceller, Tab. XX, Fig. 12 *a*, fæster sig 8 Septa, Tab. XX, Fig. 2 *c*. Indenfor Epithelet er et Bindevævslag, Tab. XX, Fig. 12 *b*, paa hvis ydre Væg, imellem Epithelet og denne, ligger et Muskellag, bestaaende af Tver- og Længdemuskler, Tab. XX, Fig. 12 *c*, der ere Fortsættelser af Musklerne paa Septa. Fra den indre Væg af Bindevævet udgaa pyramideformige Forlængelser, Tab. XX, Fig. 12 *d*, der rage ind i Svælgrorets Hulhed, og som bidrage til at danne Folderne her. Disse Bindevævsforlængelser ere beklædte med høie, cilierende Cylinderceller, imellem hvilke sees hist og her encellede Slimkjertler, Tab. XX, Fig. 12 *e*. Nogen Svælggrube findes ikke, heller ikke Andres har fundet nogen saadan; men hos hans Art var Svælgrorets indre Væg glat, imedens det er stærkt foldet hos Edwardsia Andresi.

These acontia are certainly used here as weapons with which to kill the small organisms that are passed into the gastral cavity as nutriment.

Besides mesenterial filaments and acontia, the reproductive organs are also attached to the septa, but whether all are furnished with them I cannot determine, as I have only observed them on 4. The ovaries are placed pretty far back, almost at the extremity of the mesenterial filaments, and have much in common with those of Actinidæ. They consist of slightly flattened tape-like cylinders that twine themselves backwards along the free margin of the septum, attached to it by a thin connective-tissue, and internally clad with an epithelium formed of round cells containing nuclei (Pl. XX, fig. 9 *c*). The ova, which develope themselves from the epithelial cells, lie partly two and two together, partly singly, and appear in various stages of development. The embryons burst the membrane of the ovary and fall into the gastro-vascular cavity, where they remain for some time, and subsequently pass out into freedom through the œsophagus. The testicles are placed farther back, at about the commencement of the physa: they are extremely small — only visible under the microscope — and have a comb-like appearance (Pl. XX, fig. 9 *d*) and are, like the ovaries, attached by a loose connective-tissue to the septa (Pl. XX, fig. 11 *a*) in the longitudinal area which is found between the longitudinal muscle (Pl. XX, fig. 11 *b*) and the inner, partly free, margin of the septum. Under powerful magnification they show themselves to consist of a collection of cylindric cæca (Pl. XX, fig. 11 *c*), whose inner wall is clad with round cells containing a round nucleus with its nucleus-corpuscle (Pl. XX, fig. 11 *d*). In the cavity there is visible a collection of more or less developed spermatozoa, pyriform in shape, with an oblong head and a short tail (Pl. XX, fig. 11 *e*). They, most frequently, lie two and two together, but also singly, and appear to be formed of the nuclei of the epithelial cells, as these had, in many cells, become prolonged and approached to the form of the spermatozoa.

The œsophagus, which is cylindrical and folded, occupies, longitudinally, nearly the anterior third part of the gastro-vascular cavity, and on its outer wall, which is clad with an epithelium of ciliating cylinder-cells (Pl. XX, fig. 12 *a*), 8 septa are attached (Pl. XX, fig. 2 *c*). On the inside of the epithelium there is a layer of connective-tissue (Pl. XX, fig. 12 *b*), upon whose outer wall, between the epithelium and it, there lies a musculous layer consisting of transversal and longitudinal muscles (Pl. XX, fig. 12 *c*), which are prolongations of the muscles of the septa. From the inner wall of the connective-tissue pyramidical prolongations issue (Pl. XX, fig. 12 *d*), which extend into the cavity of the gullet-tube and contribute to the formation of the folds in this situation. These connective-tissue prolongations are clad with high, ciliating cylinder-cells, between which are seen, here and there, unicellular mucous glands (Pl. XX, fig. 12 *e*). There is no gullet-groove to be discovered, and neither has Andres discovered one, but in his species the inner wall of the gullet-tube was smooth, whilst in Edwardsia Andresi it is strongly folded.

Tentaklerne have et bredt Ectoderm, dannet af hoie, cilierende Cylinderceller, imellem hvilke findes en utallig Mængde Nematocyster, Tab. XX. Fig. 13 *a*. Indenfor Ectodermet sees et lyst Belte, bestaaende af en finkornet Masse, der har Udseende af overskaarne Ror, og som muligens kan være Nervefibriller, Tab. XX. Fig. 13 *b*. Nervestrænge eller Ganglier har jeg imidlertid ikke iagttaget, saa nogen Sikkerhed for, at dette Belte tilhører Nervesystemet, haves ikke. Indenfor denne kornede Masse ligger et Lag af stærke Længdemuskler, Tab. XX. Fig. 13 *c*, som stottes af et temmelig smalt Bindevævslag, Tab. XX. Fig. 13 *d*. Paa dettes indre Væg sees Cirkulærmusklerne, Tab. XX. Fig. 13 *e*, der langtfra ere saa udviklede som Længdemusklerne, og hvortil fæster sig et indre Epithel, der dannes af lige saa hoie, cilierende Cylinderceller som de, der forme Ectodermet, Tab. XX. Fig. 13 *f*. Ogsaa paa Mundskiven er den ectodermale Beklædning forsynet med en stor Mængde Nematocyster.

The tentacles have a broad ectoderm formed of high, ciliating cylinder-cells, between which there are found an innumerable multitude of nematocysts (Pl. XX. fig. 13 *a*). To the inside of the ectoderm a light-coloured belt is seen, consisting of a finely granulated substance having the appearance of transsected tubes, and which may, possibly, be nervous fibrils (Pl. XX. fig. 13 *b*). Nerve-cords or ganglia I have, however, not been able to observe, so that I have no distinct evidence that this belt pertains to the nervous system. On the inside of this granular substance there lies a layer of strong longitudinal muscles (Pl. XX. fig. 13 *c*), which is supported by a rather narrow layer of connective-tissue (Pl. XX, fig. 13 *d*). On the inner wall of this last-named layer the circular muscles are observed (Pl. XX. fig. 13 *e*) — which are far from being so developed as the longitudinal muscles are — and to which an inner epithelium secures itself; this epithelium consists of equally high, ciliating cylinder-cells as those that form the ectoderm (Pl. XX. fig. 13 *f*). On the oral disc, also, the ectodermal covering is supplied with a great abundance of nematocysts.

Findested.

Station 253. Mange Exemplarer.

Habitat.

Station No. 253. Numerous specimens.

Artskarakter.

Legemet 90^{mm} langt. Scapus cylindrisk, 50^{mm} lang, $8—10^{mm}$ bred, forsynet med et skedeformigt Overtræk, samt 8 Længderibber, der har en Række koniske Papiller, paa hvis Ende sees en fri Aabning. Capitulum 14^{mm} langt, 6^{mm} bredt, cylindrisk, har 8 fine Længdelinier, Fortsættelser af Ribberne paa Scapus. Mundskiven lidt hvælvet, med en lidt aflang Mund. 12 Tentakler, retraktile, stillede i en Række. Hele Capitulum kan inddrages i Scapus. Physa danner en ægformet, vandklar Blære, der kan trækkes ind i Scapus og er forsynet med 8, lidet fremtrædende Linier, Fortsættelser af Ribberne. Udstrakt er Physa 10^{mm} lang, 8^{mm} bred. Farven: Scapus grøn med enkelte brungule Punkter, ligesaa det skedeformige Overtræk; men selve Cutis er aldeles farvefri. Capitulum er vandklart, fuldstændigt gjennemsigtigt, saa det brune Svælgrør skinner igjennem. Mundskiven brun, noget lysere end Œsophagus. Tentaklerne ere ligeledes vandklare, paa Enderne svagt violette; langs den adorale Side en fin, violet Stribe og om Grunden en brun Ring. Ved den øverste Rand af Capitulum en Kreds af temmelig intens brune Punkter, der ere saaledes delte, at det faar Udseende af to Ringe, en brun og en hvid.

Specific characteristics.

The body measures 90^{mm} in length. The scapus cylindrical, measures 50^{mm} in length and $8—10^{mm}$ in breadth, is furnished with a vaginate covering, as well as 8 longitudinal ribs carrying a series of conical papillæ, on whose extremity a minute aperture is visible. The capitulum measures 14^{mm} in length and 6^{mm} in breadth, is cylindrical, has 8 fine longitudinal lines, prolongations of the ribs of the scapus. The oral disc a little arcuate with a slightly oblong mouth. 12 tentacles, retractile, placed in a single series. The entire capitulum capable of retraction into the scapus. The physa forms an ovate, pellucid vesicle that can be withdrawn into the scapus, and is furnished with 8 little-prominent lines, prolongations of the ribs. When extended the physa measures 10^{mm} in length and 8^{mm} in breadth. *The colour:* The scapus green with a few brownish-yellow clots, that is the vaginate covering especially has that colour, but the cutis proper is quite colourless. The capitulum is pellucid, perfectly transparent, so that the brown gullet-tube appears visible through it. The oral disc brown, somewhat lighter in colour than the œsophagus. The tentacles are also pellucid, pale violet in colour at the extremities, a fine violet stripe along the adoral side, and round the base a brown annulus. At the uppermost margin of the capitulum, there is a ring of rather intense brown dots, distributed in such manner that they acquire the appearance of two annuli, one brown and one white.

Edwardsia fusca.

Tab. V. Fig. 6; Tab. XIX. Fig. 5—9.

Legemet med Tentakler er 55^{mm} langt.

Scapus, der er 28^{mm} lang, cylindrisk, har et skedeformigt Overtræk, der er stærkt inkrusteret af brun Sand og Ler, og er forresten næsten glat, idet der ingen fremtrædende Ribber vise sig. Tab. V. Fig. 6; Tab. XIX. Fig. 5 *a*. Skeden er fast, membranøs og temmelig stærkt adhæreret til den underliggende Hud. Naar dette Overtræk enten løsnes ved Dyrets stærke Kontraktioner, eller det løsnes paa kunstig Maade (ved Afskrabning), sees indenfor 8 Linier, imellem hvilke der er 8 temmelig brede Længdefelter, hvori ved stærk Loupe iagttages 2 Rækker yderst smaa Papiller, som staa ved Siden af hinanden og synes at have en fin Indsænkning (Aabning) i Midten. Tab. XIX, Fig. 6.

Capitulum er 12^{mm} langt, rørformet, kun lidet gjennemsigtigt, men har paa sin ydre Side opimod Mundskiven 12 kastaniebrune Ribber, der et Stykke bagtil smelte sammen til 8, som da blive mindre fremspringende, ja næsten flade, idet de forlænge sig bag til Scapus, Tab. XIX. Fig. 5 *b*, hvor de fortsætter sig i de paa denne omtalte Linier. Ogsaa paa Capitulum kan ved stærk Loupe iagttages yderst smaa Papiller, der ligeledes her staa i 2 Rækker og ere af samme Beskaffenhed som de paa Scapus, men staa længere fra hverandre i Rækkerne. Mundskiven danner en svag Konus; Munden er lidt aflang, Tab. XIX. Fig. 5, og fra den udgaa 12 fine Folder henimod Peripherien, der indtages af 12 Tentakler, som ere retraktile, staa i en Række, ere tykke ved Grunden og 10^{mm} lange, Tab. V, Fig. 6; Tab. XIX. Fig. 5. Hele Capitulum med Mundskive og Tentakler kan drages ind i Scapus og ganske skjules af denne.

Physa danner en halvkugleformet Blære, 5^{mm} lang, næsten vandklar og forsynet med 8 Længdestriber, der ere Fortsættelser af de paa Scapus antydede Linier. Tab. V, Fig. 6; Tab. XIX. Fig. 5 *c*; ogsaa Physa kan inddrages i Scapus, og da sees altid en ottefoldet Fordybning, som lettelig i Dyrets sammentrukne Tilstand kan tages for den forreste Del, naar man ikke har observeret Blæren, imedens den var ude.

Farven. Capitulum svagt brunrødt med 12 temmelig brede, mørk kastaniebrune Linier, imellem hvilke sees blegere Længdefelter. Mundskiven er kjødrød, har to brune Ringe, den ene i Nærheden af Tentaklernes Grund, den anden længere inde ved Mundaabningen. Disse Ringe bestaa af smaa, brune Flækker, der ved at stode til hverandre danne en sammenhængende Ring. Tentaklerne have 3 mørkebrune Ringe, som hver paa den adorale Side egentlig bestaar af 2 trianguläre Flækker.

Edwardsia fusca.

Pl. V, fig. 6; Pl. XIX, fig. 5—9.

The body with the tentacles measures 55^{mm} in length.

The scapus measures 28^{mm} in length, is cylindrical, and has a vaginate covering strongly encrusted with brown sand and clay, but otherwise is almost smooth, as no prominent ribs are apparent (Pl. V, fig. 6; Pl. XIX, fig. 5 *a*). The sheath is firm, membranous, and rather firmly adherent to the integument underneath. When this covering either becomes loosened by the violent contractions of the animal, or is loosened in an artificial way (by scraping), 8 lines are visible underneath, between which there are 8 rather broad longitudinal areas, in which, with the aid of a powerful magnifying glass, 2 series of extremely minute papillæ are observed, placed alongside each other, and appearing to have a fine depression (aperture) in the middle (Pl. XIX, fig. 6).

The capitulum measures 12^{mm} in length, is tubular, only slightly transparent, but it has, on its outer side, up towards the oral disc, 12 chestnut-brown ribs that a little way back resolve themselves into 8, which then become less prominent, indeed almost flat, as they prolong themselves backwards to the scapus (Pl. XIX, fig. 5 *b*), where they prolong themselves into the previously mentioned lines appearing upon it. Also on the capitulum there can, with the aid of a powerful magnifying glass, be observed extremely minute papillæ, which are likewise, here, placed in 2 series, and are of the same nature as those of the scapus, but placed farther apart from each other in the series. The oral disc forms a gentle cone. The mouth is slightly oblong (Pl. XIX, fig. 5), and from it there issue 12 fine folds towards the periphery, which is occupied by 12 tentacles that are retractile and placed in a single series; they are thick at the base, and measure 10^{mm} in length (Pl. V, fig. 6; Pl. XIX, fig. 5). The entire capitulum with the oral disc and tentacles may be withdrawn into the scapus and be quite concealed by it.

The physa forms a semi-spherical vesicle 5^{mm} in length, almost pellucid, and furnished with 8 longitudinal stripes, which are prolongations of the lines indicated on the scapus (Pl. V, fig. 6; Pl. XIX, fig. 5 *c*); the physa may also be withdrawn into the scapus, and then there is always visible a depression of 8 folds, which, in the contracted condition of the animal, may easily be mistaken for the anterior portion, if the vesicle had not been observed when it was exposed.

The colour. The capitulum faint brownish-red with 12 rather broad, dark chestnut-brown lines, between which paler longitudinal areas are observed. The oral disc is flesh-coloured, has two brown annuli, the one in the neighbourhood of the base of the tentacles, and the other farther in, near the oral aperture. These annuli consist of small brown patches, which by uniting with each other form one continuous annulus. The tentacles have 3 dark brown annuli, each of which really, on the adoral side,

Scapus er brun; men indenfor den inkrusterede Skede er Huden næsten hvid, spillende noget i det Rosenrøde. Physa spiller svagt i det Kjødrøde.

Ved Tversnit af Scapus viser det skedeformige Overtræk sig at bestaa af en slimet Membran, hvori er indleiret en Mængde brunagtige Sandkorn samt brunt Ler, uden at der forresten findes i Membranen nogen histologisk Struktur, Tab. XIX, Fig. 7 *a*. Indenfor Membranen iagttages Ectodermet, der bestaar af temmelig høie Cylinderceller, forsynede med Kjerne og Kjernelegeme, Tab. XIX, Fig. 7 *b*, og imellem disse Celler sees hist og her enkelte Nematocyster. Det til Ectodermet stødende Bindevævslag er meget bredt, fibrillært og temmeligt rigt forsynet med Ernæringskanaler med sit Epithel og Bindevævslegemer med en eller flere Udløbere, Tab. XIX, Fig. 7 *c*. Nedsænket i Bindevævet sees de for omtalte Papiller at være dannet paa en lignende Maade som de hos Edwardsia Andresi, nemlig ved en fast, membranøs, ægformet Kapsel, hvis noget smalere Del, der med sin Aabning vender ud mod Ectodermet, passerer igjennem dette og Skeden for at aabne sig paa Overfladen i Papillen, Tab. XIX, Fig. 7 *d*. Fra den indre Flade af Kapselen udgaa mange tynde Bindevævstraade, som korrespondere med hverandre og danne Net, Tab. XIX, Fig. 7 *A e*; men der, hvor flere Traade møde hverandre, opstaar en bredere Bindevævsflade, hvori sees Bindevævslegemer. Saavel Kapselens indre Flade som Bindevævstraadene er beklædt med næsten runde Epithelceller, forsynede med en rund Kjerne med sit Kjernelegeme, Tab. XIX, Fig. 7 *A f*, *B e*. I Maskerne synes lignende Epithelceller at ligge losrevne, sammen med ægformede, tildels mere forlængede Celler, samt kortere eller længere Nematocyster, Tab. XIX, Fig. 7 *B e*, *f*. De ovale, losrevne Celler ere upaatvivlelig vordende Nematocyster; thi Overgangene kunde temmelig godt forfølges, idet Cellerne efterhaanden forlængede sig, indtil den lange, stavformede Nematocyst var dannet. Traaden indeni denne syntes at dannes af Kjernelegemet. Paa en næsten fuldt udviklet Nematocyst kunde i den tykke Ende endnu iagttages Rester af Kjernen, Tab. XIX, Fig. 7 *A g*. At Nematocysterne dannes inden disse Kapsler, bekræftes end yderligere ved Observationerne over Edwardsia fusca; i flere saadanne Kapsler saaes kun runde, ovale og lidt forlængede Celler, ingen Stave, men vel Begyndelsen til deres Dannelse.

Henimod den indre Flade af det brede Bindevævslag sees et smalt Belte af kun lidet udviklede, cirkulære Muskler, Tab. XIX, Fig. 7 *h*; men paa den indre Flade er et Muskellag, bestaaende af Tver- og Længdemuskler, Tab. XIX, Fig. 7 *i*, noget ligt det, der tilhører Edwardsia Andresi, og som er beklædt med cylinderformede, cilierende Endothelceller. Paa Capitulum og Physa er Hudens Struktur

consists of 2 triangular patches. The scapus is brown, but underneath the encrusted sheath the integument is almost white, with a play of colour approaching somewhat to rose-red. The physa has a play of colour approaching a faint flesh-colour.

In a section of the scapus the vaginate covering shows itself to consist of a mucous membrane in which a mass of brownish grains of sand and brown clay is entrenched, without there being observed, otherwise, in the membrane, any histological structure (Pl. XIX, fig. 7 *a*). Inside the membrane the ectoderm is observed; it consists of rather high cylinder-cells furnished with nucleus and nucleus-corpuscle (Pl. XIX, fig. 7 *b*), and between those cells there are observed, here and there, a few nematocysts. The layer of connective-tissue that adjoins the ectoderm is very broad, fibrillous, and rather richly supplied with nutritory ducts and their epithelium, and with connective-tissue corpuscles having one or more prolongations (Pl. XIX, fig. 7 *c*). Embedded in the connective-tissue, the previously mentioned papillæ are seen to be formed in a similar manner to those of Edwardsia Andresi, viz. by a firm, membranous, oviform capsule, whose somewhat narrower portion, which with its aperture faces towards the ectoderm, passes through the ectoderm and sheath, in order to debouch on the surface of the papilla (Pl. XIX, fig. 7 *d*). From the inner surface of the capsule there issue numerous connective-tissue rays that correspond with each other and form a reticulation (Pl. XIX, fig. 7 *A e*), but at the spot where several filaments meet each other, there arises a broader surface of connective-tissue in which connective-tissue corpuscles appear. Both the inner surface of the capsule and the connective-tissue rays are clad with, almost round epithelial cells, furnished with a round nucleus and its nucleus-corpuscle (Pl. XIX, fig. 7 *A f*, *B* e). Similar epithelial cells appear to lie detached in the meshes, together with oviform, partly more-prolongated cells, and shorter or longer nematocysts (Pl. XIX, fig. 7 *B e*, *f*). The oviform detached cells are, indubitably, prospective nematocysts, because their transitions could pretty well be traced, in so far that the cells became prolonged until the long rod-shaped nematocyst was formed. The filament inside it appears to be formed from the nucleus-corpuscle. In an almost completely developed nematocyst there could still be observed, in the thick extremity, the remains of the nucleus (Pl. XIX, fig. 7 *A g*). That the nematocysts are formed inside those capsules, is still further confirmed by the investigations of Edwardsia fusca; in several such capsules only round, oval, and little-prolonged cells were observed, but no rods, only the rudiments of their formation.

Towards the inner surface of the broad layer of connective-tissue a narrow belt of but little-developed circular muscles is observed (Pl. XIX, fig. 7 *h*), but on the inner surface there is a muscular layer consisting of transversal and longitudinal muscles (Pl. XIX, fig. 7 *i*), somewhat like that pertaining to Edwardsia Andresi, and which is clad with cylindrical, ciliating endothelial cells. On the

omtrent som paa Scapus, men de mangle Overtrækket; Papillerne staa noget mere spredte, Tab. XIX, Fig. 8 *a*, især paa Physa; dog er Ectodermet meget rigere paa Nematocyster.

Fra Kroppens indre Væg udgaa 8 Septa, der paa Physa ere meget smale, men blive alt bredere og bredere, jo længere de naa frem mod Mundskiven, paa hvis indre Flade og Svælgrorets ydre Væg de fæste sig, hvorved den forreste Del af Gastrovascularhulheden, saalangt som Svælgroret rækker, deles i 8 Kamre. Disse Septa, der i Midten bestaa af en temmelig fast Bindevævsmembran, Tab. XIX, Fig. 8 *b*, der er Fortsættelse af Hudens Bindevæv, synes paa begge Sider at være beklædte med Tver- og Længdemuskler, hvoraf de sidste ere meget udviklede, især ved Septumets Udspring fra Kropsvæggen og dets Befæstning paa Svælgroret, hvor de paa begge Steder forme sig i tykke Buske, Tab. XIX, Fig. 8 *c*, *d*; Fig. 9 *a*. Paa Midten af Septumet, det vil sige imellem Kropsvæggen og Svælgroret, ere Længdemusklerne meget tynde og danne her ikke de sædvanlige Buske, Tab. XIX, Fig. 8 *e*. Samtlige Septa bære Mesenterialfilamenter, der tage deres Begyndelse fra den nedre Ende af Osophagus, strække sig bag mod Physa og frembyde intet særegent. Indenfor dem, nemlig imellem dem og Længdemusklerne, ligge Generationsorganerne.

Æggestokkene ligge nærmest Mesenterialfilamenterne, danne slangeformige, noget fladtrykte Ror, der indvendig ere beklædte med runde Epithelceller, hvori Æggene udvikle sig, Tab. XIX, Fig. 9 *b*. Disse laa dels to ved Siden af hinanden, dels enkeltvis, og vare i forskjellige Udviklingsstadier. Ved Siden af Æggestokkene ligge Testiklerne, som ormformig slynge sig bagover, saalangt Æggestokkene række. De ere sammensatte af tynde, temmelig lange Blindsække, der indvendig ere beklædte med runde Epithelceller, hvori sees flere punktformige Legemer (Spermatozoer?). Saavel Æggestokkene som Testiklerne ere udvendig beklædte med et cilierende Cylinderepithel. Men foruden disse Organer bære Septa Acontier, der især paa den bagre Del, henimod Physa, ere temmelig hyppige og hænge frit i Gastrovascularhulheden, Tab. XIX, Fig. 9 *c*.

Øsophagus, der er omtrent en Trediedel saa lang som det hele Legeme, er cylindrisk, paa den ydre Flade delt i 8 Felter ved Septainsertionerne og beklædt med høie, cilierende Cylinderceller. Indenfor dette Epithel er et stærkt udviklet Muskellag, bestaaende af Tver- og Længdemuskler, hvilke ligge fæstede til det temmelig brede Bindevæv, fra hvis indre Væg udgaa Forlængelser, der rage ind i Svælget og danne Folderne paa den indre Svælgvæg, som er beklædt med et tykt Epithel. Ingen Svælggrube.

capitulum and physa the structure of the integument is about the same as that of the scapus, but they are deficient in the covering; the papillæ are placed far more dispersed (Pl. XIX, fig. 8 *a*), especially on the physa, but the ectoderm is much richer in nematocysts.

From the inner wall of the body 8 septa issue, which are very narrow on the physa but become broader and broader according as they extend forward towards the oral disc, upon whose inferior surface and the outer wall of the gullet-tube they attach themselves, causing the anterior portion of the gastro-vascular cavity, as far as the gullet-tube extends, to be divided into 8 chambers. These septa, which in the middle consist of a rather firm connective-tissue membrane (Pl. XIX, fig. 8 *b*), a prolongation of the connective-tissue of the integument, appear to be covered, on both sides, with transversal and longitudinal muscles, of which the last-named are very developed, especially at the origin of the septum on the wall of the body and the attachment to the gullet-tube, where they, on both sides, form themselves into thick tufts (Pl. XIX, fig. 8 *c*, *d*; fig. 9 *a*). At the middle of the septum, that is to say between the wall of the body and the gullet-tube, the longitudinal muscles are very thin and do not form, here, the usual tufts (Pl. XIX, fig. 8 *e*). All the septa carry mesenterial filaments that have their origin in the lower extremity of the œsophagus, extending themselves backwards towards the physa, but presenting nothing special of note. To the inside of them — that is between them and the longitudinal muscles — lie the reproductive organs.

The ovaries lie next to the mesenterial filaments, and form serpentine, somewhat flattened tubes, which are clad internally with round epithelial cells in which the ova develope themselves (Pl. XIX, fig. 9 *b*). These lay partly two alongside each other, partly singly, and appeared in various stages of development. The testicles lie at the side of the ovaries, and twine themselves, in vermiform, backwards, as far as the ovaries extend. They are composed of thin, rather long cæca, clad internally with round epithelial cells in which several dotted corpuscles are visible (spermatozoa). The ovaries as well as the testicles are clad externally with a ciliating cylinder-epithelium. But besides those organs the septa also carry acontia, which, especially on the posterior part, towards the physa, are rather numerous and hang freely in the gastro-vascular cavity (Pl. XIX, fig. 9 *c*).

The œsophagus is about a third-part of the length of the body, and cylindrical; on its outer surface it is divided into 8 areas by the insertions of the septa, and is covered with high, ciliating cylinder-cells. Inside this epithelium there is a strongly developed muscular layer, consisting of transversal and longitudinal muscles that lie secured to the rather broad connective-tissue, from whose inner wall prolongations issue and extend into the œsophagus, forming the folds on the inner wall of the œsophagus; this last is clad with a thick epithelium. No gullet-groove.

Findested.

Station 262. To Exemplarer.

Artskarakter.

Legemet med Tentakler 55^{mm} langt. Scapus 28^{mm} lang, cylindrisk, forsynet med en stærkt inkrusteret Skede og 8 fine Linier, imellem hvilke 8, temmelig brede Længdefelter, hvori 2 Rækker yderst smaa Papiller, staaende ved Siden af hinanden og forsynede med en fin Aabning. Capitulum 12^{mm} langt, rørformet, har opimod Mundskiven 12 kastaniebrune Ribber, der et Stykke bagtil smelte sammen til 8. Mundskiven hvælvet; Munden aflang, og fra den udgaa 12 Folder henimod Peripherien, som indtages af 12 retraktile Tentakler. Hele Capitulum kan inddrages i Scapus. Physa danner en halvkugleformig, vandklar Blære med 8 fine Længdestriber. Saavel paa Capitulum som Physa findes Papiller. Farven: Capitulum svagt brunrod med 12 temmelig brede, mørkt kastaniebrune Linier, imellem hvilke blegere farvede Længdefelter. Mundskiven kjodrod; Tentaklerne have 3 mørkebrune Ringe. Scapus er brun, men indenfor Skeden er Huden næsten hvid, spillende noget i det Rosenrode. Physa svagt laxerod.

Habitat.

Station No. 262. Two specimens.

Specific characteristics.

The body with the tentacles, 55^{mm} in length. The scapus 28^{mm} in length, cylindrical, furnished with a strongly encrusted sheath, and 8 fine lines between which 8 rather broad longitudinal folds, in which 2 series of extremely minute papillæ, placed alongside each other and furnished with a minute aperture. The capitulum 12^{mm} in length, tubular; up towards the oral disc has 12 chestnut-brown ribs, which, at a little distance backwards, resolve themselves into 8. The oral disc arcuate. The mouth oblong, and from it 12 folds issue towards the periphery, which is occupied by 12 retractile tentacles. The entire capitulum capable of being withdrawn into the scapus. The physa forms a semi-spherical pellucid vesicle having 8 fine longitudinal stripes. On the capitulum as well as on the physa papillæ visible. *The colour.* The capitulum faint brownish-red, with 12 rather broad dark chestnut-brown lines, between which lighter-coloured longitudinal areas. The oral disc flesh-coloured. The tentacles have 3 dark-brown annuli. The scapus is brown, but inside the sheath the integument is almost white with a play of rose-red colour. The physa pale salmon-colour.

Edwardsia costata.

Tab. XVI, Fig. 11, 12.

Legemets hele Længde er 60^{mm}.

Scapus er cylindrisk, 40^{mm} lang, indtil 10^{mm} bred, men smalner lidt af opimod Capitulum og nedad mod Physa. Den er forsynet med 8 stærkt fremspringende Længderibber, der hver har en Række smaa, faste, lidt koniske Papiller, paa hvis Midte sees ved Hjælp af Loupen en liden rund Fordybning (Aabning?) Tab. XVI, Fig. 11, 12 *a*, og er beklædt med et noget rynket, lidt inkrusteret, skedeformigt Overtræk, der blev ganske glat, naar Dyret var i Vigor og fuldt udspændt. Imellem Ribberne er der 8 næsten plane Længdefelter, som blive til dybe Furer under Kontraktionerne, Tab. XVI. Fig. 12 *b*.

Capitulum, der er 12^{mm} langt, omtrent 6^{mm} bredt ved Overgangen til Scapus, men 4^{mm} opimod Mundskivens Rand, er cylindrisk, gjennemsigtigt og forsynet med 8 Ribber, der ere Fortsættelser af de paa Scapus, men rage ikke saa langt frem som disse og strække sig op til den ydre Tentakelrække. Ogsaa paa disse Ribber sees en Række Papiller, der dog her staa mere spredte, Tab. XVI, Fig. 11 *b*. Mundskiven er stærkt konisk fremspringende med en næsten rund Mundaabning, som har paa Randen 8 tynde Folder,

Edwardsia costata.

Pl. XVI, fig. 11, 12.

The entire length of the body is 60^{mm}.

The scapus is cylindrical, 40^{mm} in length, and as much as 10^{mm} in breadth, but diminishes a little in breadth upwards towards the capitulum and downwards towards the physa. It is furnished with 8 strongly prominent longitudinal ribs, each of which has here a series of minute, firm, slightly conical papillæ, in whose middle there is seen, with the aid of the magnifying glass, a small round depression (aperture) (Pl. XVI, fig. 11, 12 *a*). It is clad with a somewhat wrinkled, slightly encrusted, vaginate covering, which became quite smooth when the animal was in full vigour and fully expanded. Between the ribs there are 8, almost plane, longitudinal areas, which become deep furrows during the contractions (Pl. XVI, fig. 12 *b*).

The capitulum measures 12^{mm} in length, and about 6^{mm} in breadth at the point where it passes into the scapus, but only 4^{mm} in breadth up towards the margin of the oral disc. It is cylindrical, transparent, and furnished with 8 ribs, which are prolongations of those of the scapus but do not extend so far forward as them, and they extend themselves up towards the outer tentacular series. Upon those ribs, also, there is observed a series of papillæ, but which are placed here more dispersedly (Pl. XVI, fig.

der strække sig hen imod Skivens Rand. Denne udvider sig lidt over den cylindriske Del af Capitulum og har 8 temmelig korte Tentakler; strax indenfor disse, men paa Mundskiven, er der atter 8 Tentakler, som ere længere og noget tyndere, end de i den ydre Række, med hvilke de afvexle. Der er altsaa 2 Rækker Tentakler, 8 i hver, hvilke ere retraktile. Hele Capitulum med Mundskiven og Tentaklerne kan trækkes ind i Scapus.

Physa danner en aflang Blære, 6—8^{mm} lang, er gjennemsigtig og har 8, kun lidet fremspringende Ribber, der konvergere mod Enden af Blæren, Tab. XVI. Fig. 11 *c*. Paa disse Ribber sees ligeledes Papiller.

Farven. Scapus er intens brun. Ribberne violette. Capitulum er smuk kjodrod med noget morkere Ribber, der spille lidt i det Violette. Mundskiven og Tentaklerne morkere, kjodrod. Physa er bleg rosenrod.

Findested.

Station 253. Et Exemplar.

Desværre gik dette ene Exemplar tabt ved Uforsigtighed, forend jeg fik det konserveret.

Familie **Mardœllidæ**, mihi.

Kolonidannende Zoanthider, som ved deres afrundede fælles Basaldel leve frit i eller paa Sandet uden Befæstning.

Dr. August Erdmann har i sin Afhandling „Ueber einige neue Zoantheen“,[1] opstillet en ny Slægt under Familien Sphenopidæ, R. Hertwig, hvilken han dog ikke har givet noget Navn. Materialet er indsamlet i 1882 paa den engelske Expedition med H. M. S. „Triton“ fra en Dybde af 640 engelske Fod. Han karakteriserer Slægten saaledes: „Incrustierte Einzelpolypen, deren Mauerblatt an seinem hinteren versmälerten Ende stets mehrere Knospen trägt; Septenstellung nach dem Macrotypus; Ringmuskel mesodermal und einfach; Geschlechtsorgane gonochoristisch; Mesoderm mit ectodermale Zellhöfen.“

Naar Dr. Erdmann har henført denne sin navnløse Slægt til Familien „Sphenopidæ“, har han sandsynligvis

[1] Dr. August Erdmann. Ueber einige neue Zoantheen. Ein Beitrag zur anatomischen und systematischen Kenntnis der Actinien. Jenaische Zeitschrift für Naturwissenschaft. 19 B. Neue Folge. 12 Band, Pag. 430.

11 *b*). The oral disc is strongly prominent, in conical form, and has an almost almost round oral aperture, which, on the margin, has 8 thin folds extending towards the margin of the disc. The margin of the disc becomes a little dilated beyond the cylindrical part of the capitulum, and has 8 rather short tentacles; immediately inside these, but on the oral disc, there are, again, 8 tentacles, longer and somewhat thinner than those of the outer series, with which they alternate. There are consequently 2 series of tentacles, 8 in each, which are retractile. The entire capitulum with the oral disc and tentacles may be withdrawn into the scapus.

The physa forms an oblong vesicle 6—8^{mm} in length, is transparent, and has 8, only little-prominent ribs, which converge towards the extremity of the vesicle (Pl. XVI, fig. 11 *c*). Upon those ribs papillæ are also observable.

The colour. The scapus is intense brown. The ribs are violet. The capitulum is a beautiful flesh-colour with somewhat darker ribs having a violet play of colour. The oral disc and the tentacles darker flesh-colour. The physa is pale rose-red.

Habitat.

Station No. 253. One specimen.

Unfortunately this single specimen was lost, by an inadvertence, before I could get it preserved.

Family **Mardœllidæ**, mihi.

Zoanthidæ forming colonies, which by means of a common rounded basal part live freely in or upon the sand, without attachment.

Dr. August Erdmann has, in his Memoir „Ueber einige neue Zoantheen“,[1] established a new genus under the family Sphenopidæ, R. Hertwig, but has, however, not given it any designation. The material was collected in 1882, during the English expedition with H. M. S. Triton, at a depth of 640 English feet. He characterizes the genus, as follows: „Incrustirte Einzelpolypen deren Mauerblatt an seinem hinteren versmälerten Ende stets mehrere Knospen trägt: Septenstellung nach dem Macrotypus; Ringmuskel mesodermal und einfach; Geschlechtsorgane gonochoristisch; Mesoderm mit ectodermale Zellhöfen.“

In assigning this, his nameless genus, to the family Sphenopidæ, Dr. Erdmann has probably considered himself

[1] Dr. August Erdmann. Uber einige neue Zoantheen. Ein Beitrag zür anatomischen und systematischen Kenntnis der Actinien. Jenaische Zeitschrift für Naturwissenschaft. 19 B. Neue Folge. 12 Band, Pag. 430.

folt sig berettiget dertil alene ved at udvide Familiekarakteren, som han angiver saaledes: „Einzellebende Zoantheen, welche mit ihrem abgerundeten Körperende im Sande stecken, oder mit einer Art Haftscheibe am Boden festsitzen." Professor Rich. Hertwig, der har opstillet Familien, karakteriserer den paa følgende Maade: „Solitary Zoantheæ with the posterior end of the body rounded".[1] Men selv med Dr. Erdmanns Udvidelse af Familiemærkerne forekommer det mig, at hans navnløse Slægt ikke uden nogen Vanskelighed kan indregistreres i den nævnte Familie; thi Polyperne kunne neppe kaldes „Einzelpolypen", da de jo efter hans egen Angivelse og især efter de med Afhandlingen ledsagende Tegninger at domme forekomme to eller flere samlede. Dette Forhold vil blive end tydeligere ved den Slægt, som jeg nu staar i Begreb med at beskrive.

Paa den norske Nordhavsexpedition blev paa flere Stationer funden Exemplarer af en Zoanthide, der har meget tilfælles med Dr. Erdmanns, ja saa stor Lighed er der, at jeg ved en overfladisk Betragtning antog den for identisk med denne, — og det tor hende, at ved en nøiere Granskning og Sammenligning vil det vise sig at være en Slægt, imedens Arterne blive forskjellige.

Mardœll[2] Erdmanni, n. g. et sp.

Tab. VI, Fig. 1; Tab. XXI; Tab. XXII, Fig. 1—7.

Legemet er bægerformet, 35^{mm} langt, 20^{mm} bredt foroven, imedens Foddelen, eller den bagre Del, smalner betydeligt af og er som oftest ikke over 5^{mm} bred; disse Maal gjælde dog den fuldt udvoxne Polyp. Fra Basaldelens nederste (bagerste) Ende udgaa en eller flere Polyper, og iblandt de flere Hundrede Exemplarer, der bleve indsamlede, findes kun yderst faa, paa hvilke den bagre Ende ikke enten er forbunden med en eller flere Polyper, eller viser Antydning til en ny, udvoxende Polyp; hvor dette sidste er Tilfældet, der er Enden altid noget opsvulmet, og fra denne opsvulmede Knop skyder en ny Polyp ud, idet Basaldelen forlænger sig efterhaanden og boier sig, hvorved de to sammenvoxede Dyr danne en Bue, Tab. XXI, Fig. 13; men paa det Sted, hvorfra en ny Polyp er udskudt, viser der sig altid en Fortykkelse, som danner Grændsen for begge Polyper.

Det er nu ikke ofte, at der fra Basaldelens bagerste Ende kun udvoxer en Polyp; det almindeligste er, at flere Polyper springe frem, dels samtidig, dels efter hinanden, og da tiltager Forbindelsen imellem dem betydeligt i Bred-

[1] Report on the actinaria dredged by H. M. S „Challenger", during the years 1873—76, by Professor Richard Hertwig. The voyage of H. M. S. „Challenger", Zoology. Vol. XVI. pag. 120.

[2] Mardøll = Havboerske. Et Navn, som blandt mange andre Freya benyttede, da hun sogte efter sin Mand. Nordisk Mythologi.

justified in doing so, by simply extending the family characteristic, which he states as follows: „Einzellebende Zoantheen, welche ihren abgerundeten Körperende im Sande stecken, oder mit einer Art Haftscheibe am Boden festsitzen." Professor Rich. Hertwig, who has established the family, characterizes it thus „Solitary Zoantheæ with the posterior end of the body rounded".[1] But even with Dr. Erdmann's extension of the family characteristics, it appears, to me, that his nameless genus cannot, without some difficulty, be included in the family named, because the polyps can scarcely be termed „Einzelpolypen", as they, even according to his own statement, and especially when judged by the illustrations accompanying the Memoir, appear two or more together. This relation will become more distinct in the genus that I am now about to describe.

On the Norwegian North-Atlantic Expedition specimens of a Zoanthid were found at various stations, which has much in common with Dr. Erdmann's, indeed the resemblance is so great, that I, on a summary examination, assumed it to be identical with his; and it may perhaps happen, that it will prove to be of the same genus, while the species are different.

Mardœll[2] Erdmanni, n. g. et sp.

Pl. VI, fig 1; Pl. XXI; Pl. XXII, figs. 1—7.

The body is formed like a chalice, measures 35^{mm} in length, and 20^{mm} in breadth at the top, while the basal part, or the posterior part, becomes considerably narrower, and is, most frequently, not more than 5^{mm} in breadth. These measurements are, however, those of the perfectly adult polyp. From the basal part's lowest (posterior) extremity one or more polyps issue, and among the several hundreds of specimens obtained only extremely few are found in which the posterior extremity is not, either united to one or more polyps, or shows indication of a new, budding polyp; where this last feature appears the extremity is always somewhat tumified, and from this swollen bud a new polyp springs forth, whilst the basal part becomes gradually prolongated and curved, causing the two united animals to form an arc (Pl. XXI, fig. 13); but at the point where a new polyp has sprung forth, there always appears to be a thickening, which forms the margin of both polyps.

It is, however, not frequent that only one polyp springs from the posterior extremity of the basal part; the most common case is, that several polyps appear, partly at one and the same time, partly in succession, and then

[1] Report on the Actinaria dredged by H. M. S. „Challenger" during the years 1873—1876, by Professor Richard Hertwig. The voyage of H. M. S. „Challenger", Zoology. Vol. XVI, pag. 120.

[2] Mardœll = sea-nymph. A name used by Freya, among many others, when she went in search of her husband. Northern Mythology.

den, saa at der kan dannes et temmeligt tykt Coenenchym, hvortil Polyperne med deres Basaldel ere stærkt bundne. Tab. XXI, Fig. 9, 11, 15. En saadan Gruppe af Polyper har et ganske eiendommeligt Udseende, da den ikke er fæstet til Noget, men ligger løs i Sandet. Den øvre Flade er lidt konkav, idet Polyperne reise sig fra et Midtparti, Tab. XXI, Fig. 11, 14, der dannes af et Coenenchym, som fremstaar derved, at Polypernes Basaldele ere smeltede sammen; den undre Flade er konvex, temmelig jævn, men antyder ved fine Linier de Steder, fra hvilke Polyperne ere udgaaede, Tab. XXI, Fig. 12, 15. Vi skulle senere se, hvorledes Polyperne korrespondere med hinanden; kun her skal antydes, at hvor 2 eller 3 ere forenede, og en af Polyperne trykkes sammen, svulmer den anden og tredie op, idet Fluidumet fra den enes Gastrovascularhulhed gaar over i de andres, men hvor der er 6—8 sammen, er Kommunikationen ikke saa let paaviselig.

Polypkroppen er stærkt inkrusteret af Sand, der gjør, at Huden føles fast og noget ru, men er forresten jævn, det vil sige ikke rynket; opimod Kroppens øverste Rand sees 18 bladformige, inkrusterede Ribber, som strække sig til Mundskivens ydre Rand, og imellem hvilke Huden sees at være nøgen. Tab. VI, Fig. 1; Tab. XXI, Fig. 11, 12, 15. Naar Dyret er indtrukket, forme disse bladformige Ribber sig til 18 Straaler, der konvergere mod Mundskiven. Tab. XXI, Fig. 3, 4, 14. Denne er plan, meget bred, ikke inkrusteret, men forsynet med 18 fine Folder, som gaa fra den indre Tentakelrække til den aflange Mund, der er noget fremstaaende og har en svag Mundvig (Gonidiefure). Tab. XXI, Fig. 14.

Tentaklerne staa i to Rækker, 18 i hver; de ere slanke, noget længere end Skivens Bredde, især gjælder dette den indre Række, som staar paa Mundskivens ydre Rand, Tab. VI, Fig. 1; Tab. XXI, Fig. 11, 14. Saavel Mundskiven som Tentaklerne kunne fuldstændig drages ind i Kroppen.

Polypkroppene ere i deres Udspring, forend endnu Tentaklerne og Mundskiven er dannet, i Regelen halvkugleformede og meget stærkt inkrusterede.

Farven varierer noget efter de forskjellige Lokaliteter. Kroppen er let brunrød, næsten teglstensrød; Tentaklerne lysere, brunrøde, giennemsigtige. Mundskiven endnu lysere end Tentaklerne, og omkring Mundskivens ydre Rand, lige ved Grunden af den indre Tentakelrække er en smal, lys rosenrød Ring, Tab. VI, Fig. 1. Dette er Regelen; men der findes Individer, hvis Farve er graaliggrøn, spillende i det Violette, Tab. VI, Fig. 2.

De anatomisk-histologiske Undersøgelser frembyde adskillige Vanskeligheder paa Grund af, at Huden er saa stærkt inkrusteret af Sand (Kisel), at gode Tværsnit ikke er let at erholde. Dr. Erdmann udtrykker sig med Hensyn

the connection between them increases considerably in breadth, so that a pretty thick sarcosoma may be formed, to which the polyps are firmly attached by their basal portion, (Pl. XXI, fig. 9, 11, 15). Such a group of polyps has quite a peculiar appearance, as it is not adherent to anything but lies loose in the sand. The superior surface is a little concave, owing to the polyps rising up from a portion in the middle (Pl. XXI, fig. 11, 14), formed of a sarcosoma produced by the basal portions of the polyps concreting together; the inferior surface is convex and pretty even, but indicates by fine lines the spots from which the polyps have issued (Pl. XXI, fig. 12, 15). We shall subsequently see how the polyps correspond with each other, but here we shall only indicate, that where 2 or 3 are united, and one of the polyps is contracted, the second and third ones swell up, owing to the fluid from the gastro-vascular cavity of the one passing into the cavities of the others, but where there are 6—8 polyps together, the communication between them is not so easily distinguished.

The body of the polyp is strongly encrusted with sand, causing the integument to feel firm and somewhat rough, but otherwise it is even, that is to say not wrinkled. Towards the uppermost margin of the body 18 foliform, encrusted ribs are visible, which extend themselves to the outer margin of the oral disc, and between these the integument is seen to be bare (Pl. VI, fig. 1; Pl. XXI, fig. 11, 12, 15). When the animal is contracted those foliform ribs resolve themselves into 18 rays, which converge towards the oral disc (Pl. XXI, fig. 3, 4, 14). The oral disc is plane, very broad, not encrusted, but furnished with 18 fine folds that pass from the inner tentacular series to the oblong mouth, which latter is somewhat prominent and has a faint oral angle (gonidial-groove) (Pl. XXI, fig. 14).

The tentacles are placed in two series, 18 in each; they are slender, and somewhat longer than the breadth of the disc; this is especially the case with the inner series, placed on the outer margin of the oral disc (Pl. VI, fig. 1; Pl. XXI, fig. 11, 14). Both the oral disc as well as the tentacles may be completely withdrawn into the body.

The bodies of the polyps are, at their commencement, before the tentacles and the oral disc have yet been formed, usually semispherical in form, and very strongly encrusted.

The colour. This varies somewhat according to the different localities. The body is light brownish-red, almost brick-colour. The tentacles lighter-coloured, brownish-red, and transparent. The oral disc is still lighter in colour than the tentacles, and round the outer margin of the oral disc, exactly at the base of the inner tentacular series, there is a narrow, light-coloured, rose-red annulus (Pl. VI, fig. 1). That is the rule, but there are also found some individuals whose colour is greyish-green, with a violet play of colour (Pl. VI, fig. 2).

The anatomo-histological examination presents considerable difficulties, owing to the fact that the integument is so strongly encrusted with sand (Silex) that satisfactory sections are not easy to obtain. Dr. Erdmann expresses

hertil saaledes: „Wegen der fast steinhartigen Härte der Mauerblattes lassen die Polypen keine Untersuchung mittelst der Schnittmethode zu, und wandte ich deshalb auch hier die Schliffmethode von v. Koch an". Der var dog blandt mine Exemplarer enkelte, der vare mindre stærkt inkrusterede, saa at jeg kunde erholde adskillige ret gode Tversnit, og i det Hele taget viser Hudens Inkrustation sig hos Mardoll Erdmanni langtfra saa stenagtig haard, som Tilfældet maa have været hos Dr. Erdmanns navnløse Slægt. Saa vanskeligt det er at faa brugbare Tversnit, saa let er det at aabne Polypen efter Længden.

Aabner man to sammenhængende Dyr efter Længden, saaledes som Fig. 4, Tab. XXII udviser, sees begge Polyper ikke at staa i direkte Forbindelse med hinanden, men at hver for sig har sin bestemte Afgrændsning, der danner Polypens egentlige Bund, Tab. XXII, Fig. 3 *a*, 4 *a*, og som bestaar af en skiveformet Fortykkelse af Huden, hvori Sandkorn ere inkrusterede; det er Coenenchymet for disse to Polyper, og hvori findes Kanaler, som korrespondere med begge Polypers Kamre, saa at Fluidumet i den ene Polyp med stor Lethed kan gaa over i den anden Polyps Gastralhulhed.

Fra Polypens Bund udgaar 18 Macroseptaer, der ved deres Udspring ere temmelig smale, Tab. XXII, Fig. 3 *b*, men tiltage snart i Bredden, eftersom de naa længere frem (op) paa Kroppen, Tab. XXII, Fig. 3 *c*, 4 *c*, og blive bredest henimod Mundskiven, strax forend de fæste sig paa Svælgrøret, Tab. XXII, Fig. 4 *d*. Disse 18 Macrosepta ere fuldstændige Septa, der dele Gastrovascularhulheden i 18 Længdekamre, som foroven ere lukkede, imedens de forneden gaa over i de foromtalte Kanaler i Coenenchymet, Tab. XXII, Fig. 3 *d*.

Imellem hver 2 af Macroseptaerne er der 1 Microseptum, saa at der af disse ligeledes er 18, Tab. XXII, Fig. 7. De tage deres Udspring nogle Millimeter ovenfor Polypens Bund, ere meget smale, listeformige og tiltage kun lidet i Tykkelse eller Bredde, indtil de have naaet den underste Flade af Mundskiven, paa hvilken de fæste sig, og gaa følgelig ikke over paa Svælgrøret, Tab. XXII, Fig. 3 *e*, 4 *e*.

Af Macrosepta er der især to, som udpræge sig ved sin stærkere Bygning, staa længere fra hinanden, Tab. XXII, Fig. 7 *a*, og fæste sig et paa hver Siderand af Svælggruben, Tab. XXII, Fig. 7 *b*, der repræsenterer Bugsiden; disse Septa kunne betragtes som Retningssepta. Ligeledes er der to Microsepta, som strække sig henimod Svælgrørets Rygside uden at fæste sig paa det, Tab. XXI, Fig. 17 *b*; Tab. XXII, Fig. 7 *c*; disse Septa kunne ogsaa ansees som Retningssepta; de ere stillede ganske modsat dem paa Bugsiden, staa temmelig langt fra hinanden og imellem to Macrosepta.

Vil man nu betragte disse Septa parvis, hvilket synes mig noget sogt, og hvorover jeg senere kommer

himself in regard to this, as follows: „Wegen der fast steinhartigen Härte der Mauerblattes lassen die Polypen keine Untersuchung mittelst der Schnittmethode zu, und wandte ich deshalb auch hier die Schliffmethode von v. Koch an". There were, however, among my specimens, a few that were less encrusted than the others, so that I was enabled to obtain several fairly satisfactory sections; and, altogether, the encrustation of the integument of Mardoll Erdmanni does not appear to be so siliciously hard as must have been the case with Dr. Erdmann's nameless genus. Just as difficult as it is to obtain available transverse sections, as easy is it to dissect the polyp longitudinally.

If we open two united animals longitudinally, as shown in fig. 4, Pl. XXII, it is seen that both the polyps do not stand in direct connection with each other, but that each of them has, for itself, its own definite demarcation, forming the real base of the polyp (Pl. XXII, fig. 3 *a*, 4 *a*); the latter — the base — consists of a discoidal tumification of the integument, in which grains of sand are encrusted; this tumification is the sarcosoma of those two polyps, and in it are found ducts that correspond with the chambers of both polyps, so that the fluid of the one polyp can with great facility be passed over into the gastral cavity of the other polyp.

From the base of the polyp 18 macrosepta issue, which at their origin are rather narrow (Pl. XXII, fig. 3 *b*) but soon increase in breadth as they extend farther forward (upwards) on the body (Pl. XXII, fig. 3 *c*, 4 *c*), and become broadest towards the oral disc, immediately before they attach themselves to the gullet-tube (Pl. XXII, fig. 4 *d*). Those 18 macrosepta are perfect septa, which divide the gastro-vascular cavity into 18 longitudinal chambers that are closed at the top, whilst at the foot they pass over into the ducts in the sarcosoma previously spoken of (Pl. XXII, fig. 3 *d*).

Between each 2 of the macrosepta there is one microseptum, so that there are also 18 of them (Pl. XXII, fig. 7). They have their origin a few millimetres above that of the polyp; they are very narrow, fillet-formed, and only increase a little in thickness, or breadth, before they have reached the inferior surface of the oral disc, to which they attach themselves, and consequently do not pass over to the gullet-tube (Pl. XXII, fig. 3 *e*, 4 *e*).

Of the macrosepta there are two that especially distinguish themselves by their stronger structure, stand farther apart from each other (Pl. XXII, fig. 7 *a*), and which secure themselves, one on each lateral margin of the gullet-groove (Pl. XXII, fig. 7 *b*) that represents the ventral side; these septa may be considered as directive septa. There are also two microsepta that extend themselves towards the dorsal side of the gullet-tube without attaching themselves to it (Pl. XXI, fig. 17 *b*; Pl. XXII, fig. 7 *c*); these septa may also be considered as directive septa; they are placed quite the contrary of those on the ventral side, and are placed at a considerable distance apart from each other and between two macrosepta.

If we now consider these septa in pairs, a thing which appears to me to be somewhat far-fetched — and

til at udtale mig, saa har man to Par Retningssepta og, til hver Side af disse, 8 Septapar, ethvert dannet af 1 Macro- og 1 Microseptum, hvilket jo er det almindelige for Zoanthiderne. Samtlige Macrosepta bære Mesenterialfilamenter og Generationsorganer, der som oftest indtage en saadan Bredde, at de ganske skjule Microsepta, Tab. XXII, Fig. 4.

Paa et Tversnit af Kroppen viser Huden sig at bestaa af et ydre Epithel (Ectoderm), som er dannet af temmelig hoie Cylinderceller med sin Kjerne og Kjernelegeme, men uden Cilier, Tab. XXI, Fig. 16 *a*, 18 *a*, imellem hvilke Nematocyster ere indleirede. Indenfor Ectodermet er et meget bredt Bindevævslag, der danner et fuldkomment Net med store Masker, som ere fyldte med Sandkorn, Tab. XXI, Fig. 18 *b*. Størstedelen af Bindevævet er inkrusteret; kun nærmest Ectodermet og Endothelet er et Belte, som er kompakt, uden Masker, Tab. XXI, Fig. 18 *b*. Saavel i Bindevævsbjelkerne, der danne Nettet, Tab. XXI, Fig. 18 *c*, som i de omtalte Belter, sees Bindevævslegemer, dels stjerneformede, dels spindelformede med Kjerne og Kjernelegeme; men forudeu dem sees større og mindre, fortrinsvis aflange Kanaler, der ere mere eller mindre fyldte med Epithelceller, og som sandsynligvis ere Ernæringskanaler, Tab. XXI, Fig. 16 *b*. De synes at svare til de af Dr. Erdmann omtalte „Zellinseln, Zellhofen", og som findes hyppigt hos Zoanthiderne.

Mesodermet (Bindevævet) i den ydre Hud er saaledes for en stor Del udfyldt af Kanaler, hvori som tidligere omtalt er indleiret større og mindre, uregelmæssige Sandkorn, Tab. XXI, Fig. 18 *f*, der ligge saa tæt sammen, at de saagodtsom danne et Pantser. I Bindevævsbeltet, nærmest Endothelet, sees cirkulære Muskelfibre, der ikke synes at være meget udviklede, Tab. XXI, Fig. 18 *g*. Dr. Erdmann angiver for sin navnløse Slægt, at Ringmusklerne ere mesodermale; hos Mardell udgjør Størsteparten af Mesodermet et retikulært Kanalsystem, saa det er rimeligt, at Ringmuskelen hos den maa være endodermal, med andre Ord, der er ikke Plads for den andetsteds end i det indre Bindevævsbelte, nærmest Endothelet. Paa den indre Væg af Bindevævet ligger et Muskellag, der dannes af Tver- og Længdemuskler, Tab. XXI, Fig. 18 *h*, som beklædes af et Endothel, bestaaende af meget hoie, cilierende Cylinderceller, der tungeformigt rage ind i Gastrovascularhulheden, Tab. XXI, Fig. 16 *c*, 18 *i*.

Fra Bindevævets indre Væg udsendes listeformede Bindevævsprolongationer, som danne de for nævnte Septa. Macrosepta bestaar saaledes af et Midtparti, der er Bindevævsmembranen (Støttemembranen, Stützlamelle), som er temmelig smal, men bliver noget bredere henimod Insertionen paa Svælgrøret, Tab. XXI, Fig. 16 *d*, 18 *k*. Paa denne Membran er placeret baade Tver- og Længdemuskler, imedens Tvermusklerne ere lidet udviklede, ere Længde-

in regard to which I will subsequently speak — we have, then, two pairs of directive septa, and on each side of them 8 pairs of septa, each pair formed of 1 macro and 1 micro septum, which, indeed, is the common case in Zoanthidæ. All the macrosepta carry mesenterial filaments and reproductive organs which, most frequently, occupy such a breadth, that they quite conceal the microsepta (Pl. XXII, fig. 4).

In a section of the body the integument shows itself to consist of an outer epithelium (ectoderm), which is formed of rather high cylinder-cells with a nucleus and nucleus-corpuscle, but without ciliæ (Pl. XXI, fig. 16 *a*, 18 *a*), between which nematocysts are entrenched. On the inside of the ectoderm there is a layer of very broad connective-tissue, which forms a complete reticulation, with large meshes that are filled with grains of sand (Pl. XXI, fig. 18 *b*). The greater part of the connective-tissue is encrusted, only next to the ectoderm and the endothelium is there a belt which is compact and without meshes (Pl. XXI, fig. 18 *b*). Both in the connective-tissue ribs that form the reticulation (Pl. XXI, fig. 18 *c*) as well as in the belts referred to, connective-tissue corpuscles are seen, partly stelliform, partly fusiform, with nucleus and nucleus corpuscle; but besides them, larger and smaller, principally oblong, ducts are observed, filled more or less with epithelial cells, and which probably are nutritory ducts (Pl. XXI, fig. 16 *b*). They appear to correspond to the „Zellinseln, Zellhofen" spoken of by Dr. Erdmann, and which are frequently found in the Zoanthids.

The mesoderm (the connective-tissue) in the outer integument is, thus, in a great measure filled with ducts, in which, as previously stated, larger and smaller irregular grains of sand are entrenched (Pl. XXI, fig. 18 *f*), lying so closely to each other that they almost form a plating. In the connective-tissue belt, next the endothelium, circular muscle fibres are observed, which do not appear to be much developed (Pl. XXI, fig. 18 *g*). Dr. Erdmann states in regard to his nameless genus, that the annular muscles are mesodermal; in Mardell the greater part of the mesoderm consists of a reticular ductiferous system, so that it is probable the annular muscle in it must be endodermal; in other words, there is no room for it elsewhere than in the inner connective-tissue belt next the endothelium. Upon the inner wall of the connective-tissue there lies a muscular layer, formed of transversal and longitudinal muscles (Pl. XXI, fig. 18 *h*) that are clothed with an endothelium consisting of very high ciliating cylinder-cells, which extend in linguiform into the gastro-vascular cavity (Pl. XXI, fig. 16 *c*, 18 *i*).

From the inner wall of the connective-tissue fillet-formed connective-tissue prolongations are projected, forming the previously mentioned septa. The macrosepta consist, thus, of a medial portion, which is the connective-tissue membrane (the supporting membrane, stützlamelle), and is rather narrow, but becomes somewhat broader towards the insertion on the gullet-tube (Pl. XXI, fig. 16 *d*, 18 *k*). Upon this membrane there are placed both transversal

musklerne meget mere fremtrædende og indtage begge Sider af Septumet, Tab. XXI. Fig. 18 *l*; Tab. XXII. Fig. 6 *a*. saa at de skjule næsten ganske Tværmusklerne. Disse Længdemuskler danne egentlig ikke nogen Fane; thi de Bindevævsforlængelser, der udgaa fra Septumets Bindevævslamel, og som bære Længdemusklerne, ere temmelig korte. Samtlige Macrosepta bære Mesenterialfilamenter og Generationsorganer.

Mesenterialfilamenterne tage deres Begyndelse fra Svælgrorets nederste, fri Ende, Tab. XXI. Fig. 16 *e*; Tab. XXII. Fig. 4 *f*. hvor de udspringe med et nyreformet, kjertelagtigt Organ, Tab. XXII, Fig. 5 *a*, der er forholdsvis meget bredt, og som indad har en temmelig dyb Længdefure, Tab. XXII, Fig. 5 *b*. Dette Organ, der fandtes hos alle de Dyr, jeg undersogte, bestaar af regelmæssigt ved Siden af hinanden stillede Cylinderceller, som ere smale ved deres Tilhæftning udad til Bindevævet, men bredest indad, have en temmelig stor Kjerne, der er omgiven af en kornet Protoplasmamasse. Tab. XXII, Fig. 5 *c*. Organet tilhører aabenbart Mesenterialfilamentet og udgjor en Del af det: thi Overgangen er meget tydelig. Tab. XXII, Fig. 5 *d*. Mesenterialfilamentet bliver nu meget smalere, slynger sig nedover til den nederste Trediedel af Gastralhulheden, folgende Macroseptet og bundet til dettes Bindevæv ved en tynd Membran. Mesenterialfilamentet har forresten ingen særegen Organisation; det er udvendigt beklædt med et cilierende Cylinderepithel, hvorimellem findes en Mængde Nematocyster.

Ved Siden af Mesenterialfilamentet, men indenfor, nærmere Septumets Insertion tæt ved Kropsvæggen, ligger Generationsorganerne. De fleste Individer, jeg undersøgte, vare Hunner, kun et Dyr, der tilhorte en anden Gruppe end de, hvori Hunnerne fandtes, var en Han. Kjønnet er adskilt. Æggestokken udspringer ligeledes ved Svælgrorets nederste fri Ende, men lidt nedenfor Mesenterialfilamentet. Tab. XXII. Fig. 5 *e*, danner et lidt fladtrykt Rør, der slynger sig proptrækkerformigt nedover langs Mesenterialfilamentet, tæt til dette og indeholder Æg, kun lidet udviklede, liggende to ved Siden af hianden, Tab. XXI. Fig. 17 *c*; Tab. XXII, Fig. 5 *f*. Æggene ere næsten eliptiske og temmelig klare. Æggestokken strækker sig i Almindelighed lidt nedenfor Mesenterialfilamentet og er ligesom dette udvendig beklædt med et Endothel af cilierende Cylinderceller, men uden Nematocyster.

Testiklerne have baade samme Form og samme Sæde som Æggestokkene; men istedetfor Æg saaes i det Indre af Røret runde Celler, der beklædte den indre Væg, samt en Mængde smaa, glindsende, runde Legemer — begyndende Spermatozoer. Hannerne ere ifølge mine Undersøgelser meget sjeldnere end Hunnerne. Det er at bemærke, at Generationsorganerne ligge indenfor Mesenterialfilamenterne, nærmere Kropsvæggen, hvilket er mod-

and longitudinal muscles. Whilst the transversal muscles are little developed, the longitudinal muscles are much more prominent and occupy both sides of the septum (Pl. XXI, fig. 18 *l*; Pl. XXII, fig. 6 *a*), so that they almost conceal the transversal muscles. These longitudinal muscles do not really form any flag, because the connective-tissue prolongations that issue from the connective-tissue lamella of the septum, and which carry the longitudinal muscles, are rather short. All the macrosepta carry mesenterial filaments and reproductive organs.

The mesenterial filaments have their origin on the lowest free extremity of the gullet-tube (Pl. XXI, fig. 16 *e*; Pl. XXII, fig. 4 *f*), where they issue in the form of a kidney-shaped, glandulous organ (Pl. XXII, fig. 5 *a*), which, relatively, is very broad, and inwards has a rather deep longitudinal furrow (Pl. XXII, fig. 5 *b*). This organ, which was present in all the animals I investigated, consists of cylinder-cells placed in regular arrangement alongside each other; they are narrow at their attachment outwards to the connective-tissue, and broadest inwards, and have a pretty large nucleus surrounded by a granular protoplasmic substance (Pl. XXII, fig. 5 *c*). The organ evidently pertains to the mesenterial filament and forms a part of it, as the transition is very distinct (Pl. XXII, fig. 5 *d*). The mesenterial filament becomes then much narrower, twines itself downwards to the lowest third part of the gastral cavity, following the macroseptum and attached to its connective-tissue by a thin membrane. The mesenterial filament has, otherwise, no peculiar organisation; it is externally clad with a ciliating cylinder-epithelium, between whose cells a multitude of nematocysts are found.

At the side of the mesenterial filament, but inside nearer the insertion of the septum, close to the wall of the body, lie the reproductive organs. Most of the individuals I examined were females, only one animal, which pertained to another group than the one in which the females were found, was a male. The sexes are separated. The ovary, also, originates at the lowest free extremity of the gullet-tube, but a little below the mesenterial filament (Pl. XXII, fig. 5 *e*); it forms a slightly flattened tube that twines itself spirally downwards along the mesenterial filament and close to it, and it contains ova only little-developed, placed two alongside each other (Pl. XXI, fig. 7 *c*; Pl. XXII, fig. 5 *f*). The ova are almost elliptical and rather pellucid. The ovary extends itself, usually, a little way below the mesenterial filament, and is, like it, clad externally with an endothelium of ciliating cylinder-cells, but has no nematocysts.

The testicles have both the same form and the same situation as the ovaries, but instead of ova round cells were observed in the interior of the tube, clothing its inner wall, also a multitude of small, shining, round corpuscles — rudimentary spermatozoa. Males are, according to my observations, much more rare than females. It is to be remarked, that the reproductive organs lie to the inside of the mesenterial filaments, nearer to the wall of

sat af, hvad jeg ellers har fundet at være Tilfældet hos Actiniderne.

Microsepta ere golde, dannede af et Midtparti, bestaaende af en tynd Bindevævslamel, paa hvis Sider findes et Muskellag, dannet af Tver- og Længdemuskler. Disse sidste ere meget mere udviklede end Tvermusklerne og findes paa begge Sider af Microseptumet, Tab. XXI, Fig. 17 *d*, ligesom de ere beklædte af lignende Endothel, som paa de store Septa.

G. v. Koch [1] er den, der først har gjort opmærksom paa Septaordningen hos Zoanthiderne og søgt at bringe den i Overensstemmelse med Actiniernes i Almindelighed, idet han hos Polythoa Axinella paaviste den karakteristiske Stilling, Skillevæggene (Septa) indtage. Dr. Erdmann udtaler sig herom saaledes: „Während bei den Actinien im Algemeinen die Septen eines Paares gleiche Grösse und gleichen Bau in Bezug auf Mesenterialfilamente und Geschlechtsorgane zeigen, unterscheidet man bei den Zoantheen zwei Arten von Septen: 1. grössere, Mesenterialfäden und Geschlechtsorgane führende fertile Macrosepten, welche sie den Schlundrohr in seiner ganze Länge ansitzen als „vollständig" zu bezeichnen sind; 2. kleinere, der Mesenterialfäden und Geschlechtsorgane entbährende, sterile Microsepten, welche das Schlundrohr nie erreichen und daher „unvollständig" genannt werden müssen. Je ein Macroseptum und ein Microseptum bilden ein Paar, d. h. sie kehren sich ihre homologen Seiten, die Seiten ihrer longitudinalen Muskel zu. Solcher Paare sind zahlreiche vorhanden. Nur zwei Paare lassen eine andere Anordnung ihrer Muskeln erkennen, es sind dies die beiden einander opponirten sogenannten Richtungsseptenpaare, welche ihre Longitudinalmuskeln auf abgewandten Seiten tragen."

Man vil heraf se, at Pardannelsen af Septa væsentligst er begrundet i Muskelanordningen; thi uden at denne svarede til, hvad der er almindeligst ved Septaparrene hos Actinierne, vilde man vel neppe falde paa at parre sammen et fuldstændigt med et ufuldstændigt Septum. I physiologisk Henseende ere disse to Septaarter temmelig forskjellige; thi imedens de fuldstændige Septa i Regelen ere golde, er det de ufuldstændige Septa, som bære Generationsorganerne; men saaledes forholder det sig ikke hos Zoantheerne, her er det de fuldstændige Septa, der ere fertile, og de ufuldstændige golde. Hvad nu Slægten Mardoll angaar, saa forekommer det mig, at her er Pardannelsen endnu vanskeligere at tilveiebringe. For det Første udspringe Macrosepta og Microsepta ikke fra samme Sted; Macrosepta tage sit Udspring fra Polypens Bund, imedens Microsepta udspringe flere Millimeter ovenfor, og opretholde under hele Fortsættelsen opimod Mundskiven den samme Afstand fra hinanden, — dette sidste tor nu være mindre væsentligt; for det Andet er Muskelanordningen forskjellig fra den, som i Almindelighed finder Sted hos

[1] G. v. Koch. Polythoa Axinella. Morph. Jahrb. 1880.

the body; that is the opposite of what I, otherwise, have observed to be the case in Actinidæ.

The microsepta are sterile, and are formed of a medial portion consisting of a thin connective-tissue lamella, on whose sides a musculous layer is found, formed of transversal and longitudinal muscles. The last-named are much more developed than the transversal muscles, and are found on both sides of the microseptum (Pl. XXI, fig. 17 *d*) whilst, also, they are clad with a similar endothelium as on the large septa.

G. v. Koch [1] is the first who has called attention to the arrangement of the septa in Zoanthidæ, and who has endeavoured to bring it into harmony with that of Actinidæ in general, in so far, that in Polythoa Axinella he has shown the characteristic situation the divisional walls (septa) occupy. Dr. Erdmann express himself in regard to this, as follows: „Während bei den Actinien im Algemeinen die Septen eines Paares gleiche Grösse und gleichen Bau ind Bezug auf Mesenterialfilamente und Geschlechtsorgane zeigen, unterscheidet man bei den Zoantheen zwei Arten von Septen: 1. grössere, Mesenterialfäden und Geschlechtsorgane führende fertile Macrosepten, welche sie den Schlundrohr in seiner ganze Länge ansitzen als „vollständig" zu bezeichnen sind; 2. kleinere, der Mesenterialfäden und Geschlechtsorgane entbährende, sterile Microsepten, welche das Schlundrohr nie erreichen und daher „unvollständig" genannt werden müssen. Je ein Macroseptum und ein Microseptum bilden ein Paar d. h. sie kehren sich ihre homologen Seiten, die Seiten ihrer longitudinalen Muskel zu. Solcher Paare sind zahlreiche vorhanden. Nur zwei Paare lassen eine andere Anordnung ihrer Muskeln erkennen, es sind dies die beiden einander opponirten sogenannten Richtungsseptenpaare, welche ihre longitudinalmuskeln auf abgewandten Seiten tragen."

We can see from this, that the formation of septal pairs is principally based in the muscular arrangement, because, unless it corresponded with what is most usual in the case of the septal pairs in Actinidæ, we would scarcely feel inclined to pair a perfect with an imperfect septum. In their physiological aspect these two species of septa are considerably different, as, whilst the perfect septa are, as a rule, sterile, it is the imperfect septa that carry the reproductive organs; but such is not the case in regard to Zoanthidæ: in them it is the perfect septa that are fertile, and the imperfect septa that are sterile. In so far as the genus Mardöll is concerned, it appears, to me, that in it the formation of pairs is still more diffienlt to make out. In the first place the macrosepta and the microsepta do not originate in the same situation. The macrosepta have their origin at the base of the polyp, while the microsepta originate several millimetres above, and maintain throughout their whole course up towards the oral disc, the same interval from each other; this last-named feature may, however, not be of material importance.

[1] G. v. Koch. Polythoa Axinella. Morph. Jahrb. 1880.

Actinierne, idet der paa begge Sider af hvert Septum er longitudinelle Muskler, saa at ethvert af dem synes at være forsaavidt selvstændigt, som de ikke for at danne et Par tiltrænge at vende deres homologe Sider, det vil sige de longitudinelle Muskler, mod hverandre, da dette ifølge Anordningen nødvendigvis maa saa være.

Med Hensyn til Længdemusklernes Stilling paa Septa forekommer det mig, at Forholdet ligner overmaade meget det, jeg har angivet baade hos de Edwardsier, jeg har undersøgt, og hos de to nye Slægter Fenja og Ægir, som senere skulle omtales. Hos ingen af disse ere Septa stillede parvis, og jeg er derfor mest tilboielig til at anse Septaerne hos Mardoll for ikke at være parrede, men at der er 18 fuldstændige og 18 ufuldstændige Septa, hvoraf to af de første og to af de sidste kunne ansees som Retningssepta, Tab. XXI, Fig. 17 *a*, *b*. Mardoll har forresten saameget tilfælles med Zoantheerne, at den vistnok bør rækkes ind i denne Gruppe.

Svælgroret er meget kort, næsten cylindrisk; paa dets udvendige, næsten glatte Side, hvor Macrosepterne ere fæstede, er der et cilierende Epithel, dannet af temmelig korte Cylinderceller med deres Kjerne og Kjernelegeme, Tab. XXI, Fig. 16 *f*; indenfor dette sees transverselle Muskelfibre, Tab. XXII, Fig. 6 *b*, der ligge tæt til det ikke meget brede Bindevævslag, Tab. XXII, Fig. 6 *c*. Paa den indre Flade af dette Bindevæv er der et Lag temmelig stærke Længdemuskler, Tab. XXII, Fig. 6 *d*, som beklædes af et Endothel, bestaaende af meget lange, cilierende Cylinderceller, Tab. XXII, Fig. 6 *e*, hvorimellem sees hist og her encellede, kolbeformede Slimkjertler, Tab. XXII, Fig. 6 *f*, samt en stor Mængde Nematocyster, Tab. XXII, Fig. 6 *g*. Paa Svælgrorets indre Flade er der en Svælggrube (Siphonoglyph), som er temmelig dyb med tykke, afrundede Rande, indtagende hele Rorets Længde, og hvori ikke sees Nematocyster, Tab. XXII, Fig. 7 *b*; den øvrige Del af Fladen er foldet og slimet, Tab. XXII, Fig. 7 *d*.

Tentaklerne ere udvendigt beklædte med et Ectoderm, bestaaende af meget høie Cylinderceller, Tab. XXII, Fig. 2 *a*, hvorimellem sees en utallig Mængde Nematocyster, Tab. XXII, Fig. 2 *b*. Indenfor Ectodermet er et Lag med stærke Længdemuskler, Tab. XXII, Fig. 2 *c*, der stode umiddelbart til et Bindevævslag, forsynet med Bindevævslegemer og Ernæringskanaler, Tab. XXII, Fig. 2 *d*. Paa Bindevævets indre Væg sees temmelig stærke, cirkulære Muskler, Tab. XXII, Fig. 2 *e*, der beklædes af et Endothel, dannet af meget høie, cilierende Cylinderceller, Tab. XXII, Fig. 2 *f*.

Jeg omtalte tidligere, at Polyperne ikke stode i direkte Forbindelse med hinanden men ved Kanaler, der vare næsten retliniede, hvor der kun var to sammenhængende Polyper, saa at Ernæringsvædsken hos den ene Polyp med Lethed

In the second place, the muscular arrangement is different from that which is usually found in Actinidæ, as there are longitudinal muscles on both sides of each septum, so that each of them appears to be so far independent, that they do not require, in order to form a pair, to turn their homologous sides, that is to say the longitudinal muscles, towards each other, as this according to their arrangement must of necessity be so.

With regard to the situation of the longitudinal muscles on the septa, it appears, to me, that the relations resemble in a great degree those I have stated in respect of the Edwardsiæ I have investigated, and of the two new genera Fenja and Ægir, to be subsequently dealt with in this memoir. In none of these are the septa placed in pairs, and I am, therefore, most disposed to consider, that the septa of Mardöll are not paired, but that there are 18 perfect and 18 imperfect septa, of which two of the first-named and two of the last-named may be considered to be directive septa (Pl. XXI, fig. 17 *a*, *b*). Mardöll has, otherwise, so much in common with Zoanthidæ that it ought assuredly to be placed in that group.

The gullet-tube is very short, almost cylindrical; upon its external, almost smooth side, where the macrosepta are attached, there is a ciliating epithelium formed of rather short cylinder-cells with their nucleus and nucleus-corpuscle (Pl. XXI, fig. 16 *f*); to the inside of that transversal muscle-fibres are observed (Pl. XXII, fig. 6 *b*), lying close to the not very broad layer of connective-tissue (Pl. XXII, fig. 6 *c*). Upon the inner surface of that connective-tissue there is a layer of rather strong longitudinal muscles (Pl. XXII, fig. 6 *d*), which are clad with an endothelium consisting of very long ciliating cylinder-cells (Pl. XXII, fig. 6 *e*), between which are seen, here and there, unicellular, claviform, mucous glands (Pl. XXII, fig. 6 *f*), also a great multitude of nematocysts (Pl. XXII, fig. 6 *g*). Upon the inner surface of the gullet-tube there is a gullet-groove (syphonoglyph) which is rather deep, with thick rounded margins, and occupies the entire length of the gullet-tube; in it no nematocysts are observed (Pl. XXII, fig. 7 *b*); the remaining part of the surface is folded and viscous (Pl. XXII, fig. 7 *d*).

The tentacles are clad externally with an ectoderm consisting of very high cylinder-cells (Pl. XXII, fig. 2 *a*), between which there are seen an innumerable multitude of nematocysts (Pl. XXII, fig. 2 *b*). Inside the ectoderm there is a layer of strong longitudinal muscles (Pl. XXII, fig. 2 *c*), which immediately unites to a connective-tissue layer furnished with connective-tissue corpuscles and nutritory ducts (Pl. XXII, fig. 2 *d*). Upon the inner wall of the connective-tissue rather strong circular muscles are observed (Pl. XXII, fig. 2 *e*), which are clad with an endothelium formed of very high, ciliating cylinder-cells (Pl. XXII, fig. 2 *f*).

I mentioned, previously, that the polyps did not stand in direct connection with each other, but by ducts that were almost rectilineal, where there were only two united polyps, so that the nutritory fluid of the one polyp could

kunde trykkes over i den anden Polyps Gastrovascularhulhed, hvorved Kroppen svulmede stærkt op. Men hvor flere Polyper hænge sammen, der er dette Kanalsystem noget mere indviklet, idet nemlig Coenenchymet, Tab. XXII, Fig. 1 *f*, der binder Polyperne sammen, er mere eller mindre optaget af Kanaler, som udgaa fra Polypernes Bund, Tab. XXII. Fig. 1 *a*. Disse Kanaler ere tildels temmelig brede, Tab. XXII. Fig. 1 *b*, *c*, lobe i forskjellige Retninger og ere beklædte med et cilierende Epithel, Tab. XXII, Fig. 1 *e*, ligt det, der tapetserer Polypens Gastrovascularhulhed.

Findested.

Station 190. 10 Exemplarer.
— 290. Nogle Exemplarer.
— 323. En stor Mængde Exemplarer.
— 363. 20—30 Exemplarer.

Det vil af Figurerne paa Tavle XXI sees, at det er hovedsagelig fra Polypens nederste (bagerste) Ende — dens Basaldel — at der udskyder nye Polyper. I Begyndelsen danner der sig ved Grunden en liden, næsten rund Knop, Tab. XXI, Fig. 6, og undersoger man nu denne vordende Polyp, saa viser det sig, at Moderpolypen fra dens Bund sender nogle Kanaler gjennem et yderst smalt Coenenchym til Knoppen, der er en Udbugtning af dette, og hvori endnu ingen Septadannelse har fundet Sted. Efterhaanden som Knoppen voxer frem, antager den Cylinderformen, og naar den har naaet en Længde af nogle Millimeter, Tab. XXI, Fig. 5, 8, sees de fuldstændige Septa som yderst smale Lister, der rage kun lidet frem i Hulheden. Imellem Moderpolypen og Ungen er der en tydelig Grændse, som endog udvendig giver sig tilkjende ved en ringformig Fortykkelse, der danner Coenenchymet imellem begge Polyper, Tab. XXI, Fig. 7. Naar nu den unge Polyp er voxet end mere, gjennembrydes den fri Ende, idet Mundskive, Mund og Tentakler ere dannede, Tab. XXI, Fig. 1, 5, 8. De fuldstændige Septa, Macrosepta, have dog vist sig i en længere Tid, forend dette Gjennembrud finder Sted; men det er at bemærke, hvad jeg forresten tidligere har anført, at imedens de fuldstændige Septa udgaa fra Polypens Bund, er dette ikke Tilfældet med de ufuldstændige.

Ofte boier den unge Polyp sig under Væxten, saa at dens Basaldel sammen med Moderens danner en Bue, Tab. XXI, Fig. 13. I Regelen er det kun en Knop, som skyder ud fra Moderens Basaldel; men det hænder og, at 2 ja endog 3 udskyder derfra omtrent samtidigt, og da indtager gjerne den ene en Sideplads. Tab. XXI, Fig. 1, 5, 7. Iblandt den store Mængde Exemplarer, jeg har raadet over, findes mange, hvor kun to Polyper ere sammenfoiede, og som muligens hele Livet igjennem forblive saaledes parrede; men endnu foregaar Kolonisationen i rigere Maalestok, idet der fra de to Polyper udvoxer flere, Tab. XXI, Fig. 3, 4, 9. Efterhaanden som de unge Polyper voxe, tilbe easily forced into the gastro-vascular cavity of the other polyp, causing the body to become considerably swollen. But when several polyps are united this ductiferous system is somewhat more developed, in so far, that the sarcosoma (Pl. XXII, fig. 1 *f*) which unites the polyps together, is more or less occupied by ducts that issue from the base of the polyps (Pl. XXII, fig. 1 *a*). These ducts are sometimes pretty wide (Pl. XXII, fig. 1 *b*, *c*), and run in various directions, and they are clad with a ciliating epithelium (Pl. XXII, fig. 1 *e*) like that which coats the gastro-vascular cavity of the polyps.

Habitat.

Station No. 190. Ten specimens.
„ 290. A few specimens.
„ 323. A great many specimens.
„ 363. Twenty to thirty specimens.

It will be observed from the illustrations on Plate XXI, that it is principally from the lowest (posterior) extremity of the polyp that new polyps are produced. In the commencement there is formed at the base, a small, almost round bud (Pl. XXI, fig. 6), and if we now examine this prospective polyp, it is seen that the parent-polyp sends out from its base a few ducts, through an extremely narrow sarcosoma, to the offspring which is a protuberance upon it, and in which no formation of septa has yet taken place. As the bud increases gradually in growth it assumes the cylindrical form, and, when it has attained a length of a few millimetres (Pl. XXI, fig. 5, 8), the perfect septa become visible, like extremely narrow fillets that only extend a little way into the cavity. Between the parent-polyp and the offspring there is a distinct demarcation, which is even externally recognisable, by an annular thickening that forms the sarcosoma between both polyps (Pl. XXI, fig. 7). When, now, the young polyp has grown still more, its free extremity becomes pierced, and the oral disc, mouth and tentacles are formed (Pl. XXI, fig. 1, 5, 8). The perfect septa (macrosepta) have, however, appeared for some time previous to this perforation taking place; but it is to be noted, what I also already have mentioned, that while the perfect septa issue from the base of the polyp, such is not the case with the imperfect ones.

The young polyp often curves itself during its growth, so that its basal part together with that of the parent-polyp forms an arc (Pl. XXI, fig. 13). Usually there is only one bud that projects from the basal part of the parent-polyp, but it happens, occasionally, that two, indeed even 3, project from it at about the same time, and then the one often occupies a lateral situation (Pl. XXI, fig. 1, 5, 7). Among the very numerous specimens I have had at my disposal, there are many in which only two polyps are united, and which probably, throughout all their existence, remain thus paired; but yet the colonisation proceeds on an extended scale, inasmuch, that from the

tager altid Coenenchymet, som binder dem sammen, baade i Tykkelse og Bredde. Tab. XXI, Fig. 11, 12, 14, 15, men forbliver temmelig glat uden Tendens til at fæste sig, og synes at være saa fast, at det holder Kolonien godt samlet. Kun paa yderst faa Exemplarer har jeg iagttaget, at Knopskydningen foregaar fra Basaldelens nederste Sidedel. Tab. XXI, Fig. 1, 5, 10; i Regelen foregaar den fra Coenenchymet. Stundom kan Coenenchymet, der sammenbinder flere Polyper, være temmelig smalt, men det er dog altid afrundet, fast og meget stærkt inkrusteret; Inkrustationen er bestandig stærkere end paa selve Polyperne. Disse større eller mindre Kolonier af Polyper holde godt sammen; de ligge løst i Sandet, og de enkelte Individer i Kolonien viser ingen Tendens til at skille sig fra sine Kamerater.

Dr. Erdmann mener at hos hans Slægt løsriver de enkelte Individer sig for at danne en ny Koloni, efterat de ere frigjorte. Han ytrer: „Die Abschnürung scheint beständig fortzuschreiten und schliesslich zur gänzlichen Isolation des Töchterthieres zu führen". Saaledes er i alle Fald ikke Forholdet hos Slægten Mardöll. Af de mange Hundrede Exemplarer, jeg har undersøgt, findes der ikke noget, som tyder hen paa en saadan Isolation. Sagtens findes der nogle isolerte Polyper, der i deres Basalende har en fin Aabning, som efter Erdmann skulde tyde hen paa en Afløsning fra Moderdyret; men denne Aabning tyder aabenbart hen paa, at Dyret ved ydre Vold er frarevet Kolonien. Derimod findes flere isolerede Polyper, hos hvem alt peger i den Retning, at de ere udviklede af Æg, og som blive Stampolyper for den vordende Koloni. Disse Stampolyper ere langstrakte, kolleformede og fuldkommen afrundede i deres Basalende, der er jævn og uden Spor af Aabning eller andet, som kunde føre Tanken hen paa en Afløsning, Tab. XXI, Fig. 19, 20. Fra en saadan Moderpolyps Grunddel er det da, den første Knop skyder ud, Tab. XXI, Fig. 6, og fra nu af er Kolonisationen sat i Gang.

For Mardolls Vedkommende kan der saaledes ikke godt blive Tale om Enkeltpolyper, „Einzelpolypen", som et Karakteristikon for Slægten; thi aabenbart lever den i Kolonier ligesaa fuldt som Slægterne Polythoa og Epizoanthus; men hvad der er karakteristisk, er mærgtelig den Særegenhed, at imedens de sidstes Kolonier ere fæstede ved et mere eller mindre udbredt Coenenchym til forskjellige Gjenstande, ere Mardöllkolonierne ikke fæstede, men leve ved deres afrundede, tildels halvkugleformede, egale Coenenchym, frit i eller paa Sandet. Efter dette har jeg ikke kunnet henføre Slægten Mardöll til Familien Sphenopidæ, Hertwig, da den hverken er en enkeltlevende Zoanthide eller har nogen Hefteskive, der fæster den til Bunden, men har maattet danne en ny Familie for den.

two polyps there spring several (Pl. XXI, fig. 3, 4, 9). As the growth of the young polyps proceeds, so does the sarcosoma which unites them together also increase, both in thickness and breadth (Pl. XXI, fig. 11, 12, 14, 15), but remains pretty smooth, without any tendency to attach itself, and appears to be so firm, that it retains the colony well together. Only in extremely few specimens have I observed the budding proceed from the lowest lateral part of the basal portion (Pl. XXI, fig. 1, 5, 10). It usually proceeds from the sarcosoma. Occasionally the sarcosoma that unites several polyps together may be rather narrow, but it is, however, always rounded, firm, and very strongly encrusted. The encrustation is always stronger than on the polyps themselves. These larger or smaller colonies of polyps hold well together; they lie loose in the sand, and the individuals of the colony show no tendency to separate themselves from their neighbours.

Dr. Erdmann thinks, that in his genus the individual members detach themselves in order to form a new colony after the detachment has taken place. He says: „Die Abschnürung scheint beständig fortzuschreiten und schliesslich zur gänzlichen Isolation des Töchterthieres zu führen". Such is, at any rate, not the case in the genus Mardöll. In the many hundreds of specimens I have examined there is nothing to be observed that indicates any such an isolation. True enough, there are found a few isolated polyps that in their basal extremity have a minute aperture, which, according to Erdmann, would indicate a separation from the parent animal; but this aperture evidently points to the animal having become detached from the colony owing to external violence. On the other hand, several isolated polyps are found, regarding which everything points in the direction that they have been developed from ova, and which become the parent polyps of the prospective colony. Those parent polyps are elongate, claviform, and perfectly rounded in their basal extremity, which is even and without trace of aperture or any feature that could lead to the thought of a detachment having occurred (Pl. XXI, fig. 19, 20). It is from such a parent polyp's base that the first bud therefore shoots forth (Pl. XXI, fig. 6), and from that time the colonisation progresses.

There can, therefore, in regard to Mardöll, scarcely be any talk of single polyps, „Einzelpolypen", as a characteristic feature of the genus; because they evidently exist in colonies just as well as the genera Polythoa and Epizoanthus; but what is a characteristic feature, is, indisputably, the peculiarity, that while the colonies of the last-named are attached by a more or less broad sarcosoma to various objects, the Mardöll colonies are not attached, but exist with their round, sometimes semispherical, even sarcosoma free, in or upon the sand. For these reasons I have not been able to assign the genus Mardöll to the family Sphenopidæ, Hertwig, as it is neither an isolated Zoanthid nor has it any attachment-disc that secures it to the sea-bottom, and I have therefore been obliged to form a new family for it.

Slægtskarakter.

Mardollider med fast, inkrusteret Hud, endodermale Cirkulærmuskler; Macrosepta fuldstændige, bærende Generationsorganer og Mesenterialfilamenter, Microsepta ufuldstændige, golde. En Svælggrube. Adskilt Kjøn.

Artskarakter.

Legemet bægerformet, 35^{mm} langt, 20^{mm} bredt foroven: den smale Basaldel omtrent 5^{mm} bred, stærkt inkrusteret af Sand. Kroppens øverste Rand forsynet med 18 bladformede, inkrusterede Ribber, strækkende sig til Mundskivens ydre Rand. Imellem Ribberne er Huden nogen, ligesaa Mundskiven, der er plan, forsynet med 18 fine Folder, udgaaende fra den noget fremstaaende Mund imod den indre Tentakelrække. En lidet udpræget Gonidiefure. Tentaklerne i to Rækker, slanke, længere end Skivens Bredde, 18 i hver Række, de i den indre længst. Farven: Kroppen er let brunrod, næsten teglstensrod, Tentaklerne lysere, brunrøde; Mundskiven endnu lysere end Tentaklerne, og omkring Mundskivens ydre Rand, lige ved den indre Tentakelrække, en smal, lys, rosenrod Ring. Paa de unge Polyper ere Farverne noget intensere.

Generic characteristics.

Mardöllidæ with firm, encrusted integument; endodermal circular muscles. Macrosepta perfect, carrying reproductive organs and mesenterial filaments. Microsepta imperfect, sterile. A gullet-groove. Separated sexes.

Specific characteristics.

The body chalice-formed, 35^{mm} in length, 20^{mm} in breadth at the top; the narrow basal part about 5^{mm} in breadth, strongly encrusted with sand. The uppermost margin of the body furnished with 18 foliform, encrusted ribs, extending themselves to the outer margin of the oral disc. Between the ribs the integument is bare, also the oral disc is bare; this last is plane, furnished with 18 fine folds issuing from the somewhat projecting mouth towards the inner tentacular series. A little-distinguished gonidial-groove. The tentacles in two series, slender, longer than the breadth of the disc, 18 in each series, those of the inner series being longest. *The colour.* The body is a light brownish-red almost brick-réd, the tentacles lighter coloured brownish-red; the oral disc still lighter in colour than the tentacles, and round the outer margin of the oral disc, close to the inner tentacular series, there is a narrow, light-coloured rose-red annulus. In the young polyps the colours are somewhat more intense.

Epizoanthus arborescens, n. sp.

Tab. VI, Fig. 6; Tab. XXIV, Fig. 1—4.

Coenenchymet er tyndt, membranøst udbredt snart paa en større eller mindre Sten, snart spundet om tynde Gjenstande, saasom Serpularør og andet lignende, Tab. VI, Fig. 6; Tab. XXIV, Fig. 1 *a*. Fra dette Coenenchym reiser flere Polyper sig dels lodret, dels mere krybende, hvorved hele Kolonien faar et grenet Udseende, Tab. VI, Fig. 6; Tab. XXIV, Fig. 1.

Polyperne ere kolleformede, og de fuldvoxne Individer 35^{mm} lange med en forholdsvis meget smal Basaldel, kun 5^{mm} bred, imedens den øverste Ende er 12^{mm} bred. Hele Legemet er inkrusteret af mer eller mindre grov Sand, der dog ikke danner et tykkere Lag end at, naar Dyret er udstrakt og i fuld Vigor, den hvidrøde Hud skinner igjennem. Opimod Kroppens øverste Rand sees 16 temmelig lange, lancetformede Ribber, der vende deres spidse Del mod Mundskiven, Tab. VI, Fig. 6 *b*, og som, naar Tentaklerne ere indtrukne, bidrage til at give den øverste, afrundede Kropsdel et straalet Udseende.

Mundskiven er temmelig flad og fint foldet, og Munden er næsten rund. Tentaklerne ere retraktile, sidde i 2 Rækker, 16 i hver; de ere længere end Mundskivens Bredde.

Epizoanthus arborescens. n. sp.

Pl. VI, fig. 6; Pl. XXIV, figs. 1—4.

The sarcosoma is thin and membranaceously expanded, sometimes over a greater or a smaller stone, or sometimes twined round a small object such as a serpula-tube or similar object (Pl. VI, fig. 6; Pl. XXIV, fig. 1 *a*). From this sarcosoma several polyps rise up, sometimes erect, sometimes somewhat trailing, producing a ramificated appearance in the entire colony (Pl. VI, fig. 6; Pl. XXIV, fig. 1).

The polyps are claviform: the fully adult individuals measure 35^{mm} in length, and have a, relatively, very narrow basal part, only 5^{mm} in breadth, while the uppermost extremity measures 12^{mm} in breadth. The entire body is encrusted with more or less coarse sand, which does not, however, form a thicker layer than, when the animal is extended and in full vigour, permits the whity-red integument to shine through it. Towards the uppermost margin of the body 16 rather long, lanceolate ribs are observed; these turn their acuminate portion towards the oral disc (Pl. VI, fig. 6 *b*), and when the tentacles are retracted they contribute to impart to the superior, rounded portion of the body a radiate appearance.

The oral disc is rather flat, and finely folded; the oral aperture is almost circular. The tentacles are retractile and situated in two series, 16 tentacles in each; they are

især ere de i den inderste Række meget lange. Farven: Den inkrusterede Del af Kroppen er graa, spillende lidt i det Gronne. Mundskiven er næsten hvid, med et svagt rodligt Skjær. Tentaklerne ere bleg rosenrode. Tab. VI, Fig. 6.

Anatomisk-histologisk Undersøgelse. Kroppens Hud har et ydre Epithellag, bestaaende af Cylinderceller med deres afiange Kjerne. Tab. XXIV, Fig. 2 *a*, indenfor hvilket er et ikke meget bredt Bindevæv (Mesoderm). Tab. XXIV, Fig. 2 *b*, der ligefra Ectodermet til Entodermet er saagodtsom ganske opfyldt af uorganiske Bestanddele — Kvartsstumper, Sandkorn, Skjæl af Foraminiferer, Kiselnaale o. s. v. Bindevævet er derved betydeligt reduceret; kun hist og her sees enkelte Lameller, der ligge imellem de fremmede Legemer, ligesom der opimod Mundskiven, hvor Inkrustationen er mindre kompakt, iagttages enkelte Masker, der ogsaa ere opfyldte. Tab. XXIV, Fig. 2 *c*. Henimod Bindevævets indre Flade sees paa enkelte Steder Ringmuskelfibre, der ere endog meget spredte, Tab. XXIV, Fig. 2 *d*, men samle sig til en stærk Muskel paa Mundskiven, imedens de ganske forsvinde ned imod Polypens Grunddel.

Det har ikke været muligt at opdage de for Zoantherne saa særegne store Celler (Zellhofe) i Bindevævet, ligesom Bindevævslgemerne synes at være sparsomme; men som tidligere anfort, Bindevævet er saa optaget af fremmede, uorganiske Bestanddele, at dets Struktur vanskelig kan udgranskes, Tab. XXIV, Fig. 2 *e*.

Paa Bindevævets indre Flade ligger det sædvanlige Muskellag, der dog ikke er meget fremtrædende og bestaar af Tver- og Længdemuskler, hvoraf de sidste ere mest udviklede. Tab. XXIV, Fig. 2 *f*. Hele Gastrovascularhulhedens Vægge ere beklædte med et Endothel, der dannes af cilierende Cylinderceller.

Der er 16 fuldstændige Septa og ligesaa mange ufuldstændige, eller, om man vil, 16 Par Septa, som dannes af 16 Macrosepta og 16 Microsepta, Tab. XXIV, Fig. 3, (paa et Exemplar var der 18 Septapar). Af disse Septapar er der 2, som maa betragtes som Retningssepta, nemlig et Par, der bestaar af Macrosepta og ere fæstede til den Del af Svælgrøret, paa hvis indre Flade Svælggruben findes, og angiver Bugsiden. Tab. XXIV, Fig. 3 *a*, og det andet Par, som bestaar af Microsepta og vender til Rygsiden, Tab. XXIV, Fig. 3 *b*.

Heller ikke paa denne Art finder jeg, at Benævnelsen Septapar er stærkt begrundet i de naturlige Forholde; thi her, ligesom hos Mardoll, tage ei alene Septaerne ikke deres Udspring fra samme Sted (saaledes udgaa de fuldstændige Septa, Macrosepta, fra Bunden af Gastrovascularhulheden, imedens de ufuldstændige, Microsepta, tage deres Begyndelse lidt længere oppe paa Kropsvæggen), men de

longer than the breadth of the oral disc, and in the inner series, especially, they are much longer. *The colour.* The encrusted portion of the body is grey, with a play of greenish colour. The oral disc is almost white with a faint reddish tinge. The tentacles are pale rosy-red (Pl. VI. fig. 6).

Anatomo-histological Investigation. The integument of the body has an external epithelial layer consisting of cylinder-cells with their oblong nuclei (Pl. XXIV, fig. 2 *a*), inside of which there is a not very broad connective-tissue (mesoderm) (Pl. XXIV, fig. 2 *b*), which is, quite from the ectoderm to the entoderm, almost completely occupied by inorganic substances, such as fragments of quartz, grains of sand, shells of foraminifera, needles of silicon, etc. The connective-tissue is, therefore, considerably diminished in quantity; only here and there a few lamellæ are observed lying between the foreign substances; while, also, up towards the oral disc, where the encrustation is not so compact, threre are observed a few meshes that are also occupied (Pl. XXIV, fig. 2 *c*). In proximity to the internal surface of the connective-tissue, annular muscle-fibres are observed in a few places; these are, however, much scattered (Pl. XXIV, fig. 2 *d*) but collect themselves into a powerful muscle on the oral disc, while they completely disappear down towards the basal portion of the polyp.

It has not been possible to discover the large cells (Zellhofe) in the connective-tissue that are so characteristic of the Zoantidæ, while the connective-tissue corpuscles, also, appear to be sparingly present; but, as previously stated, the connective-tissue is so occupied with foreign inorganic substances, that its structure can with difficulty be investigated (Pl. XXIV, fig. 2 *e*).

Upon the internal surface of the connective-tissue the usual musculous layer lies, but is, however, not very prominent, and consists of transversal and longitudinal muscles, of which the last-named are the most developed (Pl. XXIV, fig. 2 *f*). The entire walls of the gastro-vascular cavity are clad with an endothelium formed of ciliating cylinder-cells.

There are 16 perfect septa and the same number of imperfect ones, or, as we may say, 16 pairs of septa, formed of 16 macrosepta and 16 microsepta (Pl. XXIV, fig. 3); in a single specimen there were 18 pairs of septa). Of these pairs of septa, there are two pairs which must be regarded as directive septa; thus, one pair that consists of macrosepta, and which are secured to the portion of the œsophagus upon whose inner surface the gullet-groove is found, indicating the ventral side (Pl. XXIV, fig. 3 *a*), and the other pair, that consists of microsepta and face to the dorsal side (Pl. XXIV, fig. 3 *b*).

Neither do I find in this species that the appellation — pair of septa — is fully warranted by the natural relations, as here, as in Mardöll, the septa not only do not originate from the same situation (the perfect septa — macrosepta — issue from the bottom of the gastro-vascular cavity, while the imperfect septa — microsepta — originate a little farther up on the body-wall), but the

ufuldstændige Septa ere saa lidet udviklede, at de rage som tynde Lister kun et lidet Stykke ind i Gastrovascularhulheden og staa temmelig langt fra de fuldstændige Septa, — og endelig er Muskelanordningen omtrent saaledes som angivet for Mardöll, og neppe som Hertwig og Erdmann angiver for de af dem beskrevne Arter.

Macrosepta bestaa af en Bindevævslamelle (Stützmembran) temmelig smal ved deres Udspring, men som bliver meget bredere, jo længere den kommer op paa Kropsvæggen, saa at den indtager den storste Bredde nogle Millimeter fra Svælgroret. Tab. XXIV, Fig. 3 *c*; her spalter Bindevævslamellen sig saa, at der synes at fremkomme en Kanal, Tab. XXIV, Fig. 3 *d*, paa hvis Vægge jeg dog ikke har kunnet iagttage noget Epithel; heller ikke findes en saadan Spaltning af Bindevævsmembranen paa alle Septa. Erdmann har hos flere af hans Arter fundet en saadan Kanal; men den har altid været beklædt med Epithel; jeg tor saaledes ikke med Sikkerhed paastaa, at der er en virkelig Kanal i de fuldstændige Septa hos Epizoanthus arborescens, — det kan nemlig hænde, at den paa Tversnittet fremstillede Spalte er en Tilfældighed.

Som sædvanligt ere Septaerne forsynede med Tver- og Længdemuskler; Tvermusklerne ere visselig lidet udviklede og ganske skjulte af Længdemusklerne, der synes at beklæde begge Sider og ere ingenlunde meget fremtrædende. Det er derfor ikke muligt hos denne Art at kunne bestemme, hvorvidt Længdemusklerne paa Macrosepta staa i et saadant Forhold til dem paa Microsepta, der skal betinge Pardannelsen. Samtlige Macrosepta bære Mesenterialfilamenter og Generationsorganer.

Mesenterialfilamenterne tage deres Udspring lidt nedenfor Svælgrorets fri Ende, ere ved tyndt Bindevæv bundne til Septumets Bindevævslamel og følger Septumet et langt Stykke ned i Gastrovascularhulheden, men frembyder forøvrigt intet Særegent i sin Bygning, Tab. XXIV, Fig. 4 *a*. Generationsorganet, som hos de undersøgte Individer bestod af et cylindrisk Rør, der slyngede sig proptrækkerformigt nedover langs Mesenterialfilamentet, var fyldt med Æg, som vare kun lidet udviklede, Tab. XXIV, Fig. 4 *b*. Kjønnet synes at være adskilt. Paa Tversnit sees saavel Mesenterialfilamenterne som Kjønsorganerne at være stærkt sammenrullede paa Septa, hvorved disse faa Udseende af et stilket Blomkaalshoved, Tab. XXIV, Fig. 4; men denne stærke Sammentrækning er sandsynligvis Virkningen af Alkohol, hvori Dyrene have været opbevarede.

Microsepta danne yderst smale, listeformige Fremspring, Tab. XXIV, Fig. 3 *e*, der ere omtrent lige brede fra deres Begyndelse og til de fæste sig paa Mundskivens Underflade — kan hænde, at de blive lidt bredere opimod denne. Ogsaa her forekommer det mig, at Længdemusklerne beklæde begge Sider af Septum og dække Tvermusklerne; men hverken det ene eller andet Slags Muskler ere

imperfect septa are so little developed, that they penetrate, like thin fillets, only a little way into the gastro-vascular cavity, and stand at a considerable distance from the perfect septa; and, finally, the muscular arrangement is nearly the same as that indicated for Mardöll, and is scarcely like what Hertwig and Erdmann have stated for the species described by them.

The macrosepta consist of a connective-tissue lamella, (stützmembran) rather narrow at their origin, but this becomes much broader the farther up the body-wall it proceeds, so that it attains its greatest breadth a few millimetres from the œsophagus (Pl. XXIV, fig. 3 *c*). The connective-tissue lamella becomes here split up, in such a manner, that it appears to produce a channel (Pl. XXIV, fig. 3 *d*), on whose walls I have, however, not been able to observe any epithelium, and neither is such a splitting of the connective-tissue membrane found on all the septa. Erdmann has found, in several of his species, a similar channel, but it has always been clothed with epithelium. I dare not, therefore, with certainty, affirm that there is a real channel in the perfect septa of Epizoanthus arborescens; it may, perhaps, be the case that the fissure presented in the section is accidental.

The septa are, as usual, furnished with transversal and longitudinal muscles; the transversal muscles are evidently little developed, and are quite concealed by the longitudinal muscles, which appear to clothe both sides and are by no means very prominent. It is, therefore, not possible in this species to determine whether the longitudinal muscles of the macrosepta stand in such a relation to those of the microsepta, that they occasion the formation of pairs. All the macrosepta carry mesenterial filaments and reproductive organs.

The mesenterial filaments have their origin a little below the free extremity of the œsophagus, and are attached by a thin connective-tissue to the connective-tissue lamella of the septum, and accompany it a long way down into the gastro-vascular cavity, but present, otherwise, nothing peculiar in their structure (Pl. XXIV, fig. 4 *a*). The organ of reproduction, which, in the specimens examined, consisted of a cylindrical tube that twined itself, spirally, like a cork-screw, down along the mesenterial filament, was filled with ova that were only little developed (Pl. XXIV, fig. 4 *b*). The sexes appear to be separated. In transversal sections, both the mesenterial filaments and the reproductive organs appear to be strongly coiled together upon the septa, so that these last acquire the appearance of a cauliflower head seated on a stalk (Pl. XXIV, fig. 4); but that great contraction is probably due to the action of the alcohol in which the animals have been preserved.

The microsepta form extremely narrow fillet-formed protuberances (Pl. XXIV, fig. 3 *e*), which are nearly uniform in breadth from their commencement until they attach themselves to the under surface of the oral disc; they are perhaps very slightly broader close up to it. Here also, it appears, to me, that the longitudinal muscles cloth both sides of the septum, and cover the transversal muscles, but

meget udviklede. Microsepta ere golde, bære heller ikke Mesenterialfilamenter.

Svælgroret er cylindrisk, ikke meget langt, stærkt foldet paa indre Flade og har en udpræget Svælggrube, Tab. XXIV, Fig. 3 *f*.

Tentaklerne ere udvendig bekladte med et Epithel, bestaaende af hoie, cilierende Cylinderceller (Ectodermet), imellem hvilke er en stor Rigdom af Nematocyster. Indenfor Ectodermet er et stærkt Lag af Længdemuskler, der stotter sig til et temmelig bredt Bindevævslag, paa hvis indre Væg findes Cirkulærmuskler, som ere bekladte med cilierende Cylinderepithel (Endothelet), der udfylder en stor Del af Hulheden.

Findested.

Station 149. Nogle Exemplarer.

Artskarakter.

Fra det tynde, membranose Coenenchym reise sig flere Polyper, dels lodret, dels mere horizontalt, hvorved Kolonien faar et grenet Udseende. Polyperne kolleformede, indtil 35^{mm} lange, med en kun 5—6^{mm} bred Grunddel. Hele Legemet inkrusteret af Sand. Opimod Kroppens overste Rand sees 16 lancetformede Ribber. Mundskiven flad og fint foldet. Munden næsten rund. Tentaklerne retraktile, sidde i to Rækker, 16 i hver. Farven: Den inkrusterede Del af Legemet er graa, spillende lidt i det Gronne. Mundskiven næsten hvid med et rodligt Skjær. Tentaklerne bleg rosenrode.

neither the one nor the other kind of muscles are much developed. The microsepta are sterile, and neither do they carry mesenterial filaments.

The œsophagus is cylindrical, not very long, and is strongly folded on the inner surface; it has a distinguished gullet-groove (Pl. XXIV, fig. 3 *f*).

The tentacles are clad externally with an epithelium consisting of high ciliating cylinder-cells (the ectoderm), between which there is a great wealth of nematocysts. On the inside of the ectoderm there is a strong layer of longitudinal muscles, which unite themselves to a rather broad layer of connective-tissue on whose inner wall circular muscles are found, and which is clad with a ciliating cylinder-epithelium (endothelium) that occupies a great part of the cavity.

Habitat.

Station No. 149. A few specimens.

Specific characteristics.

From the thin membranous sarcosoma several polyps rise up, sometimes vertically erect, sometimes more horizontally placed, imparting to the colony a ramificated appearance. The polyps are claviform, measure up to 35^{mm} in length, and have a basal part only 5—6^{mm} in breadth. The entire body is encrusted with sand. Towards the uppermost margin of the body 16 lanceolate ribs are observed. The oral disc is flat and finely folded. The oral aperture almost circular. The tentacles retractile, situated in two series, 16 in each series. *The colour.* The encrusted portion of the body is grey with a play of a slightly greenish colour. The oral disc is almost white with a reddish tinge. The tentacles pale rosy-red.

Epizoanthus glacialis, n. sp.

Tab. VI, Fig. 7—9; Tab. XXIV, Fig. 5—8; Tab. XXV, Fig. 1—3.

Coenenchymet er ikke meget udbredt og sees snart paa flade Stene, snart spundet om tomme Tubularieror eller andre tynde Gjenstande, Tab. VI, Fig. 7, 8; Tab. XXIV, Fig. 5, 6. Det er temmelig tyndt og tildels saa gjennemsigtigt, at det er let at se, hvorledes det bestaar af Længdekanaler, der ved Tvergrene kommunicere med hverandre og derved danne et sirligt Netværk, Tab. VI, Fig. 8; Tab. XXIV, Fig. 6 *a*, hvorigjennem den ene Polyp kommunicerer med den anden. Polyperne sidde i Regelen isolerede, temmelig langt fra hinanden; selv om der paa en Sten findes mange Individer, sidde de dog adskilte, idet 2 og 3 Polyper hyppigst have deres eget Coenenchym, der ikke korresponderer med de ovrige tilstedeværende Grupper.

Epizoanthus glacialis, n. sp.

Pl. VI, figs. 7—9; Pl. XXIV, figs. 5—8; Pl. XXV, figs. 1—3.

The sarcosoma is not widely distributed, and appears sometimes on flat stones sometimes twined round empty tubes of Tubularia or other thin objects (Pl. VI, figs. 7—8; Pl. XXIV, figs. 5, 6). It is rather thin and partly so transparent, that it is easy to observe how it consists of longitudinal ducts, which by means of transversal branches communicate with each other, and in that manner produce an elegant reticulation (Pl. VI, fig. 8; Pl. XXIV, fig. 6 *a*) through which the one polyp communicates with the other. The polyps are, as a rule, placed singly, pretty far apart from each other; even if many individuals are found upon one stone, they are still seated separately, so that 2 and 3 polyps have most frequently their own sarcosoma, which does not correspond with the other groups present on the same spot.

Polyperne hæve sig soileformet fra Coenenchymet, ere cylindriske og lidt indknebne paa Midten. Tab. VI. Fig. 7, 8. Columnen er inkrusteret med Sand, omkring 20^{mm} hoi, 6^{mm} bred ved Basis, $6—7^{mm}$ bred ved den overste Ende og 4^{mm} paa Midten. Naar Polypen er indtrukken, er den overste Ende tvers afskaaren med en liden Fordybning i Midten og afrundet Rand, der har 18 Straaler. Tab. VI. Fig. 9. Er Polypen udstrakt, danne disse Straaler ligesaa mange inkrusterede Ribber, som strække sig et Stykke ned paa Kroppen, og imellem hvilke der er et temmelig bredt, nogent Felt. Tab. VI, Fig. 7, 8; Tab. XXV. Fig. 5 *a*. Mundskiven er næsten flad og foldet. Folderne udgaa fra den lidt aflange Mund mod Peripherien.

Tentaklerne ere temmelig lange, sidde i 3 Rækker; de ere tykke ved Grunden, men ende konisk tilspidsede. Den forste, yderste, Række har 18, den anden 12. — kun enkelte Exemplarer 18 — og i begge disse Rækker ere Tentaklerne omtrent lige lange; men den tredie, inderste, Række har kun 6, og disse ere baade de længste og tykkeste. — næsten lige saa lange som Mundskivens Bredde.

Naar den inkrusterede Sand er delvis afskrabet, sees paa Kroppens Overflade 18 Længdelinier, der staa tæt til hverandre og kun adskilte ved en fin, lysere Linie. Farven: Den inkrusterede Kropsdel er gulgrønlig, og naar Dyret er udstrakt, næsten gul, kun ved Grunden spillende noget i det Grønlige. Mundskiven er svag teglstensrod med morkere Folder omkring Munden. Tentaklerne ere intensere rode end Mundskiven, men ere i Enderne noget blegere. Tab. VI. Fig. 7, 8, 9.

Anatomisk-histologisk Undersøgelse. Ved Tversnit af Kropshuden viser denne sig at bestaa af et ydre Epithel, dannet af Cylinderceller med deres lidt aflange Kjerne og et rundt Kjernelegeme. Indenfor dette er et temmelig bredt Bindevævslag. Tab. XXIV. Fig. 7 *a*, hvori findes foruden Bindevævslegemer og Ernæringskanaler i stor Mængde, Tab. XXIV. Fig. 7 *b*, *c*, indleirede større og mindre Sandkorn, der ere trængt igjennem hele Bindevævet lige til dets indre Flade. Tab. XXIV, Fig. 7 *d*, men ligge dog saa spredte, at der kan være større Mellemrum, hvori der ingen saadan Indleiring af fremmede Legemer finder Sted, og i disse Mellemrum sees et bredt Belte af Ringmuskler, som indtage Midten af Bindevævslaget. Tab. XXIV, Fig. 7 *e*; Tab. XXV. Fig. 1 *a*. Imellem den indvendige Flade af Bindevævet og Endothelet, der bestaar af temmelig smale, cilierende Cylinderceller. Tab. XXIV. Fig. 7 *f*; Tab. XXV, Fig. 1 *b*, ligger det sædvanlige Muskellag, som heller ikke hos denne Art er stærkt repræsenteret.

Der er 18 Macrosepta og ligesaa mange Microsepta, eller om man vil 18 Septapar. Macrosepta, som ere fuld-

The polyps rise up like columns from the sarcosoma; they are cylindrical and a little constricted at the middle (Pl. VI. figs. 7, 8). The column is encrusted with sand; it measures about 20^{mm} in height, 6^{mm} in breadth at the base, $6—7^{mm}$ broad at the uppermost extremity, and 4^{mm} broad at the middle. When the polyp is retracted the uppermost extremity appears truncated, but with a little depression in the middle and a rounded margin carrying 18 radii (Pl. VI. fig. 9). When the polyp is extended, these radii form the same number of encrusted ribs, which extend themselves a small piece down the body and between which there is a pretty broad bare area (Pl. VI, figs. 7, 8; Pl. XXV. fig. 5 *a*). The oral disc is almost flat, and folded. The folds issue from the slightly oblong mouth towards the periphery.

The tentacles are pretty long and are placed in 3 series; they are thick at the base but terminate conically acuminated. The outermost series contains 18 and the second series 16, only occasional specimens containing 18 tentacles; in both those series the tentacles are about uniform in length; but the third, innermost series, has only 6 tentacles, and they are both the longest and the thickest, almost as long as the oral disc is broad.

When the encrusted sand has been partially scraped away, 18 longitudinal furrows are observed upon the surface of the body; these are placed close to each other and are only separated by a fine, lighter-coloured line. *The colour.* The encrusted portion of the body is greenish-yellow, but when the animal is extended almost yellow, having a somewhat greenish play of colour at the base only. The oral disc is faint brick-red, with darker folds around the oral aperture. The tentacles are more intensely red than the oral disc, but are somewhat paler in colour at the extremities (Pl. VI, figs. 7, 8, 9).

Anatomo-histological Investigation. In a transversal section of the integument of the body, the integument shows itself to consist of an external epithelium formed of cylinder-cells with their slightly oblong nuclei and a round nucleus-corpuscle. To the inside of that there is a rather broad layer of connective-tissue (Pl. XXIV. fig. 7 *a*), in which are found, besides connective-tissue corpuscles and nutritory ducts in great abundance (Pl. XXIV. fig. 7 *b*, *c*), larger and smaller grains of sand entrenched; these have forced themselves through the entire body of the connective-tissue, quite to its inner surface (Pl. XXIV. fig. 7 *d*) but are, yet, placed so scatteredly, that there may occur great intervals in which no such entrenchment of foreign bodies takes place, and in these interspaces a broad belt of annular muscles is observed occupying the middle of the connective-tissue layer (Pl. XXIV. fig. 7 *e*; Pl. XXV. fig. 1 *a*). Between the inner surface of the connective-tissue and the endothelium, which consists of rather narrow ciliating cylinder-cells (Pl. XXIV, fig. 7 *f*; Pl. XXV, fig. 1 *b*), lies the usual muscular layer, which is not either in this species strongly represented.

There are 18 macrosepta, and the same number of microsepta or, as we may say, 18 pairs of septa. The

stændige og fæste sig paa Svælgroret, ere ikke meget brede og have Længde- og Tvermuskler, der ikke ere synderlig udviklede. Længdemusklerne indtage Storstedelen af Septumets ene Side og ere fjærformede: fra den anden Side, hvor Tvermusklerne ere fæstede, udgaa yderst smale Bindevævsmembraner, som bære Mesenterialfilamenterne og Generationsorganerne, Tab. XXIV, Fig. 8 *a*; Tab. XXV, Fig. 1 *c*. Mesenterialfilamenterne frembyde intet Særegent: de udspringe lige ved den nederste, fri Ende af Svælgroret, ligge inderst mod Kropsvæggen og strække sig ned mod Gastrovascularhulhedens Bund.

Generationsorganerne udgaa omtrent fra samme Sted som Mesenterialfilamenterne, kun lidt nedenfor disse og ligge udenfor dem, altsaa fjernere Kropsvæggen. Kjønnet er sandsynligvis adskilt. Paa de undersøgte Individer iagttoges kun Æggestokke; disse slyngede sig proptrækkerformet nedover Septum og indeholdt Æg i forskjellige Udviklingsstadier, men som oftest var kun 1 Æg fuldt udviklet, og dette laa da indeni en temmelig rummelig Kapsel. Tab. XXV, Fig. 1 *d*.

Af de 18 fuldstændige Septa er der to Retningssepta, som ere fæstede til Svælgrorets ydre Side just der, hvor Svælggruben findes paa dettes indre Flade. Tab. XXIV, Fig. 8 *b*. Paa disse Septa er Muskelanordningen saaledes, som Dr. Erdmann har fundet den hos de af ham beskrevne Arter; de longitudinelle Muskler ere fæstede paa Septumets ydre Side og vende fra hverandre, imedens de transverselle findes paa den indre Side og saaledes vende mod hverandre; saavidt mine Undersøgelser gaa, er dette ogsaa Tilfældet med de øvrige Septa.

Microsepta ere ligeledes 18, hvoraf 2, der ere fæstede til Rygsiden, ere Retningssepta og have Musklerne placerede som paa de fuldstændige Retningssepta. Tab. XXIV, Fig. 8 *c*. Disse ufuldstændige Septa, der ere golde, ere meget smale, listeformige og placerede imellem de fuldstændige Septa, Tab. XXIV, Fig. 8 *d*. De ere dannede ligesom Macrosepta af en tynd Bindevævsmembran, hvis begge Sider ere beklædte med Muskler saaledes, at paa den ene Side ere Længdemusklerne fæstede og paa den anden Tvermusklerne. Her synes Musklerne, som i det Hele taget kun ere lidet udviklede, at være ordnede saaledes, at Længdemusklerne vende mod Længdemusklerne, og Tvermusklerne mod Tvermusklerne paa Macrosepta. Herfra gjør dog Retningssepta en Undtagelse, hvilket ovenfor er antydet. Jeg indrømmer, at hos denne Art er der stærkere Grund end hos de to tidligere beskrevne Arter til at parre Macro- og Microsepta sammen. Samtlige Septa ere beklædte med et Endothel, bestaaende af cilierende Cylinderceller, der egentlig beklæde hele Gastrovascularhulheden.

macrosepta, which are perfect and attach themselves to the œsophagus, are not very broad, and have longitudinal and transversal muscles that are, however, not particularly well developed. The longitudinal muscles occupy the greater part of the one side of the septum and are feather-shaped; from the other side, where the transversal muscles are secured, extremely narrow connective-tissue membranes issue, bearing the mesenterial filaments and reproductive organs (Pl. XXIV, fig. 8 *a*; Pl. XXV, fig. 1 *c*). The mesenterial filaments present nothing peculiar; they issue close to the lowest free extremity of the œsophagus, lie next to the body-wall, and extend themselves down towards the bottom of the gastro-vascular cavity.

The organs of reproduction issue from about the same situation as the mesenterial filaments, but a little below them and lying outside, consequently farther from the body-wall. The sexes are most probably separated. In the individuals examined, ovaries only were observed: those twined themselves spirally, like a cork-screw, down the septum, and contained ova in various stages of development, but most frequently one ovum only was fully developed, and that one then lay inside a pretty roomy capsule (Pl. XXV, fig. 1 *d*).

Of the 18 perfect septa, there are 2 directive septa which are secured to the outer side of the œsophagus, just at the point where the gullet-groove is found upon its inner surface (Pl. XXIV, fig. 8 *b*). Upon these septa the muscular arrangement is like what Dr. Erdmann has found it to be in the species described by him; the longitudinal muscles are secured to the outer side of the septum and turn away from each other, whilst the transversal muscles are found upon the inner side, and consequently face towards each other; so far as my investigations extend that is also the case with the remaining septa.

Of microsepta there are likewise 18, of which 2 that are secured to the dorsal side are directive septa and have the muscles placed in same manner as on the perfect directive septa (Pl. XXIV, fig. 8 *c*). These imperfect septa, which are sterile, are very narrow, fillet-formed, and are placed between the perfect septa (Pl. XXIV, fig. 8 *d*). They are formed, like the macrosepta, of a thin connective-tissue membrane, both of whose sides are clad with muscles in such manner, that on the one side longitudinal muscles are attached, and on the other side transversal muscles. Here the muscles, which, upon the whole, are only little developed, appear to be arranged in such manner, that the longitudinal and transversal muscles respectively face towards the longitudinal and transversal muscles of the macrosepta. From that rule, however, the directive septa form an exception, which has been indicated above. I confess that in this species there is stronger reason than in the previously described species, to pair the macrosepta and the microsepta together. All the septa are clad with an endothelium consisting of ciliating cylinder-cells, which indeed clothe the entire gastro-vascular cavity.

Svælgroret danner en lidt fladtrykt Cylinder, som udvendigt er forsynet med Endothelbeklædning, indenfor hvilken er et Muskellag, der er Fortsættelse af Musklerne paa de fuldstændige Septa, og som er fæstet til et Bindevævslag, Tab. XXIV, Fig. 8 *e*, der tiltager betydeligt i Bredde mod Bugsiden, Tab. XXIV, Fig. 8 *f*, netop der, hvor de to fuldstændige Retningssepta fæste sig. Den indre Flade frembyder en udpræget Svælggrube, Tab. XXIV, Fig. 8 *g*, som er forsynet med høie, smale Cylinderceller, der bære lange Cilier; den øvrige Del af den indre Svælgvæg er foldet og beklædt med meget lavere Cylinderceller, Tab. XXIV, Fig. 8 *h*, som have korte Cilier, og imellem hvilke der sees en stor Mængde encellede, kolbeformede Slimkjertler.

Tentaklerne ere paa sin ydre Væg beklædte med et Epithel, som bestaar af høie, smale, cilierende Cylinderceller, imellem hvilke der er en stor Mængde Nematocyster. Indenfor Ectodermet er et Lag stærke Længdemuskler, som ere fæstede til Bindevævet, der er temmelig bredt, forsynet med Bindevævslegemer og Ernæringskanaler, og paa hvis indre Flade cirkulære Muskler inserere sig. Disse ere beklædte med et Endothel, dannet af temmelig høie, smale, cilierende Cylinderceller, som rage langt ind i Tentakelhulheden.

The œsophagus forms a slightly flattened cylinder that is furnished externally with a covering of endothelium, on the inside of which there is a muscular layer, a continuation of the muscles of the perfect septa, and its muscles are attached to a layer of connective-tissue (Pl. XXIV, fig. 8 *e*) that increases considerably in breadth towards the ventral side (Pl. XXIV, fig. 8 *f*), just at the point where the two perfect directive septa attach themselves. The inner surface presents a distinguished gullet-groove (Pl. XXIV, fig. 8 *g*) furnished with high narrow cylinder-cells carrying long ciliæ; the remainder of the gullet-wall is folded, and is clad with much lower cylinder-cells (Pl. XXIV, fig. 8 *h*) with short ciliæ, between which a great multitude of unicellular, claviform mucous glands are observed.

The tentacles are, upon their external wall, clad with an epithelium that consists of high, narrow, ciliating cylinder-cells, between which there is a great abundance of nematocysts. On the inside of the ectoderm there is a layer of strong longitudinal muscles, which are attached to the connective-tissue; the latter is pretty broad and furnished with connective-tissue corpuscles and nutritory ducts, and circular muscles insert themselves on its inner surface. These are clad with an endothelium formed of rather high, narrow, ciliating cylinder-cells that project far into the tentacular cavity.

Findested.

Station 164. Mange Exemplarer.
— 200. Nogle faa Exemplarer.

Habitat.

Station No. 164. Many specimens.
— „ 200. A few specimens.

Artskarakter.

Coenenchymet ikke meget udbredt, dels fæstet paa Stene, dels omspundet tynde Gjenstande, saasom Tubularieror. Polyperne i Regelen isolerede, cylindriske, lidt indknebne paa Midten. Kolumnen inkrusteret med Sand, er 20^{mm} høi, 6^{mm} bred ved Grunden, 6—7^{mm} bred ved den øverste Ende og 4^{mm} paa Midten. Opimod dens øverste Rand 18 inkrusterede Ribber, imellem hvilke ligesaa mange nøgne Felter. Mundskiven næsten flad, foldet. Folderne udgaa fra den lidt aflange Mund til Peripherien. Tentaklerne sidde i 3 Rækker, ere temmelig lange, tykke ved Grunden, men ende konisk tilspidsede. I den yderste Række er der 18, i den mellemste 12, i begge disse Rækker ere Tentaklerne lige lange, men den inderste, 3die Række har kun 6, der ere de længste og tykkeste, næsten ligesaa lange som Mundskivens Bredde. Farven: Den inkrusterede Kropsdel er gulgrønlig; naar Dyret er udstrakt er den næsten gul, kun ved Grunden spillende noget i det Grønne. Mundskiven svag tegelstensrød med mørkere Mundrand og Folder. Tentaklerne ere intensere røde end Mundskiven, men i Enderne noget blegere.

Specific characteristics.

The sarcosoma not widely distributed, sometimes attached to stones sometimes twined round other objects, such as tubes of Tubularia. The polyps placed singly, as a rule, cylindrical, slightly constricted at the middle. The column encrusted with sand, measures 20^{mm} in height, 6^{mm} in breadth at the base, 6—7^{mm} in breadth at the uppermost extremity, and 4^{mm} at the middle. Up towards the uppermost margin there are 18 encrusted ribs, between which there are the same number of bare areas. The oral disc almost flat, folded. The folds issue from the slightly oblong oral aperture to the periphery. The tentacles are placed in 3 series, are rather long, thick at the base, but terminate conically acuminated. In the outermost series there are 18 tentacles, in the intermediate series 12; in both of those series the tentacles are uniform in length, but the innermost, the third series, contains only 6 tentacles, and they are the longest and thickest, being almost as long as the oral disc is broad. *The colour.* The encrusted portion of the body greenish-yellow, but when the animal is extended it is almost yellow with a slightly greenish play of colour at the base only. The oral disc is faint brick-red with a darker margin

Paa Æggestokkene hos Epizoanthus glacialis fandtes en Parasit, der var temmelig hyppig, og som jeg er i Tvivl om, hvorvidt den tilhører Plante- eller Dyreriget. Den sad imellem Endothelcellerne, der beklæde Æggestokkene og syntes at være klæbet sammen med dem ved en kort Stilk, saa det havde sine Vanskeligheder at isolere den ganske. Den var overmaade liden og kunde ikke iagttages uden ved meget stærke Forstorrelser, og da den frembod forskjellige Udviklingsstadier, er det sandsynligt, at den udvikler sig hos den Vært, der har Æren af at være gjæstet af den.

Jeg skal nu beskrive den, saagodt Materialet tillader det. Sporerne ere runde, morke, næsten uigjennemsigtige, uden nogen Membran og bestaar af en tilsyneladende jevn Protoplasmamasse, Tab. XXV, Fig. 1 *e*. Disse Sporer forlænge sig i to modsatte Retninger og antage en elliptisk Form. Der danner sig nu en Membran omkring den forlængede Spore, hvilken er ganske klar, og Indholdet viser sig da at bestaa af en brun, næsten homogen Protoplasmamasse, Tab. XXV, Fig. 1 *f*; paa et længere fremskredet Stadium bliver Membranen overmaade tydelig, og det indeholdte Protoplasma har kornet sig, Tab. XXV, Fig. 1 *g*, 2.

Nu udvider Ellipsens begge Ender sig, blive spidsere og ganske klare, Tab. XXV, Fig. 3 *a*. Membranen har tiltaget i Tykkelse, men er temmelig klar, og indenfor den har Protoplasmaet differentieret sig saaledes, at der i Midten sees to tydelige Kjerner, Tab. XXV, Fig. 3 *b*, og to særegne Legemer (muligens vordende Embryoner), Tab. XXV, Fig. 3 *c*, i Protoplasmamassen, samt to Vacuoler, som ligge mod begge Ender og egentlig udenfor Protoplasmaet, Tab. XXV, Fig. 3 *d*. Det forekommer mig, at denne parasitære Skabning nærmest maa henfores til tidligere Stadier af en Gregarine, som har fundet sin Regning i at tage Bolig hos en Epizoanthus, der lever i den kolde Area paa 457 Favnes Dyb. De for Gregarinerne saa eiendommelige, forlængede Sække (Schleuche) eller Indkapslinger fandt jeg ikke; men ser man til Sporernes Beskaffenhed, den tykke, klare Membran, der omgiver Protoplasmaindholdet (Embryonet) og senere dettes Differentieren, saa vil man heri finde saa megen Lighed med, hvad der er kjendt af enkelte Gregarineformers (Sporocoernes) Udvikling, at det nok tor hænde, at min Antagelse er rigtig.

round the oral aperture, and with darker folds. The tentacles are more intensely red than the oral disc, but somewhat paler in colour at the extremities.

On the ovaries of Epizoanthus glacialis a parasite was observed, appearing with considerable frequency, regarding which I am in doubt whether it pertains to the vegetable or the animal kingdom. It was seated between the endothelial cells that clothe the ovaries, and appeared to be glued to than by means of a short stalk, so that it was not an easy matter to isolate it completely. It was extremely small and could not be observed except under great magnification, and, as it presented itself in various stages of development, it is probable that it developes itself at the expense of the host who has the honour of entertaining it.

I shall now describe it, as well as the material at my disposal permits. The spores are round, dark, almost opaque, have no membrane, and consist of an apparently uniform protoplasmic substance (Pl. XXV, fig. 1 *e*). These spores become prolonged in two contrary directions and assume an elliptical form. A membrane is now formed round the prolongated spore, which is quite translucent, and the contents then show themselves to consist of a brown, almost homogeneous protoplasmic substance (Pl. XXV, fig. 1 *f*); in a more advanced stage the membrane becomes extremely distinct, and the protoplasmic substance contained has become granular (Pl. XXV, fig. 1 *g*, 2).

Then both extremities of the ellipsis become widened out, become more acuminated and quite translucent (Pl. XXV, fig. 3 *a*). The membrane has increased in thickness but is pretty translucent, and inside it the protoplasm has become differentiated in such manner, that in the middle there are observed two distinct nuclei (Pl. XXV, fig. 3 *b*), and two peculiar bodies (possibly future embryons) (Pl. XXV, fig. 3 *c*) in the protoplasmic substance, also two vacuoli that lie towards both extremities but really outside the protoplasm (Pl. XXV, fig. 3 *d*). It appears, to me, that this parasitical creature must, as the most obvious course, be assigned to the early stages of a Gregarine that has found it advantageous to take up its residence with an Epizoanthus, dwelling in the cold area at a depth of 457 fathoms. The prolongated sacs so peculiar to the Gregarines (Schleuche), or capsules, I did not discover; but if we regard the nature of the spores, the thick translucent membrane that surrounds the protoplasmic contents (the embryon), and the subsequent differentiation, we will, in those features, find so much similarity with what is known of the development of a few forms of Gregarines (the sporozoa), that it may well be, perhaps, that my supposition is correct.

Epizoanthus roseus, n. sp.

Tab. VI. Fig. 10; Tab. XXV. Fig. 4—6.

Coenenchymet, der er temmelig tyndt, membranost og fast, er ikke meget udbredt over den lille Sten, som det tildels omfatter, Tab. VI. Fig. 10; Tab. XXV. Fig. 4. Fra det reiser sig 4 Polyper, der ere næsten pæreformige, indtil 15^{mm} lange og dobbelt saa brede i den overste som i den nederste Ende. Kolumnen er inkrusteret med fin graalig-gul Sand, der dog ei er saa tæt sammenpakket, at ikke den rosenrode Hud skinner igjennem, naar Dyret er fuldt udstrakt. Kolumnens overste Rand er forsynet med 12 inkrusterede, lancetformede Ribber, imellem hvilke sees ligesaa mange nogne, rosenrode Felter, Tab. VI. Fig. 10; Tab. XXV. Fig. 4 *a*; dens nederste Del, Basaldelen, er rund, smal og temmelig fast paa Grund af det stærkt inkrusterede Sand.

Mundskiven er temmelig flad og i dens Midte er en aflang Mundaabning, hvorfra udgaa Folder henimod Skivens Peripheri. Der er to Rækker Tentakler, som staa afvexlende, 12 i hver Række; de i den ydre Række ere temmelig tykke, afstumpede og omtrent halvt saa lange som Skivens Bredde, Tab. XXV. Fig. 4 *b*, medens de i den indre ere længere, naa næsten Skivens hele Bredde og ere slankere, Tab. XXV. Fig. 4 *c*. Naar Polypen er ganske sammentrukken, har den en elliptisk Form, med sin smaleste Del nedad.

Farven. Coenenchymet er halvt gjennemsigtigt, graaligt. Polypen er graagul af det inkrusterede Sand, men den rosenrode Hud skinner igjennem. Mundskiven rosenrod med blegere Radier. Tentaklerne er paa den nederste, bredere Del rosenrøde som Mundskiven, men paa den overste Halvdel ere de blegere og i Spidsen næsten hvide.

Ved den anatomisk-histologiske Undersøgelse viser det sig, at hele Legemet som sædvanligt er bekladt med et Ectoderm, Tab. XXV, Fig. 5 *a*, der bestaar af Cylinderceller, hvilke paa Mundskiven og Tentaklerne ere meget høie, ligesom der paa de sidste findes en stor Mængde Nematocyster imellem Cylindercellerne. Indenfor Ectodermet er et bredt, hyalint Bindevæv, hvori er indsænket større og mindre Sandkorn, som strække sig igjennem Bindevævets hele Bredde, Tab. XXV, Fig. 5 *b*, 6 *a*. Disse Sandkorn ligge dog tildels noget spredte, saa at Bindevævet kommer godt tilsyne, og da sees i dets Midte et Belte af cirkulære Muskler, der ikke synes at være meget udviklede, Tab. XXV, Fig. 6 *b*. Paa den indre Flade af Bindevævet er fæstet et Muskellag, dannet af Længde- og Tværmuskler, bekladt af Endothelet, Tab. XXV, Fig. 6 *c*.

Epizoanthus roseus, n. sp.

Pl. VI. fig. 10; Pl. XXV. figs. 4—6.

The sarcosoma, which is rather thin, is membranous and firm, and not widely distributed over the small stone that it partially embraces (Pl. VI, fig. 10; Pl. XXV. fig. 4). From the sarcosoma there arise 4 polyps; these are almost piriform, measure up to 15^{mm} in length, and are twice as broad in the superior as in the inferior extremity. The column is encrusted with fine greenish-yellow sand, which is, however, not so closely crowded together but that it permits the rosy-red integument to shine through when the animal is fully extended. The uppermost margin of the column is furnished with 12 encrusted lanceolate ribs between which the same number of bare rosy-red areas are observed (Pl. VI, fig. 10; Pl. XXV, fig. 4 *a*). Its lowest part, the basal portion, is round, narrow, and pretty firm owing to the strong encrustation of sand.

The oral disc is rather flat, and in its middle there is an oblong oral aperture from which folds issue towards the periphery of the disc. There are two series of tentacles, placed alternatingly, 12 in each series; those of the outer series are pretty thick and blunted, and about half the length of the breadth of the disc (Pl. XXV, fig. 4 *b*); while those of the inner series are longer, attain to nearly the entire breadth of the disc, and are slenderer (Pl. XXV. fig. 4 *c*). When the polyp is quite contracted it has an elliptic form, with its narrowest portion at the foot.

The colour. The sarcosoma is semi-transparent, greyish. The polyp is greyish-yellow owing to the encrusted sand, but the rosy-red integument shines through. The oral disc is rose-red, with lighter-coloured radii. The tentacles are, upon their lowest broad part, rose-red like the oral disc, but upon their superior half they are paler in colour, and almost white at the point.

Upon making the anatomo-histological investigation it is seen, that the entire body is, as usual, clad with an ectoderm (Pl. XXV. fig. 5 *a*) that consists of cylinder-cells, which, upon the oral disc and tentacles, are very high; while, also, there are found on the last-named a great multitude of nematocysts distributed between the cylinder-cells. On the inside of the ectoderm there is a broad hyaline connective-tissue in which are embedded larger and smaller grains of sand that penetrate through the complete thickness of the connective-tissue (Pl. XXV, figs. 5 *b*, 6 *a*). Those grains of sand lie, however, partly somewhat scatteredly, so that the connective-tissue is quite freely visible, and there is, thus, observed in its middle a belt of circular muscles that do not appear to be very much developed Pl. XXV, fig. 6 *b*). Upon the inner surface of the connective-tissue there is a muscular layer attached, formed of longitudinal and transversal muscles clad with the endothelium (Pl. XXV. fig. 6 *c*).

Fra den indre Kropsvæg udgaa 24 Septa, hvoraf 12 ere fuldstændige. Tab. XXV, Fig. 5. Af disse Macrosepta, Tab. XXV, Fig. 5 *c*, er der 2, som ved sin stærke Bygning udmærke sig fremfor de ovrige. Disse, der ere Retningssepta, fæste sig paa den ydre Side af Svælgroret paa det Sted, som svarer til Svælggruben paa den indre Side (Bugsiden), Tab. XXV, Fig. 5 *d*. Samtlige Macrosepta ere beklædte med Længde- og Tvermuskler, hvoraf de første ere stærkt udviklede, især ved deres Udspring fra Kropsvæggen, hvor de tildels danne en større eller mindre Busk; men foruden den stærke Muskulatur bære alle Macrosepta Mesenterialfilamenter og Generationsorganer. Disse sidste vare kun lidet udviklede; de indeholdt Æg i det begyndende Stadium.

De 12 ufuldstændige Septa (Microsepta) danne listeformige Fremspring fra den indre Kropsvæg; de ere stillede imellem Macrosepta enkeltvis, naar undtages 2, der staa sammen imellem 2 Macrosepta og maa betragtes som Retningssepta, der tilhører Rygsiden, Tab. XXV, Fig. 5 *e*, idet de ere stillede ligeoverfor de 2 fuldstændige Retningssepta paa Bugsiden. Ogsaa Microsepta ere forsynede med Muskulatur, som bestaar af Længde- og Tvermuskler; men den egentlige Anordning var forrykket paa Tversnittene — det har nemlig sine store Vanskeligheder at faa rene Tversnit paa Grund af Inkrustationen. Microsepta ere golde. Svælgroret er lidt fladtrykt og paa dets indre Flade, der er foldet, er en tydelig udpræget Svælggrube, Tab. XXV, Fig. 5 *f*.

From the inner wall of the body 24 septa issue, of which 12 are perfect septa (Pl. XXV, 5). Of those macrosepta (Pl. XXV, fig. 5 *c*), there are 2, which by their strong structure distinguish themselves from the others. These, which are directive septa, attach themselves to the external side of the œsophagus, in the situation that corresponds to the gullet-groove on the internal side (the ventral side) (Pl. XXV, fig. 5 *d*). All the macrosepta are clad with longitudinal and transversal muscles, of which the first-named are strongly developed, especially at their origin in the wall of the body, where they partly form a greater or lesser tuft, but besides their great musculosity all the macrosepta carry mesenterial filaments and reproductive organs. These last were only little developed; they contained ova in the rudimentary stage.

The 12 imperfect septa (microsepta) form fillet-formed projections from the inner wall of the body. They are placed singly, between the macrosepta, except 2 that are placed together, between 2 macrosepta, and must be regarded as directive septa that pertain to the dorsal side (Pl. XXV, fig. 5 *e*), as they are placed exactly opposite the 2 perfect directive septa of the ventral side. The microsepta are also furnished with a musculosity consisting of longitudinal and transversal muscles, but the proper arrangement was disturbed in the transversal sections. It is a matter of the greatest difficulty to obtain clean-cut sections owing to the encrustation. The microsepta are sterile. The œsophagus is a little flattened, and on its inner surface, which is folded, there is a distinctly prominent gullet-groove (Pl. XXV, fig. 5 *f*).

Findested.

Station 200. En Gruppe, bestaaende af 4 Polyper, netop den, som er tegnet.

Habitat.

Station No. 200. A group, consisting of 4 polyps, precisely the one that is illustrated.

Artskarakter.

Coenenchymet tyndt, ikke meget udbredt over Stenen. Polyperne, der staa i en liden Gruppe, ere pæreformede, indtil 15^{mm} lange. Den øverste Ende dobbelt saa bred som Basaldelen. Kolumnen inkrusteret med fin, graagul Sand, der dog lader den røde Hud gjennemskinne, og paa dens øverste Rand 12 inkrusterede Ribber, hvorimellem ligesaamange nøgne Felter. Mundskiven flad, fint foldet; Munden aflang. 2 Rækker Tentakler, 12 i hver; de i den inderste Række længst. Farven: Coenenchymet graaligt; Polyperne graagule af det inkrusterede Sand, men selve Huden laxerød. Mundskiven som Huden med blegere Radier. Tentaklerne ved Grunden laxerøde, paa Midten blegere, næsten hvide i Spidsen.

Specific characteristics.

The sarcosoma thin, not widely distributed over the stone. The polyps, which stand in a small group, are piriform, measure up to 15^{mm} in length. The superior part is twice the breadth of the basal part. The column is encrusted with fine sand of a greyish-yellow colour, which permits, however, the red integument to become visible through the encrustation; on its uppermost margin there are 12 encrusted ribs, between which there are the same number of bare areas. The oral disc is flat, finely folded. The oral aperture oblong. Two series of tentacles, 12 in each, those of the innermost series being the longest. *The colour.* The sarcosoma greyish. The polyps greyish-yellow owing to the encrusted sand, but the integument itself is salmon-red colour. The oral disc same colour as the integument, with paler-coloured radii. The tentacles salmon-red colour at their base, paler in colour in the middle and almost white at the point.

Foruden de her beskrevne Zoanthider fandtes paa Station 252 et Exemplar af Epizoanthus (Zoanthus) arcticus, M. Sars, og paa Station 260 nogle Exemplarer af Polythoa arenacea, Delle Chiaje, (Mamillifera incrustata, Zoanthus incrustatus, Düb. et Kor.).

Besides the Zoanthidæ described here, there were found, at station 252, a specimen of Epizoanthus (Zoanthus) arcticus M. Sars; and at station 260 a few specimens of Polyphoa arenacea, Delle Chiaje (Mamillifera incrustata, Zoanthus incrustatus, Düb. et Kor.).

Cerianthea, Hertwig.

Familie Cerianthidæ, Hertwig.

Slægt Cerianthus, Delle Chiaje.

Professor Carl Vogt har i Archives de Biologie leveret en yderst interessant Afhandling over Slægterne Arachnactis og Cerianthus og paavist til Evidents ikke alene en gjennemgaaende bilateral Symetri hos disse Slægter, men at de ogsaa i morphologisk Henseende staa hinanden saa nær, at der kunde være nogen Grund til at antage Arachnactis for en svommende Larve af Cerianthus, dersom ikke de fuldt udvoxne Dyr paa det Bestemteste afvise et saadant Forhold. Naar jeg nedenfor beskriver to nye Arter af Cerianthus fra den norske Nordhavsexpedition, maa jeg henvise til de fortrinlige Arbeider over denne Slægt, som ere leverede af Jules Haine [1], A. von Heider [2] og Carl Vogt [3]; thi det Material, jeg har havt at raade over, er saa lidet og dertil saa stærkt medtaget af Bundskraben, der har beskadiget Dyrene, som sandsynligvis sidde i den løse, dyndede Bund, at Undersøgelserne ikke kunne være udtømmende. Begge Arter ere hentede fra den kolde Area i en Dybde fra 480—693 Favne med en Temperatur ÷ 1,2 C. Naar der undtages 1 Exemplar, der angives af Moseley fra Challenger-Expeditionen, og som forresten er et tvivlsomt Specimen, der tilhører de store Dyb, saa er alle hidtil kjendte Former af Cerianthus fra temmelig ringe Dybder, og forsaavidt kan de to Arter, jeg nu skal beskrive, ogsaa have sin Interesse.

[1] Jules Haine, Memoire sur le Cerianthe (Cerianthus membranaceus). Annales des Sciences natur. 4me série. 1854.

[2] A. von Heider. Cerianthus membranaceus. Haine. Ein Beitrag zur Anatomie der Actinien. Sitzungsberichte der mathematisch-naturwissenchaftlichen Classe der K. K. Akademie der Wissenschaften in Wien. Vol. 79. 1te Abtheilung 1879. Pag. 204.

[3] Carl Vogt, Professeur à Genève. Des genres Arachnactis et Cerianthus. Archives de Biologie, pub. par Ed. van Beneden et Charles van Bambeke. Tome VIII. Fascicule 1. Pag. 1. Liége 1888.

Cerianthea, Hertwig.

Family Cerianthidæ, Hertwig.

Genus Cerianthus, Delle Chiaje.

Professor Carl Vogt has, in „Archives de Biologie", given an extremely interesting Paper on the genera Arachnactis and Cerianthus, and shown, most conclusively, not only a generally pervading bilateral symmetry in those genera, but also, that they, in morphological respects, are so closely related to each other, that there might be good reason to take Arachnactis to be a swimming larva of Cerianthus, if the fully developed animal did not, in the most distinct manner, disprove such a relation. While I now describe, in what follows, two new species of Cerianthus from the Norwegian North-Atlantic Expedition, I would refer the reader to the admirable works on the genus that have been published by Jules Haine [1], A. von Heider [2] and Carl Vogt [3], as the material I have had at my disposal is so small, and is, besides, so much injured by the dredge, which has destroyed the animals that probably have been seated in the loose slimy bottom, that the investigations have not been exhaustive. Both the species are obtained from the cold area at a depth of from 480—693 fathoms, and a temperature of ÷ 1.2 C. When we except a single specimen, mentioned by Moseley, from the „Challenger" expedition, and which is, besides, a doubtful one, that pertains to the great deep, all the hitherto known forms of Cerianthus have come from pretty shallow waters; the two species I purpose now to describe are therefore, so far, of peculiar interest.

[1] Jules Haine, Memoire sur le Cerianthe (Cerianthus membranaceus). Annales des Sciences natur. 4me série. 1854.

[2] A. von Heider. Cerianthus membranaceus, Haine. Ein Beitrag zur Anatomie der Actinien. Sitzungsberichte der mathematisch-naturwissenchaftlichen Classe der K. K. Akademie der Wissenschaften in Wien. Vol. 79. 1te Abtheilung 1879. Pag. 204.

[3] Carl Vogt, Professeur à Genève. Des genres Arachnactis et Cerianthus. Archives de Biologie, pub. par Ed. van Beneden et Charles van Bambeke. Tome VIII. Fascicule 1, Pag. 1. Liége 1888.

Cerianthus Vogti [1]. n. sp.

Tab. V. Fig. 8, 9; Tab. XXV. Fig. 7—14.

Legemet er cylindrisk, lidt traktformigt, henved 80^{mm} langt, 20^{mm} bredt i den overste Ende og 6^{mm} i den nederste. Kroppens udvendige Flade er glat til opimod 10^{mm} fra Mundskiven, hvor den bliver foldet paalangs. Folderne ere omtrent lige lange og lige fremtrædende, naar undtages en, der er bredere end de ovrige og strækker sig længere ned paa Kroppen. Ligeover for denne brede Fold sees paa den modsatte Side af Kroppen en yderst smal, men dyb Fure, der strækker sig fra Tentakelranden til et Stykke nedenfor Legemets Midte, hvor den bliver meget utydelig, saa at det ikke kan afgjores, om den naar lige ned til den aborale Ende. Denne er forsynet med en rund, temmelig stor Aabning, som udvider og sammentrækker sig, saa den synes at have en Sphincter.

Kolumnens overste Ende udvider sig traktformigt og paa dens krenulerede Rand er der en Række Tentakler. Indenfor denne sees den noget fordybede Mundskive med den lidt aflange Mund med sine to Mundvinkler; omkring Munden er en Række Tentakler, og fra denne til den ydre Tentakelrække har Mundskiven en Glorie af fine Folder, hvis Antal svarer til Tentaklernes, Tab. V, Fig. 8.

Randtentaklerne, der danne en uafbrudt Række og ikke staa i flere Cykler, ere 36 i Antal, ikke retraktile, have en Længde af omkring 30^{mm} og ere temmelig tykke ved Grunden, men smalne betydeligt af, saa at de i Spidsen ere yderst fine, traadformige, Tab. V, Fig. 8. Der er kun en Randtentakel, der staar ligesom isoleret og stoder til den omtalte brede Fold paa Kroppens ydre Flade; denne Tentakel er meget kortere end de ovrige.

Mundtentaklerne heller ikke retraktile, ere baade meget kortere og tyndere end Randtentaklerne, men tilstede i samme Antal som disse (36). De staa i en Række, men ikke lige langt fra hverandre, idet omtrent en Trediedel staar temmelig langt fra hverandre og ere noget længere end de ovrige, Tab. XXV, Fig. 9 *a*, der staa tættere og ere tildels kortere, Tab. XXV, Fig. 9 *b*. De længere og mere fra hverandre staaende Mundtentakler svare til den ydre Kropsside, hvor den omtalte fine Længdefure findes.

Farven. Kroppen er bleggul, spillende lidt i det Rosenrøde. Randtentaklerne ere paa deres aborale Flade

[1] Arten er opkaldt efter den geniale Naturforsker Carl Vogt.

Cerianthus Vogti [1]. n. sp.

Pl. V, figs. 8, 9; Pl. XXV, figs. 7—14.

The body is cylindrical, slightly infundibuliform, measures about 80^{mm} in length, 20^{mm} in breadth at the uppermost and 6^{mm} in breadth at the lowest extremity. The external surface of the body is smooth until within a distance of 10^{mm} from the oral disc, where it becomes folded longitudinally. The folds are about uniform in length and equally prominent, with the exception of a single one, which is broader than the others and extends itself farther down the body. Opposite this broad fold, on the opposite side of the body, an extremely narrow but deep furrow is observed, which stretches from the tentacular margin to a spot below the middle of the body, where it becomes very indistinct, so that it is impossible to determine whether it reaches quite down to the aboral extremity or not. The latter is furnished with a round, rather large aperture which dilates and contracts itself, so that it appears to be supplied with a sphincter.

The uppermost extremity of the column becomes dilated in infundibuliform, and upon its crenated margin there is placed a series of tentacles. To the inside of this is observed the somewhat depressed oral disc with the slightly oblong oral aperture and its two oral angles; round the oral aperture there is a series of tentacles, and from it to the exterior tentacular series the oral disc has a halo of fine folds, whose number corresponds with that of the tentacles (Pl. V, fig. 8).

The marginal tentacles, which form an uninterrupted series and are not placed in several cycles, are 36 in number, non-retractile, measure about 30^{mm} in length, are pretty thick at the base but diminish considerably in thickness upwards, so that at the point they become extremely fine and filamentous (Pl. V, fig. 8). There is only a single marginal tentacle, which, as it were, stands isolated and unites to the broad fold on the external surface of the body previously spoken of; this tentacle is much shorter than the others.

Neither are the oral tentacles retractile, they are both much shorter and thinner than the marginal tentacles, but are present to the same number as those (36). They are placed in a single series, but not at uniform intervals apart from each other, as about one third of them are placed pretty far apart from each other, and these are somewhat longer than the others (Pl. XXV, fig. 9 *a*), which stand closer together and are partly shorter (Pl. XXV, fig. 9 *b*). The longer oral tentacles, placed more apart from each other, correspond to the outer side of the body, where the fine longitudinal furrow already spoken of is found.

The colour. The body is pale-yellow with a slight rose-red play of colour. The marginal tentacles are, on

[1] The species is designated after the genial Naturalist Carl Vogt.

smukt rosenrode, paa den adorale Flade lysebrune. Mund tentaklerne ere smukt kastaniebrune, ligesaa Mundskiven med lysere Straaler, Tab. V, Fig. 8, 9.

Roret, hvori Cerianthus Vogti bor, er ikke synderligt længere end Kroppen. Det er ganske lukket forneden, og foroven er der en Aabning, stor nok til at Dyret kan strække sig ud og trække sig ind, naar det vil skjule sig. Da Roret er saa kort, at Dyret med dets Tentakler ikke uden at trække sig betydelig sammen kan skjule sig deri, sker denne Sammentrækning spiralformigt, saa at Dyret ligger i en Spiral inde i Roret. Dette er udvendigt ujevnt og sammensat af brunagtigt Ler med iblandet Sand; men paa dets indvendige Flade er det beklædt med en glat, glinsende Slimmembran, der er temmelig stærk.

Ved Tversnit af Kropshuden sees, at denne er dannet af et Ectoderm, som bestaar af lange, smale Cylinderceller med deres Kjerne og Kjernelegeme, Tab. XXV, Fig. 7 *b*, imellem hvilke er en stor Mængde kolbeformede, encellede Slimkjertler, Tab. XXV, Fig. 7 *c*, samt Nematocyster. Ectodermets ydre Flade er dækket af en strukturlos Cuticula, Tab. XXV, Fig. 7 *a*. Indenfor Ectodermet er et bredt Lag af Længdemuskler, der danne Bundter, Tab. XXV, Fig. 7 *d*, som ligge dels ganske tæt til hverandre, dels saavidt spredte, at Cylindercellerne med deres smale, indre Ender kunne træde imellem, Tab. XXV, Fig. 7 *e*. Dette Muskellag støder umiddelbart til Bindevævet, hvortil det er fæstet, og som er hyalint, temmelig smalt og kun ringe forsynet med Bindevævslegemer og Ernæringskanaler, Tab. XXV, Fig. 7 *f*. Paa dette Bindevævs (Mesoderms) indre Flade ligge Tværmuskelne, der bestaa af enkelte Fibre, som danne en tynd Lamel, Tab. XXV, Fig. 7 *g*, og ere kun lidet udviklede, imedens Længdemusklerne ere særdeles stærke; Tværmuskellaget er beklædt af Endothelet.

Svælgroret er cylindrisk, omtrent 20^{mm} langt. Paa dets indre Væg iagttages 2 Svælggruber, der af Heider benævnes den store og lille Mundvinkelgrube, og som allerede af Haime er iagttaget. Den store Svælggrube er paa Grund af sin Form og Storrelse strax iøinefaldende, naar Svælgroret aabnes efter Længden. Den følger Bugfladen, har en dyb Rende i Midten, og til begge Sider af denne er en bred, glat Vold, der strækker sig omtrent 1^{mm} til Siden, hvor Svælgroret er stærkt foldet efter Længden, Tab. XXV, Fig. 8 *a*. Ligeoverfor den store Svælggrube er den lille, som svarer til Rygsiden og derfor kan kaldes den dorsale Svælggrube. Denne er kun lidet dyb og temmelig trang, men giver sig dog tilkjende ved sit glatte Udseende, Tab. XXV, Fig. 8 *b*, i Modsætning til Sidepartierne, der ere stærkt foldede, Tab. XXV, Fig. 8 *c*.

their aboral surface, a beautiful rose-red; on the adoral surface light brown. The oral tentacles as well as the oral disc are beautiful chestnut brown, the latter having lighter-coloured radii (Pl. V, figs. 8, 9).

The tube, in which Cerianthus Vogti dwells, is not much longer than the body; it is quite closed at the foot, but at the top there is an opening sufficiently large to admit of the animal extending itself out and retracting itself inside again, when it desires to conceal itself. As the tube is so short that the animal, with its tentacles, cannot, without contracting itself greatly together, conceal itself in the tube, the contraction proceeds spirally, and the animal lies coiled like a spiral in the tube. The tube is rough externally, and is composed of brownish clay with sand mixed in it; on its interior surface, however, the tube is coated with a smooth shining mucous-membrane, which is pretty strong.

Upon transversal section of the integument of the body it is seen, that the integument consists of an ectoderm consisting of long narrow cylinder-cells with their nuclei and nucleus-corpuscles (Pl. XXV, fig. 7 *b*), between which there are a great multitude of claviform, unicellular mucous glands (Pl. XXV, fig. 7 *c*), and also nematocysts. The outer surface of the ectoderm is covered by a structureless cuticulum (Pl. XXV, fig. 7 *a*). On the inside of the ectoderm there is a broad layer of longitudinal muscles that form fasciculi (Pl. XXV, fig. 7 *d*), which lie, partly quite close to each other, but partly so widely distributed that the cylinder-cells with their narrow, inner extremities appear visible between (Pl. XXV, fig. 7 *e*). This muscular layer unites immediately to the connective-tissue, to which it becomes attached, and which is hyaline, rather narrow, and only poorly furnished with connective-tissue corpuscles and nutritory ducts (Pl. XXV, fig. 7 *f*). Upon the inner surface of this connective-tissue (mesoderm) the transversal muscles are placed; they consist of single fibres that form a thin lamella (Pl. XXV, fig. 7 *g*), and are only little developed, while the longitudinal muscles are particularly strong. The layer of transversal muscles is clothed with the endothelium.

The œsophagus is cylindrical, and measures about 20^{mm} in length. Upon its inner wall 2 gullet-grooves are observed: these have been termed by Heider, the great and the little oral-angle-cavities, and they have already been noticed by Heine. The great gullet-groove is, owing to its form and size, immediately prominent to the eye when the œsophagus is dissected longitudinally. It follows the ventral surface, has a deep channel in the middle, and on both sides of this channel there is a broad, smooth rampart that, for about 1^{mm}, extends itself to the side, where the gullet-tube is strongly folded longitudinally (Pl. XXV, fig. 8 *a*). Just opposite the great gullet-groove is the small one, which corresponds to the dorsal side and may, therefore, be termed the dorsal gullet-groove. This is of only little depth and pretty narrow, but yet it makes itself apparent by its smooth appearance (Pl. XXV, fig. 8 *b*)

Ved yderst tynde Tversnit viser sig Svælgroret histologisk at bestaa af en Epithelbeklædning paa dets ydre Flade (indre, Vogt), dannet af et cylindercellet Endothel, lignende det, som beklæder hele Gastrovascularhulhedens Vægge, Tab. XXV. Fig. 12 *a*; til dette Endothel stoder et Lag af Længdemuskler, Tab. XXV. Fig. 12 *b*, der ere fæstede til et hyalint Bindevævslag, Tab. XXV. Fig. 12 *c*, paa hvis indre Flade findes en Epithelialbeklædning, som er forskjellig paa de forskjellige Steder; Bindevævet i den store Svælggrube er lidt bredere end paa de ovrige Steder, Tab. XXV, Fig. 12 *d*, og her sees Epithelet at bestaa af temmelig brede, ikke meget hoie Cylinderceller, der ere forsynede med Cilier og danne en jævn Flade mod Svælgrorshulheden, Tab. XXV. Fig. 12 *e*; ogsaa i den lille Svælggrube er et lignende Epithel, Tab XXV, Fig. 11 *a*; men til Siderne af begge Svælggruber, hvor Væggen er meget foldet og derfor ujævn, dannes disse Folder af smale, listeformige Forlængelser fra Bindevævet, der rage ind i Hulheden og ere beklædte med temmelig lange Cylinderceller, som vifteformigt ere fæstede til Bindevævslisterne, Tab. XXV. Fig. 11 *b*, 12 *f*.

Der er 36 fuldstændige Septa, hvoraf 4 kunne betragtes som Retningssepta, eller et Par ventrale og et Par dorsale, og paa hver Side af disse, 8 Par laterale Septa. Alle disse Septa, der tage deres Udspring fra Kropsvæggens indre Flade og fæste sig paa Underfladen af Mundskiven og paa Svælgrorets ydre Væg, have en forskjellig Længde. De ventrale Retningssepta, som fæste sig paa Svælgroret just paa det Sted, der indvendig svarer til den ventrale Svælggrube, ere tykke, Tab. XXV. Fig. 8 *d*, 11 *c*, 12 *g*, og paa deres ydre Side, den der vender mod det tilstodende, interseptale Kammer, forsynede med Længdemuskler, Tab. XXV. Fig. 12 *h*, som henimod Svælgrorsinsertionen og ved Udspringet af Kropsvæggen ere temmelig tykke; paa deres indre Side, der vender mod det intraseptale Kammer, ligge fine Tvermuskelfibre i Form af en yderst tynd Membran, Tab. XXV. Fig. 12 *i*. Dette intraseptale Kammer, Tab. XXV. Fig. 8 *e*; Tab. XXV. Fig. 11 *d*, 12 *k*, som Professor C. Vogt med Rette kalder „la loge ventrale impaire", har en aflang, næsten triangulær Form, og adskiller sig let fra de ovrige. De ventrale Retningssepta strække sig et Stykke nedover (bagover) Kroppens Bugflade, hvor de bidrage til at danne en indre Bugfure, som senere skal omtales.

De dorsale Retningssepta, Tab. XXV. Fig. 8 *f*, 11 *e*, ere temmelig tynde; Længdemusklerne ligge ogsaa her paa den ydre Side, imedens Tvermusklerne beklæde den indre, som vender mod det intraseptale, dorsale Kammer, der er aflangt, meget bredere end de nærmest tilstodende Kamre,

contrasted with the lateral portions, which are strongly folded (Pl. XXV, fig. 8 *c*).

In extremely thin transversal sections the œsophagus shows itself, histologically speaking, to consist of an epithelial covering on its outer surface (inner, Vogt.), formed of an endothelium of cylinder-cells resembling that which clothes the walls of the entire gastro-vascular cavity (Pl. XXV, fig. 12 *a*). To this endothelium a layer of longitudinal muscles unites (Pl. XXV, fig. 12 *b*); these are adherent to a layer of hyaline connective-tissue (Pl. XXV, fig. 12 *c*) upon whose inner surface an epithelial covering is found, which is, however, different in the different situations. The connective-tissue in the large gullet-groove is a little broader than in the other situations (Pl. XXV, fig. 12 *d*), and here the epithelium is seen to consist of pretty broad, not very high cylinder-cells, which are furnished with ciliæ and form an even surface towards the cavity of the gullet-tube (Pl. XXV, fig. 12 *e*); in the small gullet-groove, also, there is a similar epithelium (Pl. XXV, fig. 11 *a*); but to the sides of both the gullet-grooves, where the wall is much folded and therefore uneven, these folds are formed of narrow fillet-formed prolongations from the connective-tissue, that project into the cavity and are clad with rather long cylinder-cells, which, fan-like, are secured to the connective-tissue fillets (Pl. XXV, fig. 11 b, 12 *f*).

There are 36 perfect septa, of which 4 may be regarded as directive septa, or one pair ventral and one pair dorsal; and upon each side of these again 8 pairs of lateral septa. All those septa, which have their origin in the inner surface of the wall of the body and secure themselves to the under surface of the oral disc and the outer wall of the œsophagus, have different lengths. The ventral directive septa, which attach themselves to the œsophagus just in the situation that corresponds, internally, to the ventral gullet-groove are thick (Pl. XXV, fig. 8 *d*, 11 *c*, 12 *g*), and on their outer side, that which faces towards the adjoining interseptal chamber, are furnished with longitudinal muscles (Pl. XXV, fig. 12 *h*), which, towards their insertion in the œsophagus and at the origin in the wall of the body, are pretty thick; upon their inner side, which faces towards the intraseptal chamber, there lie delicate transversal muscle-fibres in the form of an extremely thin membrane (Pl. XXV, fig. 12 *i*). This intraseptal chamber (Pl. XXV, fig. 8 *e*, 11 *d*, 12 *k*) which Prof. C. Vogt rightly terms „la loge ventrale impaire" has an oblong, almost triangular form, and is easily distinguished from the others. The ventral directive septa stretch themselves a little way downwards (backwards) along the ventral surface of the body, where they contribute to form an internal ventral furrow, which will subsequently be spoken of.

The dorsal directive septa (Pl. XXV, fig. 8 *f*, 11 *e*) are pretty thin; also here the longitudinal muscles are situated on the outer side, while the transversal muscles clothe the inner one, which faces towards the intraseptal, dorsal chamber; this is oblong, much broader than the

og som Vogt har kaldet „la loge dorsale impaire“, der stoder til den lille dorsale Svælggrube, Tab. XXV, Fig. 8, 11 *f*. Om denne Del udtaler Vogt sig saaledes: „c'est cette partie qui est de la plus haute importance pour la consideration morphologique du Cerianthe;“ thi derfra er det, siger han, at ikke alene Skillevæggene og Kamrene udvikle sig og stadig tiltage i Antal; men ogsaa Tentaklernes Fremvæxt og Tiltagen udgaar væsentlig derfra, et Forhold, der er fuldkomment ligt det, han har beskrevet med saamegen Noiagtighed hos Slægten Arachnactis. Dette er jo en Udviklingsmaade, som er meget forskjellig fra den, der finder Sted hos Actinierne i Almindelighed, og ganske modsat den hos Zoanthiderne, forsaavidt som hos disse, ifølge Erdmanns Angivelse, de nye Septa optræde i to Interseptalkamre, nemlig i hvert Sidekammer, der stoder til de ventrale Retningssepta.

Hos Cerianthus Vogti har jeg ikke med fuld Sikkerhed kunnet bekræfte Rigtigheden af Vogts Iagttagelser, da jeg dertil har manglet tilstrækkeligt Materiale; men naar jeg ser hen til Anordningen af Septa og Kamre hos nævnte Art, saa nærer jeg ingen Tvivl om Rigtigheden. I det dorsale, uparrede Kammer syntes jeg at opdage et begyndende Septum, men jeg var ikke sikker og forblev derfor staaende med at antage det for en Epithelialdannelse; den for omtalte, isolerede, dorsale Randtentakel i Forening med den Omstændighed, at især Mundtentaklerne staa baade meget tættere og ere tildels mindre paa Rygsiden end paa Bugsiden, synes at tyde hen paa, at den af Vogt omtalte Udviklingsmaade, ogsaa foregaar hos Cerianthus Vogti.

De to Septa, Tab. XXV, Fig. 8 *h*, 11 *g*, 12 *l*, et paa hver Side af de ventrale Retningssepta, forlænge sig ved Siden af disse nedover den indre Kropsvæg lige til den aborale Aabning, og ere blevne kaldte de „kontinuerende Septa“, Tab. XXV, Fig. 10 *a*. Der, hvor de foroven slutte sig til Retningssepta, Tab. XXV, Fig. 10 *b*, er en Fordybning omgiven af en halvmaaneformig Vold, Tab. XXV, Fig. 10 *c*, og i denne Fordybning synes der at være en fin Aabning udad. Jeg angav tidligere, at de to ventrale Retningssepta ere temmelig korte, men tykke; naar de forlænge sig nedover, lægge de sig sammen saaledes, at der imellem dem bliver en Rende, ligesom de kontinuerende Septa omgive dem, hvorved der imellem disse og Retningssepta bliver en Fure, Tab. XXV, Fig. 10 *d*. Den nysnævnte Rende, Tab. XXV, Fig. 10 *e*, fortsættes, efterat Retningssepta ere ophørte, imellem de kontinuerende Septa lige til Caudalaabningen, og det er denne Rende, der er kaldet Bugrenden, som aabner sig i den ovenomtalte Grube, Tab. XXV, Fig. 10 *c*.

Foruden disse to kontinuerende Septa er der paa hver Side af dem 3—4 Septa, som strække sig saa langt ned mod Caudalaabningen, at de paa nogle Millimeter nær naa denne, Tab. XXV, Fig. 8 *i*. Disse Septa, ligesom

next adjoining chambers, which Vogt has termed „la loge dorsale impaire“, and which adjoins the small dorsal gullet-groove (Pl. XXV, fig. 8, 11 *f*). Regarding this part Vogt expresses himself thus: „c'est cette partie qui est de la plus haute importance pour la consideration morphologique du Cerianthe“ as it is, he says, from it, that not only do the divisional walls and the chambers develope themselves and steadily increase in number, but also the development of the tentacles and their increase in number principally arises; a relation that is perfectly like what he has described, with so much exactness, in the genus Arachnactis. This is certainly a mode of development very different from that which occurs in the Actinaria in general, and quite the opposite of what occurs in the Zoanthidæ, in so far, that in these, according to Erdmann's statement, the new septa appear in two interseptal chambers, viz. in each lateral chamber that adjoins the ventral directive septa.

In Cerianthus Vogti I have not been able, with perfect certainty, to confirm the correctness of Vogt's observations, as I have not had sufficient material at my disposal for that purpose; but when I consider the arrangement of the septa and chambers in the species named, I can have no doubt of their correctness. In the dorsal unpaired chamber, I fancied I observed a rudimentary septum but was not certain about it, and contented myself, therefore, with assuming it to be an epithelial formation; the previously mentioned isolated marginal tentacle, in conjunction with the circumstance that the oral tentacles, especially, are placed, both much more compactly, while they are also partly smaller on the dorsal side than on the ventral side, appears to point to the mode of development spoken of by Vogt also occurring in Cerianthus Vogti.

The two septa (Pl. XXV, fig. 8 *h*, 11 *g*, 12 *l*), one on each side of the ventral directive septa, prolong themselves on the side of these last, down along the inner wall of the body quite to the aboral aperture, and have been termed „the continuing septa“ (Pl. XXV, fig. 10 *a*). At the top, where they unite to the directive septa (Pl. XXV, fig. 10 *b*), there is a depression surrounded by a semi-lunar shaped rampart (Pl. XXV, fig. 10 *c*), and in that depression there appears to be a minute aperture outwards. I stated, previously, that the two ventral directive septa are rather short, but thick; when they prolong themselves downwards they close together in such a manner, that a channel becomes formed between them, whilst, also, the continuing septa close round them, producing, thus, between them and the directive septa, a furrow (Pl. XXV, fig. 10 *d*). The channel just mentioned (Pl. XXV, fig. 10 *e*) is continued, after the directive septa have ceased, between the continuing septa, quite to the caudal aperture, and it is this channel that opens into the cavity spoken of above (Pl. XXV, fig. 10 *c*).

Besides these two continuing septa there are, on each side of them, 3—4 septa that stretch themselves so far down towards the caudal aperture that they reach to within a few millimetres of it (Pl. XXV, fig. 8 *i*). Those

de to kontinnerende, staa langt fra hverandre, hvoraf Følgen er, at baade de inter- og intraseptale Kamre blive meget vide, Tab. XXV, Fig. 8 *k*, 11 *h*. De øvrige 6 Par Sidesepta, der vende væsentligt mod Dorsalsiden, staa tættere sammen, hvorfor ogsaa Kamrene her er meget trangere, Tab. XXV, Fig. 8 *l*, 11 *i*. De 8 Par Septa, som gruppere sig paa hver Side af de dorsale og ventrale Retningssepta, have en Muskulatur, der ikke synes at afvige fra det almindelige. Længdemusklerne ere temmelig meget udviklede og danne tildels henimod Svælgroret tynde Buske (Faner), Tab. XXV, Fig. 12 *h*, imedens de transverselle Muskler ere meget tynde, fattige paa Fibre og synes tildels at være dækkede af Længdemusklerne, som da indtage Septumets begge Sider.

Samtlige Septa ere, som for nævnt, fuldstændige, det vil sige, de fæste sig alle paa Svælgroret; ufuldstændige Septa har jeg ikke kunnet opdage paa de Exemplarer, jeg har undersøgt, og naar undtages de 2 Par Retningssepta (dorsale og ventrale), saa bære alle de øvrige Mesenterialfilamenter og Generationsorganer. Mesenterialfilamenterne tage deres Udspring paa Septaerne lige ved deres Insertionssteder paa Svælgrorets nederste, fri Ende og følge proptrækkerformigt langs Septaernes fri Rand et Stykke nedover denne for at ende omtrent 15^{mm} fra deres Udspring, Tab. XXV, Fig. 13 *a*. Strax nedenfor, hvor Mesenterialfilamenterne ende, tage Generationsorganerne deres Begyndelse; de følge Septumets fri Rand og ligge langs denne som en Perlesnor, indtil nogle Millimeter fra dens Ophør; paa de kontinnerende Septa gik Generationsorganet næsten lige ned til Caudalaabningen.

Æggestokken danner et fladtrykt Rør, hvori sees Æg i forskjellige Udviklingsstadier, Tab. XXV, Fig. 13 *b*, 14. Jeg undersøgte paa et Exemplar Kjønsorganet paa hvert eneste Septum, og Resultatet var, at de alle bar kun Æggestokke; dette Exemplar var ikke Hermaphrodit, og paa et Par andre Exemplarer fandt jeg ligeledes kun Æggestokke, ikke Spor til Testikler. Heider og Vogt angive, at Cerianthus membranaceus, som er den Art, der er undersøgt af de Forskere, som specielt have beskjæftiget sig dermed, er Hermaphrodit, og jeg havde derfor ventet at finde det samme Forhold hos min Art; naar nu ikke dette har været Tilfældet, saa kan to Ting tænkes, enten at Testiklerne ei har været saa udviklede, at de lod sig opdage, hvilket jeg imidlertid ikke anser for sandsynligt, eller at Dybvandsformerne af Cerianthus have særskilt Kjøn, medens de øvrige ere tvekjønnede, et Forhold, der ikke er ganske fremmed for de lavere Dyr, nemlig at en Art har særskilt Kjøn og en anden er Hermaphrodit.

Heider inddeler Septaerne i „Filamentsepta og Genitalsepta"; han har fundet hos Cerianthus membranaceus, at hvert andet Septum bærer Kjønsorganer og hvert andet

septa, like the two continuing ones, stand far apart from each other, in consequence of which both the interseptal and the intraseptal chambers become very wide (Pl. XXV, fig. 8 *k*, 11 *h*). The remaining 6 pairs of lateral septa, which principally face towards the dorsal side, stand closer together, so that the chambers here become also much narrower (Pl. XXV, fig. 8 *l*, 11 *i*). The 8 pairs of septa, which group themselves upon each side of the dorsal and ventral directive septa, have a musculosity that does not appear to differ from the common. The longitudinal muscles are pretty well developed, and partly form, towards the œsophagus, thin tufts (flags) (Pl. XXV, fig. 12 *h*), while the transversal muscles are very thin, poor in fibres and appear to be partly covered by the longitudinal muscles, which then occupy both sides of the septum.

As before mentioned, all the septa are perfect, that is to say they all attach themselves to the œsophagus. I have been unable to detect imperfect septa in the specimens I have investigated, and when we except the two pairs of directive septa (dorsal and ventral), all the others carry mesenterial filaments and reproductive organs. The mesenterial filaments have their origin on the septa, just at their points of insertion on the lowest free extremity of the œsophagus, and follow, spirally, along the free margin of the septa a little way down it, terminating about 15^{mm} from their commencement (Pl. XXV, fig. 13 *a*). Immediately below the point where the mesenterial filaments terminate, the reproductive organs have their origin; they follow the free margin of the septum and lie along it like a string of pearls, extending to within a few millimetres of its cessation; upon the continuing septa the reproductive organ extended almost quite down to the caudal aperture.

The ovaries form a flattened tube in which ova are observed in various stages of development (Pl. XXV, fig. 13 *b*, 14). In one specimen I investigated the reproductive organ on every individual septum, and the result was that all of them proved to carry ovaries only. That specimen was not hermaphroditic, and in a couple of other specimens, also, I found ovaries only, not a trace of testicles. Heider and Vogt state, that Cerianthus membranaceous, which is the species that has been investigated by the naturalists who have devoted special attention to the subject, is hermaphroditic, and I had therefore expected to find the same relation in my species. But when this has proved not to be the case, we may suppose two alternatives; either that the testicles have not been so developed that they were capable of being observed, a thing I do not, however, think probable; or that the deep-water forms of Cerianthus have separate sexes whilst the others are bi-sexual, a relation that is not quite unknown in the lower animals, viz. that one species has separate sexes while another is hermaphroditic.

Heider distinguishes the septa into „Filamentsepta and Genitalsepta"; he has found in Cerianthus membranaceous, that every alternate septum carries reproductive

Mesenterialfilamenter, men et saadant Forhold finder ingenlunde Sted hos Cerianthus Vogti, hvilket jeg ovenfor har paavist. Saavel Mesenterialfilamenterne som Æggestokkene ere beklædte med et Epithel, bestaaende af cilierende Cylinderceller, imellem hvilke sees dels spredte, dels i Grupper staaende Nematocyster.

Af den ovenfor givne Beskrivelse fremgaar det formentlig, at den bilaterale Symetri, som Vogt har gjort gjældende for Cerianthus membranaceus, ogsaa er gjennemgaaende hos Cerianthus Vogti.

Findested.

Station 87. Nogle Exemplarer, hvoraf 1, nemlig det som blev tegnet, var aldeles ubeskadiget og levede nogle Dage i Observationskarret; de ovrige vare mere eller mindre molesterede.

C. Vogt karakteriserer Familien Cerianthidæ paa følgende Maade: Actiniens libres à symétrie bilaterale persistante, à pore terminal donnant accès dans la cavité générale, ayant un disque buccal ample, concave, éntouré de deux couronnes de tentacules, marginaux et buccaux, séparés par un large péristome lisse. Les tentacules sont appareillés deux a deux de manière que dans chaque loge latérale débouche un tentacule de chaque sorte. Les cloisons n'atteignent pas le fond de la cavité générale, sauf deux continues correspondant au tentacule impair, lesquelles constituent une rigole interne conduisant au pore.

Cerianthus Vogti.

Artskarakter.

Legemet cylindrisk, udvider sig traktformigt foroven, 80^{mm} langt, 20^{mm} bredt i overste og 6^{mm} i nederste Ende. Kroppen udvendig glat til opimod 10^{mm} fra Mundskiven, hvor den bliver foldet paalangs. Folderne lige lange og lige brede, naar undtages en, der er bredere og strækker sig længere ned paa Kroppens Rygside. Modsat denne Fold er paa Bugsiden en fin Fure. Den aborale Ende forsynet med en stor, rund Aabning. Kroppens overste Rand bærer en Række lange, ikke retraktile Tentakler i et Antal af 36. Mundskiven noget fordybet. Munden aflang, omgivet af 36 mindre og tyndere Tentakler. Farven: Kroppen er bleg gul, spillende lidt i det bleg-rosenrode. Randtentaklerne paa deres aborale Side smukt rosenrode; paa den adorale Side lysbrune. Mundtentaklerne ere smukt kastaniebrune, ligesaa Mundskiven med lysere Straaler. Roret, hvori Dyret opholder sig, er ikke længere end Kroppen, dannet af Slim, Ler, Sand og andre fremmede Legemer.

organs, and every other intermediate one mesenterial filaments, but such a relation does not at all occur in Cerianthus Vogti, as I have shown above. The mesenterial filaments as well as the ovaries are clad with an epithelium consisting of ciliating cylinder-cells, between which nematocysts are observed, placed, partly scattered about partly in groups.

From the description given above it proceeds, presumably, that the bilateral symmetry, which Vogt has established for Cerianthus membranaceous, is also generally present in Cerianthus Vogti.

Habitat.

Station No. 87. A few specimens of which 1, the one that has been illustrated, was perfectly uninjured and lived for several days in the glass vessel; the others were more or less injured.

C. Vogt characterizes the family Cerianthidæ in the following manner: Actiniens libres à symétrie bilaterale persistante, à pore terminal donnant accès dans la cavité générale, ayant un disque buccal ample, concave, entouré de deux couronnes de tentacules, marginaux et buccaux, séparés par un large péristome lisse. Les tentacules sont appareillés deux a deux de manière que dans chaque loge latérale débouche un tentacule de chaque sorte. Les cloisons n'atteignent pas le fond de la cavité générale sauf deux continués correspondant au tentacule impair, lesquelles constituent une rigole interne conduisant au pore.

Cerianthus Vogti.

Specific characteristics.

The body cylindrical, dilates itself in infundibuliform at the top, measures 80^{mm} in length, 20^{mm} in breadth at the uppermost and 6^{mm} in breadth at the lowest extremity. Externally the body is smooth until within about 10^{mm} of the oral disc, where it becomes longitudinally folded. The folds uniform in length as well as in breadth, with exception of a single one, which is broader and extends itself farther down the dorsal side of the body. Opposite this fold there is a fine furrow on the ventral side. The aboral extremity is furnished with a large round aperture. The uppermost margin of the body carries a series of long non-retractile tentacles, to the number of 36. The oral disc somewhat depressed. The oral aperture oblong, surrounded by 36 smaller and thinner tentacles. *The colour.* The body is pale yellow with a pale rose-red play of colour. The marginal tentacles are, upon their aboral side, a beautiful rose-red, and on the adoral side light-brown. The oral tentacles are a beautiful chestnut-brown colour; also the oral disc, but with lighter-coloured radii. The tube in which the animal dwells is not longer than the body, and is formed of slime, clay, sand and other foreign substances.

Cerianthus abyssorum, n. sp.

Tab. V. Fig. 7.

Kroppen, som er cylindrisk men udvider sig stærkt traktformigt foroven, er 65^{mm} lang, 25^{mm} bred i den overste Ende og 8^{mm} bred i den nederste, noget tilspidsede Ende, der er forsynet med en stor, rund Aabning, som udvider og sammentrækker sig. Huden er glat, men har paa den overste Fjerdedel stærkt udprægede Længdefolder, der synes at svare til Tentakelantallet. Kroppens overste Rand bærer en Række af 40 Tentakler, som ikke ere retraktile, temmelig tynde og omtrent saa lange som Mundskivens Bredde, Tab. V. Fig. 7. Denne sænker sig traktformig ned mod den aflange Mund, som er omgiven af 40 Tentakler, der kanske ere lidt tyndere end Randtentaklerne, men af omtrent samme Længde som disse. Perisomet er forsynet med fine Folder, der løber viftetormigt ud fra den indre Tentakelrække mod Randtentaklerne. Farven: Kroppen er bleg brunlig, men dens overste Rand er i nogle Millimeters Bredde hvid. Mundskiven morkebrun; omkring Munden en lysere Ring. Tentaklerne mork rodbrune. Roret, som Dyret bebor, er henved en Fod langt og er sammensat af brungult Ler, temmelig njævnt, ligesom filtret paa dets udvendige Side, imedens det er glat, glinsende og membranost paa dets indre Væg.

Findested.

Station 251. Kun et Exemplar, og det var saavidt ilive ved dets Udtagelse af Skraben, at det kunde tegnes og for en Del observeres; mange af Randtentaklerne vare afrevne. Af tomme Rør fandtes flere.

Da jeg ikke har villet ødelægge det eneste Exemplar, som haves, og da jeg antager, at Dyret i anatomisk-histologisk Henseende ikke adskiller sig væsentlig fra Cerianthus Vogti, har jeg ingen intimere Undersøgelse foretaget. At Arten er forskjellig fra Cerianthus Vogti fremgaar formentlig af Tentaklernes Antal og Beskaffenhed, af Farven, af det lange Rør, den bebor og endelig af den yderst forskjellige Lokalitet, paa hvilken den fandtes.

Ægireæ[1], Danielssen.

Actinida med fuldstændig Kropshulhed (Coelom) og et udviklet Digestionsapparat, bestaaende af Svælgrør, Tarm og Anus.

[1] Ægir = Havets Gud.

Cerianthus abyssorum, n. sp.

Pl. V. fig. 7.

The body is cylindrical, but dilates itself strongly at the top in infundibuliform; it measures 65^{mm} in length, 25^{mm} in breadth at the uppermost and 8^{mm} in breadth at the lowest, acuminated extremity, which latter is furnished with a large round aperture that dilates and contracts itself. The integument is smooth, but upon its uppermost fourth-part has strongly distinguished longitudinal folds that appear to correspond in number to that of the tentacles. The uppermost margin of the body carries a series of 40 tentacles, which are non-retractile, rather thin, and about as long as the breadth of the oral disc (Pl. V. fig. 7). This sinks in infundibuliform towards the oblong oral aperture, which is surrounded by 40 tentactes that are, perhaps, a little thinner than the marginal tentacles, but of about the same length as these. The peristome is furnished with fine folds that issue, fan like, from the inner tentacular series towards the marginal tentacles. *The colour.* The body is pale brownish, but its uppermost margin is, for a few millimetres of its breadth, white. The oral disc is dark-brown, with a lighter coloured annulus round the oral aperture. The tentacles dark reddish-brown. The tube that the animal dwells in is about a foot long, and is constructed of brownish-yellow clay, pretty rough, appearing porous on its external side, whilst upon its inner wall it is smooth, shining and membranous.

Habitat.

Station No. 251. Only one specimen, and it was so far animate when removed from the dredge, that it could be drawn and to some extent observed. Many of the marginal tentacles were torn away. Several empty tubes were found.

As I have been unwilling to destroy the solitary specimen we have, and as I imagine that the animal does not, in anatomo-histological respects, materially distinguish itself from Cerianthus Vogti, I have not made any particularly close investigation of it. That the species differs from Cerianthus Vogti is probable from the number and nature of the tentacles, from the colour of the long tube in which the animal dwells and, finally, from the extremely different locality in which it was found.

Ægireæ[1], Danielssen.

Actinida with a perfect body-cavity (Coelom) and a developed digestive apparatus, consisting of œsophagus, intestine and anus.

[1] Ægir = The god of the sea in Scandinavian mythology.

Familie Ægiridæ. Dan.

Ægireæ, hvis Legeme er cylindrisk, ormformet; 12 enkle Septa med Coelomet afdelt i 12 Længdekamre.

Slægt Fenja [1]. Dan.

Legemet cylindrisk, langstrakt, forsynet med 12 Længdefurer imellem hvilke 12 Længdefelter, besatte med Sugevorter. En Række faa, retraktile Tentakler. Anus. 12 fuldstændige Septa. 12 Længdemuskler, imellem hvilke stærkt udprægede Tværmuskler. 12 Genitalporer omkring Anus, udenfor Rectum. Mesodermale Cirkulærmuskler. Hermaphrodit.

Fenja mirabilis. n. sp.

Tab. V, Fig. 2; Tab. XVII, Fig. 1—14; Tab. XVIII, Fig. 1—4.

Legemet er cylindrisk, 70^{mm} langt, 15^{mm} bredt i den forreste Ende, imedens den bagre Del er temmelig smal, dels afrundet, dels konisk tilspidset, alt efter Kontraktionernes Beskaffenhed. Tab. V, Fig. 2. Kroppens Overflade er glat, glinsende og har 12 Længdefurer, imellem hvilke sees ligesaa mange brede Længdefelter, der strække sig ligesom Furerne fra Mundskiven bag til Dyrets yderste Ende, Tab. V, Fig. 2, og ere forsynede med en Mængde yderst smaa Sugevorter, som kun kunne iagttages med stærk Loupe og synes ikke at staa i nogen bestemt Orden, Tab. XVII, Fig. 14. Paa den forreste Del af Kroppen derimod ere Sugevorterne noget større og synes at ordne sig i Rækker.

Den forreste Trediedel af Kroppen er, naar Tentaklerne ere udstrakte, noget opsvulmet, og da er Huden saavidt gjennemsigtig, at Septa, som vise sig at svare til Længdefurerne, der angive deres Insertioner, kunne skjelnes. Den midterste Del af Kroppen er ikke fuldt saameget udvidet og er mindre gjennemsigtig; men den bagerste Del, som udgjør omtrent en Fjerdedel af Kroppens hele Længde, er smalere, aldeles opak, kan ikke indtrækkes, men udvider sig vel stundom, og da bliver Huden her noget gjennemsigtig, imedens Midtpartiet trækker sig sammen, bliver smalere og saagodtsom ganske opakt; i det Hele taget forandrer Kroppen temmelig meget sin Form, eftersom den udvider eller sammentrækker sig.

Paa Enden af den bagerste Del sees en fin, rund Aabning, Tab. V, Fig. 2 *a*; Tab. XVII, Fig. 4 *a*, omgiven

[1] Fenja = En Trælkvinde af Jøtunætten, der sidder paa Havets Bund og maler Salt. (Nordisk Mythologie).

Family Ægiridæ. Dan.

Ægireæ, whose body is cylindrical, vermiform; 12 single septa, with the Coelom divided into 12 longitudinal chambers.

Genus Fenja [1]. Dan.

The body cylindrical, elongate, furnished with 12 longitudinal grooves, between which 12 longitudinal areas covered with suckers. A series of a few retractile tentacles. Anus. 12 perfect septa. 12 longitudinal muscles, between which strongly prominent transversal muscles. 12 genital pores around the anus, outside the rectum. Mesodermal circular-muscles. Hermaphrodite.

Fenja mirabilis. n. sp.

Pl. V, fig. 2; Pl. XVII, fig. 1—14; Pl. XVIII, fig. 1—4.

The body is cylindrical, 70^{mm} in length, and 15^{mm} in breadth at the anterior extremity, whilst the posterior part is rather narrow, partly rounded and partly conically acuminated, according to the nature of the contractions (Pl. V, fig. 2). The exterior surface of the body is smooth and shining, and it has 12 longitudinal furrows between which the same number of broad longitudinal areas are seen extending, like the furrows, from the posterior oral disc to the outermost extremity of the animal (Pl. V, fig. 2), and furnished with a multitude of extremely small suckers, only to be observed with the aid of a powerful magnifying glass, and which do not appear to be placed in any systematic arrangement (Pl. XVII, fig. 14). On the anterior part of the body, on the contrary, the suckers are somewhat larger and appear to arrange themselves in series.

When the tentacles are extended the anterior third part of the body is somewhat tumified, and the integument becomes, then, so far transparent, that septa, which show themselves to correspond to the longitudinal furrows, which indicate their insertions, may be distinguished. The medial part of the body is not quite so much expanded, and not quite so transparent; but the posterior part, which composes about a fourth part of the whole length of the body, is narrower, perfectly opaque, and incapable of being retracted, although it still becomes expanded occasionally, and its integument then becomes partially transparent; whilst the medial part contracts, at same time becoming narrower and almost perfectly opaque. Altogether the body alters its form very considerably, according as the animal expands or contracts itself.

At the extremity of the posterior part a minute round aperture is seen (Pl. V, fig. 2 *a*; Pl. XVII, fig. 4 *a*)

[1] Fenja. = A sorceress of the Jotun race, dwelling in the depths of the sea grinding salt. Scandinavian mythology.

af 12 yderst smaa Folder eller Papiller, Tab. XVII, Fig. 4 *b*. Naar Aabningen udvider sig, er den altid stjerneformig, og ofte udstodes der da Grus eller Excrementer, hvorefter den lukker sig meget stærkt, saa at der kun vises en stjerneformet Fordybning.

Mundskiven er konisk fremspringende, Tab. V, Fig. 2, forsynet med 12 temmelig brede Folder, der koncentrere sig imod Munden, Tab. XVII, Fig. 3, som er næsten rund og har jævne men tykke Læber uden Gonidier. Skivens Rand er rund, og paa den sidder i en Række 12 Tentakler, der indtage en Længde af omtrent Trediedelen af Kroppens, Tab. V, Fig. 2; Tab. XVII, Fig. 3. De ere retraktile, cylindriske, temmelig slanke og ende næsten traadformigt. Ikke alene Tentaklerne men ogsaa Mundskiven kan indtrækkes og skjules ganske af Kroppens øverste Rand.

Naar Dyret ved Sammentrækninger forkorter sig, bliver Huden stærkt foldet baade paalangs og paatvers og faar et rudet Udseende; i Ruderne træde da Sugevorterne skarpt frem. Forresten bestaar Bevægelserne i Forlængelser og Forkortninger, i Udvidning og Sammentrækning af Kroppen: men den bagerste Ende trækkes aldrig ind i Legemet. Dyret lever i Sand paa stenet Grund, og efter hvad jeg iagttog ved at have det levende i nogen Tid i Observationskarret, væltede det sig ovenpaa Sandet uden at grave sig ned i dette. Kun af og til hævede det sin forreste Del af Kroppen og udstrakte Tentaklerne livligt, imedens Mundskiven skjod sig stærkt frem; men i Almindelighed laa det udstrakt paa Sandets Overflade og væltede sig til Siderne.

Farven. Den forreste Del af Legemet er næsten vandklar, spillende lidt i det Rode; den midterste Del er kjødrod med lysere Længdestriber, og den bagerste Del har, naar den er udvidet, omtrent samme Farve som den forreste; naar den derimod er sammentrukken, er den ogsaa kjødrod. Mundskiven er næsten vandklar, med bleg-rosenrode i det Violette spillende Straaler (Folder). Tentaklerne ere lyserode, næsten vandklare, have ved Grunden en brun-violet Flæk, der som en Stribe forlænger sig langs den adorale Side lige til Spidsen, Tab. V, Fig. 2.

Legemets Overflade er overalt beklædt med et bredt Ectoderm, der bestaar af lange, cilierende Cylinderceller med Kjerne og Kjernelegeme i en finkornet Protoplasmamasse, Tab. XVII, Fig. 6 *a*; Tab. XVIII, Fig. 1 *a*. Imellem Cellerne sees hist og her flaskeformede, encellede Slimkjertler, hvoraf mange ere fyldte med en finkornet, seig Masse, der skjuler ganske Kjernen, imedens andre ere ganske tomme. Den lidt forlængede Hals munder ud paa Overfladen, Tab. XVIII, Fig. 1 *b*. Men foruden Slimkjertlerne er der indleiret imellem Ectodermets Cylinderceller en stor Mængde Nematocyster, Tab. XVIII, Fig. 1 *c*, som dog ere i rigest Mængde tilstede paa Mundskiven

surrounded by 12 extremely small folds or papillæ (Pl. XVII, fig. 4 *b*). When the aperture dilates itself it is always stelliform, and there is, when in that state, frequently ejected sand or excrementa, after which it is very firmly closed so that there, then, is only a stelliform depression visible.

The oral disc is conically protuberant (Pl. V, fig. 2) and furnished with 12 rather broad folds that collect round the oral aperture (Pl. XVII, fig. 3), which is rather round, with smooth but thick lips and no gonidia. The margin of the disc is round, and upon it there is seated a cycle of 12 tentacles, occupying a space equal to about one third of the length of the body (Pl. V, fig. 2; Pl. XVII, fig. 3). The tentacles are retractile, cylindrical, and tolerably slender, and terminate almost filamentously. Not only the tentacles but also the oral disc may be retracted and quite concealed by the superior margin of the body.

When the animal, by its contraction, shortens itself, the integument becomes strongly folded, both longitudinally and transversally, and acquires a chequered appearance, and the suckers then come prominently out in the checks. The movements of the animal, otherwise, consist of prolongations and shortenings, expansions and contractions of the body, but the posterior extremity is never retracted into the body. The animal lives in the sand of stony bottom, and, from what I observed whilst I had it alive some time in the glass vessel, it rolled about on the surface of the sand and did not burrow into it. Only now and then did it raise the anterior part of the body and extend the tentacles vigorously, whilst the oral disc projected itself prominently forward; but in general it lay extended on the surface of the sand and rolled itself to the sides.

The colour. The anterior part of the body is almost pellucid, with a reddish play of colour: the medial part is flesh-coloured with lighter coloured longitudinal stripes, and the posterior part has, when it is expanded, about the same colour as the anterior part; but when, on the other hand, it is contracted it, also, is flesh-coloured. The oral disc is almost pellucid, with pale rosy-red rays (folds) having a violet play of colour. The tentacles are light red, almost pellucid, and at their base have a brown-violet patch which, like a stripe, extends itself along the adoral side right up to the point (Pl. V, fig. 2).

The external surface of the body is everywhere clad with a broad ectoderm, consisting of long, ciliating cylinder-cells with nucleus and nucleolus surrounded by a finely granulated protoplasmic mass (Pl. XVII, fig. 6 *a*; Pl. XVIII, fig. 1 *a*). Between the cells there are here and there seen bottle-shaped, unicellular mucous glands, many of which are filled with a finely granulated viscid mass that quite conceals the nucleus, whilst others are quite empty. The slightly elongated throat opens on to the external surface (Pl. XVIII, fig. 1 *b*). But besides the mucous glands there lie entrenched, between the cylinder-cells of the ectoderm, a great abundance of nematocysts (Pl. XVIII, fig. 1 *c*),

og Tentaklerne. Indenfor Ectodermet er et bredt Lag fibrillært Bindevæv, Tab. XVII, Fig. 6 *b*, i hvis Midte sees et Belte, bestaaende af cirkulære Muskelfibre, der synes at samle sig i fine Bundter, Tab. XVII, Fig. 6 *c*. Fra den indre Flade af dette Bindevæv udgaa 12 Septa, som staa i lige Afstand fra hverandre og ei danne Par, heller ikke er der noget, som tyder hen paa, at enkelte af dem optræde som Retningssepta, saaledes som Tilfældet i Almindelighed er hos Actinierne; men de strække sig fra den bageste Ende til Mundskiven og feste sig paa Tarmkanalen og Svælgrøret i deres hele Længde, Tab. XVII, Fig. 7, 11, 12 *a*, hvorved Kropshulheden bliver delt i 12 Kamre, Tab. XVII, Fig. 7 *b*, der foroven omkring Svælgroret ere temmelig brede, men yderst smale omkring Rectum.

Disse Septa ere som sædvanligt forsynede med Tver- og Længdemuskler, men Anordningen er dog noget afvigende fra det Almindelige. Tvermusklerne synes at være lidet udviklede og ere saagodtsom ganske dækkede af Længdemusklerne, som indtage Skillevæggens begge Flader. Ved Septumets Udspring fra Kropsvæggen dele Længdemusklerne sig saaledes, at en Del følge langs Kropsvæggens indre Flade og danne de 12 stærke, longitudinelle Muskler, der ved løst Bindevæv ere festede til den, Tab. XVII, Fig. 1 *a*, Fig. 5 *a*, 7 *c*, og som endog give sig tilkjende i de 12 Længdefelter paa Kroppens Ydre; en anden Del udbreder sig over Septumets begge Flader, Tab. XVII, Fig. 7 *d*, og følger disse til Svælgroret (Osophagus) og Tarmen, Tab. XVIII, Fig. 2 *a*. Fra Septumets Bindevæv (Støttemembranen) udgaar Forlængelser, der forgrene sig, og paa disse ere Muskelfibrene festede, Tab. XVIII, Fig. 2 *b*, hvorved Længdemusklerne faa det buskede Udseende, Tab. XVIII, Fig. 2, som forøvrigt er temmelig almindeligt hos Actiniderne. De ere stærkest udviklede ved Udspringet og henimod Osophagus og Tarmkanalen, meget tyndere ere de paa Midten, hvor i det Hele taget Bindevævsmembranen synes at være tyndere, Tab. XVII, Fig. 7; Tab. XVIII, Fig. 2. Men foruden de 12 Længdemuskler, som følge Kropsvæggens indre Flade, er der tillige paa denne et Lag stærkt udviklede Tvermuskler, som samle sig til regelmæssige Baand, der staa lige langt fra hverandre, Tab. XVII, Fig. 5 *b*, og gaa under Længdemusklerne hen til Septum, Tab. XVII, Fig. 5 *c*. De ligge altsaa i hvert Kammer og give Hudens indre Flade, baade ved deres Regelmæssighed og ved at overskjæres af Længdemuskler, et gitret Udseende, Tab. XVII, Fig. 5. Muskellaget er overalt baade paa Septa og Kropsvæggen beklædt med et Endothel, bestaaende af lange, cilierende Cylinderceller; men hvorvidt disse hvile umiddelbart paa Musklerne, eller der er et intermediært Lag, en Bughinde (Peritonæum), hvortil de ere festede, saaledes som senere skal paavises at være Tilfældet med Osophagus og Tarmkanalen, kan ikke her afgjøres.

which are, however, present in richest abundance on the oral disc and the tentacles. Inside of the ectoderm there is a broad layer of fibrillar connective-tissue (Pl. XVII, fig. 6 *b*), in whose middle is seen a belt consisting of circular muscle-fibres, which appear to collect into fine bundles (Pl. XVII, fig. 6 *c*). From the inner surface of this connective-tissue 12 septa issue, standing at a uniform distance apart from each other, and which do not form pairs; neither is there anything that serves to indicate that any of them take the place of directive septa, as is usually the case in Actinidæ; but they extend themselves from the posterior part to the oral disc, and secure themselves to the intestine and the gullet-tube (œsophagus) throughout the whole of their length (Pl. XVII, figs. 7, 11, 12 *a*), causing the body-cavity to be divided into 12 chambers (Pl. XVII, fig. 7 *b*), which at the top, round the gullet-tube, are rather broad, but extremely narrow round the rectum.

These septa are usually furnished with transversal and longitudinal muscles, but still the arrangement is somewhat different from the usual one. The transversal muscles appear to be little developed and are almost entirely covered by the longitudinal muscles, which occupy both surfaces of the septa. At the origin of the septum in the wall of the body, the longitudinal muscles divide themselves in such a manner, that one portion extends along the the inner surface of the wall of the body and form the 12 strong, longitudinal muscles, which are attached by loose connective-tissue to it (Pl. XVII, fig. 1 *a*, 5 *a*, 7 *c*), and which may even be recognised in the 12 longitudinal areas on the exterior surface of the body; another portion distribute themselves over both surfaces of the septum (Pl. XVII, fig. 7 *d*) and follow these to the gullet-tube (œsophagus) and intestine (Pl. XVIII, fig. 2 *a*). From the connective-tissue of the septum (the supporting membrane) prolongations issue, which become ramified, and the muscle-fibres are secured to these (Pl. XVIII, fig. 2 *b*), causing the longitudinal muscles to acquire a fruticous appearance (Pl. XVIII, fig. 2), which indeed is rather common among the Actinidæ. They are most fully developed at the origin and in proximity to the œsophagus and intestinal canal: in the middle they are much thinner, where the connective-tissue membrane appears altogether to be thinner (Pl. XVIII, fig. 7; Pl. XVIII, fig. 2). But besides the 12 longitudinal muscles that follow the inner surface of the wall of the body, there is, besides, upon it, a layer of strongly developed transversal muscles which collect together into regular ribbons, placed at uniform distances apart (Pl. XVII, fig. 5 *b*), and pass under the longitudinal muscles to the septum (Pl. XVII, fig. 5 *c*). They lie, therefore, in each chamber, and impart to the inner surface of the integument, both by their regularity and transsection by the longitudinal muscles, a trellised appearance (Pl. XVII, fig. 5). The musculous layer is everywhere, both on the septa and the wall of the body, clad with an endothelium consisting of long, ciliating cylinder-cells, but how far these rest directly upon the muscles, or

Samtlige Septa bære Mesenterialfilamenter og Generationsorganer, Tab. XVII, Fig. 1. De tage deres Udspring lige ved Spiserørets øverste Del, strax under Mundskiven, og ere fæstede paa den ene Flåde af Septum, imellem Muskelfibrene, ved en membranøs Forlængelse af Septumets Bindevæv. Septumerne have ikke her som ellers hos Actiniderne en fri Rand, hvortil de nævnte Organer ere bundne; thi, som man erindrer, er hos Fenja intet Gastrovascularium, hvori Skillevæggene kunne hænge frit; tvertimod ere de overalt fæstede udad til Kropsvæggen og indad til Spiserør og Tarmkanal. Mesenterialfilamenterne ere placerede nærmest Spiserøret og strække sig proptrækkerformigt bagover (nedover) til omtrent Midten af Rectum uden at være bundne til denne, Tab. XVII, Fig. 1 *b*; deres Bygning afvige ikke fra den sædvanlige.

Generationsorganerne ligge udenfor Mesenterialfilamenterne og ere ligeledes bundne til Septum ved en Bindevævsforlængelse, der er beklædt med Endothel, Tab. XVII, Fig. 8, 9, 10 *a*. Æggestokkene danne baandformige, noget fladtrykte Rør, som slynge sig nedover Septum, lige fra Mundskiven og langt længere end Mesenterialfilamenterne, Tab. XVII, Fig. 8 *b*. Jeg har saaledes paa et Exemplar seet Æggestokke paa et Par Septa ende i Nærheden af Kropshulhedens Bund. Disse Rør ere indvendig beklædte med et Epithel, bestaaende af store, runde Celler med Kjerne og Kjernelegeme, og her sees Æggene i forskjellige Udviklingsstadier at ligge i Almindelighed to sammen, Tab. XVII, Fig. 1 *c*, 10 *b*.

Testiklerne ligge yderst, Tab. XVII, Fig. 1 *d*, 8 *c*, saaledes at Æggestokkene ligge imellem disse og Mesenterialfilamenterne. De tage deres Udspring lige ved Ovariernes, men strække sig længere bagtil end disse. De ere ligesom Æggestokkene fæstede til Septum ved en Forlængelse af dettes Bindevæv, Tab. XVII, Fig. 9 *a*, og bestaa af to slyngeformede, næsten runde Rør, der udvendigt ere beklædte med cylinderformede Endothelceller, som ogsaa beklæde Mesenteriet, og imellem hvilke sees en Mængde Nematocyster; indvendigt ere de tapetserede med Epithel, der dannes af store, runde Celler med en rund, excentrisk Kjerne, hvori et rundt Kjernelegeme, Tab. XVII, Fig. 9 *b*. Mange af disse Celler ere fyldte med runde, glinsende Legemer (undviklede Spermatozoer), Tab. XVII, Fig. 9 *c*, andre ere saagodtsom tomme, men udenfor dem sees store Hobe med lignende, glinsende Legemer som de, der findes indeni Cellerne, Tab. XVII, Fig. 9 *d*. Blandt disse Hobe sees mange af de runde, glinsende Legemer at være forsynede med en kort Hale (mere udviklede Spermatozoer), Tab. XVII, Fig. 9 *e*. Det ser her ud, som om Spermatogenesen foregaar at Spermatoblaster-

whether there is an intermediate layer, a ventral layer, (Peritoneum) to which they are attached, in the manner that will subsequently be shown to be the case with the œsophagus and the intestinal canal, can not be here determined.

All the septa carry mesenterial filaments and reproductive organs (Pl. XVII, fig. 1). These have their origin exactly at the uppermost part of the gullet-tube, just below the oral disc, and are secured to the one surface of the septum, between the muscle-fibres, by a membranous prolongation of the connective-tissue of the septum. The septa have not here, as usually is the case with Actinida, a free margin to which the organs named are attached; it will be remembered that there is in Fenja no gastro-vascular cavity in which the septa could freely hang; on the contrary they are everywhere secured, exteriorly, to the body-wall, and, interiorly, to the gullet-tube and the intestinal canal. The mesenterial filaments are placed next to the gullet-tube, and extend themselves spirally, backwards (downwards), to nearly the middle of the rectum without, however, being secured to it (Pl. XVII, fig. 1 *b*). Their structure presents no divergence from the common.

The reproductive organs are situated outside the mesenterial filaments, and are also secured to the septum by a connective-tissue prolongation, which is clad with endothelium (Pl. XVII, figs. 8, 9, 10 *a*). The ovaries form ribbon-shaped, somewhat adpressed tubes which twine themselves down along the septum, quite from the oral disc and much farther than the mesenterial filaments (Pl. XVII, fig. 8 *b*). I have seen, indeed, in one specimen, the ovary on a couple of septa terminate in proximity to the bottom of the body-cavity. These tubes are clad internally with an epithelium consisting of large, round cells with nucleus and nucleolus, and here the ova are seen in various stages of development, usually lying two together (Pl. XVII, fig. 1 *c*, 10 *b*).

The testicles lie outermost (Pl. XVII, fig. 1 *d*, 8 *c*), so that the ovaries are situated between them and the mesenterial filaments. They have their origin exactly at the same point as the ovaries, but extend themselves farther backwards than the latter do. They are, like the ovaries, secured to the septum by a prolongation of its connective-tissue (Pl. XVII, fig. 9 *a*), and consist of two spiriform, almost round tubes, clad externally with cylindrical endothelial cells, which also cloth the mesentery, and between which a multitude of nematocysts are visible. Internally, they are coated with epithelium formed of large round cells with a round excentric nucleus in which there is a round corpuscle (Pl. XVII, fig. 9 *b*). Many of those cells are occupied by round shining bodies (undeveloped spermatozoa) (Pl. XVII, fig. 9 *c*). Others are almost perfectly empty, but outside them there are seen great crowds of shining bodies, similar to those found in the cells (Pl. XVII, fig. 9 *d*). Among those crowds, many of the round shining bodies are seen to be furnished with a short tail (more perfectly developed spermatozoa) (Pl. XVII, fig. 9 *e*). It appears, here, as if the spermatogenesis proceeds from

nes Protoplasmaindhold, ganske forskjelligt fra, hvad jeg omtalte at være Tilfældet hos Edwardsioides vitrea, hvor Spermatozoen antages væsentlig at dannes af Cellekjernen.

Ved at aabne Dyret efter Længden viser det sig, at der ikke som hos Coelenterаterne findes nogen saakaldet Gastrovascularhulhed. Tab. XVII, Fig. 1. Spiserøret, Tab. XVII, Fig. 1 *e*, er cylindrisk, omtrent 10^{mm} bredt ved dets Begyndelse, men aftager lidt i Tykkelse i en Længde af $8—10^{mm}$, hvor det gaar over i en tyk Tarm, Tab. XVII, Fig. 1 *f*, som bliver efterhaanden lidt smalere, idet den i en næsten ret Linie strækker sig ned imod den bagerste Ende, hvor den gaar over i Rectum, Tab. XVII, Fig. 1 *g*, der udmunder i den for beskrevne, runde Anus, Tab. XVII, Fig. 1 *h*.

Paa Spiserorets og Tarmkanalens ydre Flade fæste sig 12 Septa, der som tidligere berørt, tage deres Udspring fra Kroppens indre Væg og strække sig lige fra den bagerste Ende til Mundskivens Underflade, hvortil de ligeledes ere bundne. Disse Septa dele Kropshulheden (Coelomet) i 12 Længdekamre, som foroven, lige under Mundskiven, kommunicere med hverandre, idet der i ethvert Septum er en oval Aabning, just paa det Sted, hvor dette fæster sig paa Mundskiven (Oral-Stomata). Bagtil er der ingen saadan Kommunikation: her slutte Kamrene sig omkring Rectum, men i deres Bund, der dannes af Kropshuden, som her er noget fortyndet, findes imellem de før beskrevne Papiller, eller egentlig Endeinsertionerne for Septa bagtil, en fin Spalte, der lukkes og aabnes ved en Fold, som synes at danne en Slags Klappe, Tab. XVII, Fig. 12 *a*, 13 *a*. Denne Spalte sætter hver Kam i Forbindelse med det ydre Medium (Søvandet), og maa egentlig betragtes som Genitalpore. Hvorvidt der igjennem disse Spalter strømmer Søvand ind i Kamrene, er vel meget tvivlsomt; jeg har Intet kunnet iagttage i saa Henseende. Paa et Exemplar er den yderste Ende af Rectum med sin Anus skudt lidt frem ved Kontraktion, og en Excrementprop af slimholdigt Sand udfyldte Anus. Ved at borttage denne Prop sees Folderne paa Rectums indre Væg, Tab. XVII, Fig. 4 *c*.

Paa Spiserorets indre Væg er der overmaade mange Længdefolder, der ere afbrudte ved Kontraktioner af Tværmuskler, hvorved Folderne faa Udseende af at løbe paatværs, Tab. XVII, Fig. 2 *a*. Dette Forhold forandrer sig, saa snart Øsophagus er gaaet over i Tarmen, thi her fremtræder Længdefolderne meget tydeligere, om end de ogsaa her paa Grund af Tværmusklernes Virkning har et bølgeformigt Udseende, Tab. XVII, Fig. 2 *b*; men i Rectum ere de endnu tydeligere, tykkere og løbe i næsten rette Linier ned til Anus, Tab. XVII, Fig. 2 *c*, hvorom de samle sig, Tab. XVII, Fig. 2 *d*. Der er ingen Svælgrube.

the spermatoblast's protoplasmic contents, perfectly different, therefore, from what I stated to be the case in Edwardsioides vitrea, where the spermatozoa is supposed to originate principally in the cellular nucleus.

On dissecting the animal longitudinally it appears, that unlike the Coelenterata, there is no so-called gastrovascular cavity to be found (Pl. XVII, fig. 1). The gullet-tube (Pl. XVII, fig. 1 *e*) is cylindrical, and about 10^{mm} in breadth at its origin, but diminishes a little in thickness for a distance of $8—10^{mm}$, and then passes over into a thick intestine (Pl. XVII, fig. 1 *f*), which becomes gradually narrower as it, in almost a straight line, extends itself down towards the posterior extremity, where it passes over into the rectum (Pl. XVII, fig. 1 *g*), which opens into the previously described round anus (Pl. XVII, fig. 1 *h*).

Upon the outer surface of the gullet-tube and intestinal canal 12 septa are adherent, which, as previously mentioned, have their origin in the inner wall of the body and extend themselves quite from the posterior extremity to the under surface of the oral disc, to which also they are attached. These septa divide the body-cavity (the Coelom) into 12 longitudinal chambers, which, at the top, just under the oral disc, communicate with each other, in as much, that there is, in each septum, an oval aperture just at the point where the septum is secured to the oral disc (oral-stomata). There is no such communication posteriorly; here the chambers close round the rectum, but at their bottom — formed by the body integument, which is here somewhat less thick — between the previously mentioned papillæ or, really, the terminal posterior insertions of the septa, there is found a fine fissure, which is opened and closed by a fold that appears to form a kind of valve (Pl. XVII, fig. 12 *a*, 13 *a*). This fissure places each chamber in communication with the external medium (the sea-water), and must be regarded as really a genital pore. Whether the sea-water flows into the chambers through these fissures is, indeed, very doubtful; I have been unable to detect any indications of this. In one specimen the extreme end of the rectum with its anus, is a little projected by contraction, and an excrementory plug of slimy sand occupies the anus. On removing this plug the folds of the inner wall of the rectum become visible (Pl. XVII, fig. 4 *c*).

On the inner wall of the gullet-tube there are an immense number of longitudinal folds, which are broken off by the contractions of the transversal muscles causing the folds to acquire the appearance of running transversally (Pl. XVII, fig. 2 *a*). This relation changes as soon as the œsophagus passes over into the intestine; the longitudinal folds appear, here, much more prominently, although they also, here, have a bulging appearance, owing to the action of the transversal muscles (Pl. XVII, fig. 2 *b*), but in the rectum they are still more distinct and thicker, and extend in nearly straight lines down to the anus (Pl. XVII, fig. 2 *c*), round which they collect (Pl. XVII, fig. 2 *d*). There is no gullet-groove (syphonoglyphe).

Ved Tversnit sees paa Spiserorets og Tarmkanalens ydre Væg listeformede Fremstaaenheder af fibrillært Bindevæv, Tab. XVII, Fig. 7 *e*, 11, 12 *b*, der har sin Epithelialbeklædning, bestaaende af lange, smale Cylinderceller, som have en meget tynd Membran og en aflang Kjerne med Kjernelegeme, omgiven af en gjennemsigtig Protoplasmamasse, Tab. XVIII, Fig. 2 *d*. Bindevævslisterne ere ordnede saaledes, at enkelte ere 'mere fremspringende end andre, og det ser ud, som de afbrydes ved Skillevæggene; thi i det Rum, der dannes imellem to Septa, rage Listerne langt frem i Midten af Kammeret, ligesom de aftage i Bredde, jo mere de nærme sig Septa, Tab. XVIII, Fig. 2. Det Hele faar et Udseende i Mikroskopet, som om Spiseroret og Tarmkanalen ere omgivne af en Bindevævskrave, dækket af Cylinderceller, forsynede med Cilier; men om der kun er en eller flere Cilier paa hver Celle, har det ikke været muligt at iagttage. Egentlig kunne disse Bindevævslister betragtes som rudimentære Septa; men saa er der det Særegne ved dem, at de udgaa fra Spiseroret og Tarmkanalen og ikke fra Kropsvæggen, og at de tiltage i Bredde, jo mere de nærme sig Dyrets Bagdel, saa at de ere bredest omkring Rectum. Imellem Epithelet og Bindevævet er der en yderst fin Membran (Peritonæum), hvortil Cylindercellerne ere fæstede, og som dækker et tyndt Lag cirkulære Muskelfibre, Tab. XVIII, Fig. 2 *e*, der synes at være Fortsættelse af Skillevæggenes Muskulatur, og som stode til et meget bredt Bindevævslag, Tab. XVIII, Fig. 2 *f*. Dette er stærkt fibrillært og forsynet med en Mængde Bindevævslegemer med en eller flere Udløbere, samt Ernæringskanaler med deres Epithel. Fra dette Bindevævslag udgaa temmelig lange, koniske Prolongationer, Tab. XVIII, Fig. 2 *g*, som i væsentlig Grad bidrage til at danne Folderne paa Spiserorets og Tarmkanalens indre Væg, Tab, XVII, Fig. 7 *f*; Tab. XVIII, Fig. 2 *g*. Paa den indre Flade af Bindevævet og dets Forlængelser er et stærkt udviklet Muskellag, Tab. XVIII, Fig. 2 *h*, der dannes af Tver- og Længdefibre, og som er beklædt med et tykt Epithel, bestaaende af forholdsvis brede Cylinderceller, forsynede med temmelig lange Cilier, Tab. XVII, Fig. 7 *g*; Tab. XVIII, Fig. 2 *i*. Imellem Cellerne sees aflange, encellede Slimkjertler, der med sin Udførselsgang munder ud paa Epithelets Overflade.

Hvad nu Nervesystemet angaar, saa har jeg ikke ret meget at berette derom; imidlertid viser dog det Lidet, jeg kan meddele, at Fenja mirabilis ikke i saa Henseende afviger væsentlig fra det af Brødrene Hertwig først paaviste Nervesystem hos Actinierne. Lige under Mundskiven, umiddelbart indenfor (under) Ectodermet, imellem dette og Bindevævet, iagttages et smalt Lag, der er finkornet, og som ved Maceration fulgte med Ectodermet. Foruden de fine, runde, glinsende Korn (overskaarne Nervefibriller) sees hist og her store Ganglieceller med en stor, næsten rund Kjerne,

On transversal section of the outer wall of the gullet-tube and intestinal canal, fillet-formed protuberances of fibrillous connective-tissue are seen (Pl. XVII, fig. 7 *e*, 11, 12 *b*), whose epithelial covering consists of long, narrow, cylinder-cells with a very thin membrane, and an oblong nucleus with corpuscle surrounded by a transparent protoplasmic mass (Pl. XVIII, fig. 2 *d*). The connective-tissue fillets are arranged in such manner, that a few of them are more prominent than others, and it appears as if they are broken off by the septa, as in the space formed between two septa the fillets reach far forward into the middle of the chamber, whilst they also diminish in breadth the closer they approach to the septa (Pl. XVIII, fig. 2). The whole object appears, under the microscope, as if the gullet-tube and intestinal canal are surrounded by a collar of connective-tissue, covered by cylinder-cells furnished with ciliæ, but whether there is only one, or several ciliæ on each cell, it has not been possible for me to observe. These connective-tissue fillets may be regarded as really rudimentary septa, but there is this peculiarity about them, that they issue from the gullet-tube and intestinal canal and not from the wall of the body, and that they increase in breadth the nearer they approach to the posterior part of the body of the animal, so that they are broadest round the rectum. Between the epithelium and the connective-tissue there is an extremely fine membrane (Peritoneum) to which cylinder-cells are attached, and which covers a thin layer of circular muscle fibres (Pl. XVIII, fig. 2 *e*) that appear to be a continuation of the musculosity of the septa, and unite to a very broad layer of connective-tissue (Pl. XVIII, fig. 2 *f*). This layer is strongly fibrillous, and is furnished with a multitude of connective-tissue corpuscles having one or several prolongations, and also with nutritory ducts with their epithelium. From this connective-tissue layer, pretty long, conical prolongations issue (Pl. XVIII, fig. 2 *g*), which in a material degree contribute to form the folds on the inner wall of the gullet-tube and intestinal canal (Pl. XVII, fig. 7 *f*; Pl. XVIII, fig. 2 *g*). On the inner surface of the connective-tissue and its prolongations, there is a strongly developed muscular layer (Pl. XVIII, fig. 2 *h*), formed of transversal and longitudinal fibres, and which is clad with a thick epithelium consisting of relatively broad cylinder-cells furnished with rather long ciliæ (Pl. XVII, fig. 7 *g*; Pl. XVIII, fig. 2 *i*). Between the cells oblong unicellular mucous glands are seen, whose excremental ducts open upon the surface of the epithelium.

As regards the nervous system, I have not very much to say; however, the little I have to report enables me to say, that in Fenja mirabilis the nervous system does not differ materially from that of the Actiniæ first shown by the Brothers Hertwig. Just below the oral disc, immediately inside (below) the ectoderm, between it and the connective-tissue, a narrow layer is observed, which is finely granular and upon maceration followed with the ectoderm. Besides the minute, round, shining grains (transsected nerve-fibrills), there are seen, here and there,

indesluttende Kjernelegemet og omgiven af en mork Protoplasmamasse. Tab. XVIII. Fig. 4. Ved Siden af disse Ganglier med deres 3—4 Udløbere. Tab. XVIII. Fig. 4 *a*, vise sig lange Nervetraade krydsende hverandre, og som synes at udgaa fra aflange, ganglionære Knuder, der ere rige paa Protoplasma. Tab. XVIII. Fig. 4 *b*. Nogen Kjerne har det ikke været muligt at opdage i disse Knuder, og det kan hænde, at de kun ere kunstige, varikose Udvidninger.

Men ikke alene ved Mundskiven iagttages disse Ganglier og Nervefibriller; de findes paa flere Steder af Kroppen, endog langt bag paa denne, hvor de vise sig temmelig tydeligt paa meget tynde Tversnit; men tydeligst paa Macerationspræparater, behandlede med svag Osmiumsyre. Det forekommer mig med temmelig Sikkerhed, at der er et rigt Nervenet med korresponderende Ganglier udbredt over hele Legemet, og vi skulle se, at noget lignende vistnok finder Sted for Spiserørets og Tarmkanalens Vedkommende. Paa den øverste Del af Spiserørets indre Flade, imellem Epithelet og Muskellaget, sees et fint Nervenet, Tab. XVIII, Fig. 3, hvis Grene udbrede sig dels til Epithelet, Tab. XVIII. Fig. 3 *b*, dels til Muskellaget, Tab. XVIII. Fig. 3 *c*, og over dette Nervenet ligger spredt store Ganglier med store, runde Kjerner, der indeslutte et rundt Kjernelegeme, og som ere omgivne af en finkornet Protoplasmamasse, Tab. XVIII, Fig. 3 *d*. Gangliecellerne have forskjellig Form, ere mere eller mindre udviklede og udsende flere Udløbere, der ere meget rige paa Protoplasmaindhold. Nogen Forbindelse imellem Gangliecellerne og Nervenettet har jeg ikke kunnet iagttage, omendskjønt det er noksaa rimeligt, at en saadan findes. Længere nede paa Tarmen sees lignende Nerveudbredninger, saa jeg er tilboielig til at tro, at hele Tarmtrakten er vel forsynet dermed. Paa et Tversnit af den øverste Del af Spiseroret forekom det mig, at der paa dettes indvendige Side, indenfor Epithelet og vel dækket af dette, laa en Gruppe mindre, næsten pæreformede Ganglier, der havde en temmelig stor Kjerne med Kjernelegeme; men da de vare temmelig udtydelige, og da der af dette Parti ikke lykkedes at faa brugelige Macerationspræparater, maa jeg indskrænke mig til at antyde, at der paa denne Vei sandsynligvis sker en Nerveudbredning til Septa og de til disse knyttede Organer.

Findested.

Station: 173—174. Flere Exemplarer, men kun nogle faa (2 Voxne, 1 Unge) vare ubeskadigede. Hos de fleste var Huden revnet paa den forreste Del af Kroppen henimod Mundskiven, og igjennem Revnerne vare Mesenterialfilamenterne og tildels Generationsorganerne udjagede og laa ganske blottede.

ganglial cells containing a large, almost round nucleus enclosing the nucleal corpuscle and surrounded by a dark protoplasmic mass (Pl. XVIII. fig. 4). Alongside these ganglia with their 3 or 4 prolongations (Pl. XVIII, fig. 4 *a*), long nerve filaments appear crossing each other, and seem to issue from oblong, ganglial nodules rich in protoplasm (Pl. XVIII, fig. 4 *b*. It has not been possible to detect any nucleus in these nodules, and it may be, that they are only artificial varicose dilations.

But not only on the oral disc are these ganglia and nervous fibrils observed; they are also found upon several parts of the body, even far back upon it, and they show themselves pretty distinctly in very thin transverse sections, but most distinctly in macerated preparations treated with weak osmic acid. It appears to me, with considerable certainty, that there is a rich nervous reticulation with corresponding ganglia distributed over the whole body, and that we ought to find that something like it certainly occurs on the gullet-tube and intestinal canal. On the uppermost part of the inner surface of the gullet-tube, between the epithelium and the musculous layer, a fine nervous reticulation is observed (Pl. XVIII. fig. 3), whose filaments extend themselves partly to the epithelium (Pl. XVIII. fig. 3 *b*) and partly to the musculous layer (Pl. XVIII. fig. 3 *c*), and over this reticulation lie scattered, large ganglia with large, round nuclei enclosing round nucleus-corpuscles, surrounded by a finely granular protoplasmic mass Pl. XVIII. fig. 3 *d*). The ganglial cells have various forms, are more or less angular and project several prolongations, which are very rich in protoplasmic contents. I have not been able to detect any connection between the ganglial cells and the nervous reticulation, although it is sufficiently probable that such a connection exists. Farther down the intestine similar nervous distributions are seen, so that I am disposed to believe, that the entire intestinal tube is will supplied with them. In a transverse section of the uppermost part of the gullet, it appeared, to me, that upon its exterior side, inside of the epithelium and well covered by it, there lay a group of small, almost piriform ganglia, which had a pretty large nucleus with nucleus-corpuscle; but as they were rather indistinct, and I did not succeed in obtaining from this part satisfactory macerated preparations, I must confine myself to indicating, that probably in that way a nervous distribution takes place to the septa and to the organs attached to them.

Habitat.

Stations No. 173 and 174. Several specimens but only a few of them (2 adult and 1 young) were brought up undamaged. In most of them the integument was torn on the anterior part of the body towards the oral disc, and through the rifts the mesenterial filaments, and partly also the reproductive organs, were forced out and lay quite exposed.

Artskarakter.

Legemet cylindrisk. 70^{mm} langt, 15^{mm} bredt i den forreste, konisk tilspidset i den bagre Ende, der er forsynet med 12 Papiller, givende Anus et stjerneformet Udseende. Kroppens Overflade glat med 12 Længdefurer og spredte Sugevorter, som paa den forreste Kropsdel ordne sig i Rækker. Huden er, naar Dyret er i fuld Vigor med udstrakte Tentakler, gjennemsigtig saavidt, at Septa med Mesenterialfilamenter kunne skjelnes. Mundskiven konisk fremspringende med en næsten rund Mund, hvorfra udgaa 12 Folder mod Peripherien. Ingen Gonidier. 12 Tentakler, omtrent en Trediedel saa lange som Kroppen, retraktile, slanke, endende næsten traadformigt. Kroppens overste Rand kan trækkes over Mundskiven. Under Sammentrækningerne antager Huden en rudet Form. Farven: Den forreste Del af Legemet er næsten vandklar, spillende lidt i det Røde; den midterste Del kjodrød med lysere Længdestriber; den bagerste Del har, naar den er udvidet, omtrent samme Farve som den forreste, men kontraheret er ogsaa den kjodrod. Mundskiven næsten vandklar med blegt rosenrøde, i det Violette spillende Straaler. Tentaklerne lyserøde, næsten vandklare; ved Grunden en brunviolet Flæk, forlængende sig som en Stribe langs den adorale Side lige til Spidsen.

Specific characteristics

The body cylindrical, 70^{mm} in length, 15^{mm} in breadth at the anterior extremity, conically acuminated at the posterior extremity, which, latter, is furnished with 12 papillæ, giving to the anus a stelliform appearance. The external surface of the body smooth, with 12 longitudinal furrows and scattered suckers, which in the anterior part of the body are arranged in series. The integument, when the animal is in full vigour and has its tentacles extended, transparent, so much so, that the septa with the mesenterial filaments may be distinguished. The oral disc conically protuberant, has an almost round oral aperture from which 12 folds issue towards the periphery. No gonidia. 12 tentacles of about a third part the length of the body, retractile, attenuated, terminating almost filamentously. The uppermost margin of the body may be drawn over the oral disc. During the contractions the integument acquires a chequered form. *The colour.* The anterior part of the body is almost pellucid, with a reddish play of colour; the medial part is flesh-coloured with lighter coloured longitudinal stripes; the posterior part has, when it is extended, about the same colour as the anterior part, but when contracted is also flesh-coloured. The oral disc is almost pellucid, with faint rosy-red rays having a violet play of colour. The tentacles light-red, almost pellucid; at their base a brown, violet patch prolonging itself as a stripe along the adoral side right up to the point.

Slægt Ægir.

Legemet langstrakt, cylindrisk, med et slimet, skedeformet Overtræk samt 12 Længderibber, imellem hvilke spredte, smaa Sugevorter. En Række faa Tentakler. Paa den bagerste Del af Tarmroret (Rectum) strax ovenfor Anus 12 fine Spalter, der kommunisere direkte med Tarmlumenet; 12 ligestillede, fuldstændige Septa. Endodermale Cirkulærmuskler. Hermaphrodit.

Genus Ægir.

The body elongate, cylindrical, with a mucous vaginal covering, and 12 longitudinal ribs between which small suckers are scattered. One cycle of few tentacles. In the posterior part of the intestinal canal (rectum), immediately above the anus, 12 slender fissures that communicate directly with the intestinal passage. 12 similarly situated perfect septa. Endodermal circular muscles. Hermaphrodite.

Ægir frigidus.

Tab. V, Fig. 4; Tab. XVIII, Fig. 5—10; Tab. XIX, Fig. 1—4.

Legemet cylindrisk, omkring 30^{mm} langt, 8—10^{mm} bredt i den forreste og 4—5^{mm} bredt i den bagerste, noget afrundede Ende, Tab. V, Fig. 4. Kroppens Overflade har et yderst tyndt, slimet, lidt inkrusteret Overtræk og er forsynet med 12 temmelig fremspringende Ribber, Tab. XVIII, Fig. 5 *a*, imellem hvilke findes lidt fordybede Længdefelter, Tab. XVIII, Fig. 5 *b*, hvori der ved Hjælp af stærk Loupe sees smaa, spredte Sugevorter, som synes at staa to og to sammen. Det nævnte Overtræk, der er temmelig fast bundet til Ribberne, dækker ikke hele Kroppen; thi dennes overste Del er nogen i en Længde af

Ægir frigidus.

Pl. V, fig. 4; Pl. XVIII, figs. 5—10; Pl. XIX, figs. 1—4.

The body cylindrical, about 30^{mm} in length, 8—10^{mm} in breadth at the anterior extremity, and 4—5^{mm} in breadth at the posterior, somewhat rounded extremity (Pl. V, fig. 4). The external surface of the body has an extremely thin, slightly encrusted, mucous covering, and is furnished with 12 rather protuberant ribs (Pl. XVIII, fig. 5 *a*) between which slightly depressed longitudinal areas are found (Pl. XVIII, fig. 5 *b*), in which, with the aid of a powerful magnifying glass, small, scattered suckers are seen, which appear to stand two and two together. The covering mentioned is pretty firmly attached to the ribs, and does

4—5^{mm} fra Mundskiven, Tab. XVIII, Fig. 5 *c*, hvorimod det findes paa hele den bagre Del, naar undtages dennes Ende, som er forsynet med en rund Aabning (Anus), der udvider og sammentrækker sig, og hvorigjennem udskydes Excrementproppe, bestaaende af Grus og Slim, Tab. XVIII, Fig. 5 *d*. Paa den overste (forreste) nogne Del, som udvider sig noget op imod Mundskiven, fremtræde de 12 Ribber end tydeligere, og imellem dem sees Sugevorterne tydeligere og ere lidt større end paa den øvrige Del af Kroppen.

Mundskiven er en god Del bredere end Kroppens forreste Rand; den er temmelig plan, men foldet og lidt fordybet mod den i Centrum værende, lidt aflange Mundaabning, Tab. V, Fig. 4; Tab. XVIII, Fig. 5, 7. Folderne, der udgaa fra Munden straaleformigt mod Peripherien, ere smalest ved deres Udspring, men blive alt bredere mod Mundskivens Rand, som er forsynet med 12 Tentakler, der staa i en Række, Tab. V, Fig. 4; Tab. XVIII, Fig. 7. Disse ere temmelig korte, tykke ved Grunden og retraktile. Saavel Tentaklerne som Mundskiven og hele den forreste, nogne Kropsdel kunne trække sig ind i det skedeformige, slimede Overtræk, der da synes at danne et Rør, som lukker sig foroven. Dette Rør er forresten meget tyndt, gjennemsigtigt og løsner meget let fra Kroppen, men er dog saavidt fæstet til Længderibberne, at Dyret ikke ganske kan skille sig ved det. Løsrevne Stykker erstattes hurtigt ved Afsondring af en seig Materie fra den blottede Kropsoverflade.

Farven. Røret eller det slimede Overtræk er skjønt, dybt kastaniebrunt, spillende lidt i det Violette. Kroppens Hud bleg rosenrød. Mundskiven og Tentaklerne ere intens karmosinrøde, dog er Skiven lidt blegere end Tentaklerne, Tab, V, Fig. 4.

Ved at aabne Dyret efter Længden falder det strax i Øinene, at man her har med en indre Ordning, lig den, der er beskreven for Fenja mirabilis. Her er ingen Gastrovascularhulhed, idet nemlig Spiserøret gaar umiddelbart over i en vel udviklet Tarm, som ender i en Anus, Tab. XVIII. Fig. 7.

Spiserøret er cylindrisk, 8^{mm} langt, 4^{mm} bredt lige ved Mundaabningen, Tab. XVIII. Fig. 7 *a*, men aftager noget i Tykkelse, idet det gaar over i Tarmen, Tab. XVIII, Fig. 7 *b*. Denne udvider sig lidt, strax nedenfor Œsophagus, og gaar i næsten lige Retning henimod den bagerste Ende, hvor den atter udvider sig en Smule, for som Rectum, Tab. XVIII, Fig. 7 *c*, at ende i den runde Anus. Paa den udvendige Side af Spiserør og Tarm sees Insertionerne for 12 Septa, Tab. XVIII, Fig. 7 *d*, som dele hele Digestionsapparatet i 12 Længdefelter, Tab. XVIII. Fig. 7; i en Afstand af et Par Millimeter fra Anus iagttages paa Tarmen (Rectum), just i hvert Længdefelt, altsaa imellem hver 2 Septainsertioner, en yderst fin Spalte, der er omtrent 2^{mm} lang, Tab. XVIII, Fig. 7 *e*, og som vi senere skulle

not cover the whole of the body, as the uppermost part is exposed for a length of 4—5^{mm} from the oral disc (Pl. XVIII, fig. 5 *c*), but, on the other hand, it is found covering the whole of the posterior part, with exception of the extremity, which is furnished with a round aperture (anus) that dilates and contracts itself, and through which the excrementa are ejected in the shape of plugs of coarse sand and mucous (Pl. XVIII, fig. 5 *d*). In the superior (anterior) naked part, which dilates itself somewhat towards the oral disc, the 12 ribs appear still more distinctly, and between them the suckers are more distinctly observed, and are a little larger than on the rest of the body.

The oral disc is a good deal broader than the anterior margin of the body; it is rather plane, but folded, and is a little depressed towards the slightly oblong, oral aperture situated in the middle (Pl. V, fig. 4; Pl. XVIII, figs. 5, 7). The folds, which issue from the oral aperture, radially, towards the periphery, are narrowest at their origin, but gradually become broader towards the margin of the oral disc, which is furnished with 12 tentacles standing in a series (Pl. V, fig. 4; Pl. XVIII, fig. 7). These are rather short, thick at the base and retractile. The tentacles as well as the oral disc and the entire anterior exposed part of the body, are capable of being withdrawn into the vaginal mucous covering, which then appears to form a tube that closes itself at the top. This tube is, otherwise, very thin, transparent, and easily detached from the body, but is, yet, so well secured to the longitudinal ribs that the animal cannot quite throw it off. Detached portions are quickly replaced by exudation of a viscid substance from the naked exterior surface of the body.

The colour. The tube, or the mucous covering, is a beautiful, chestnut brown, having a violet play of colour. The integument of the body is pale rosy-red. The oral disc and the tentacles are an intense crimson-red, but the disc is a little paler in colour than the tentacles (Pl V, fig. 4).

Upon dissecting the animal longitudinally, it immediately becomes evident, that we have, here, an internal arrangement like that described in connection with Fenja mirabilis. Here there is an absence of any gastro-vascular cavity, as the gullet-tube passes immediately over into a well-developed intestine that terminates in an anus (Pl. XVIII, fig. 7).

The gullet-tube (œsophagus) is cylindrical, 8^{mm} in length, and 4^{mm} in breadth just at the oral aperture (Pl. XVIII, fig. 7 *a*), diminishing somewhat in thickness as it passes over into the intestine (Pl. XVIII, fig 7 *b*). The intestine becomes a little dilated immediately below the œsophagus, and passes, in almost a straight line, towards the posterior extremity, where it again dilates itself a little, in order to, as a rectum (Pl. XVIII, fig. 7 *c*), terminate in the round anus. On the exterior side of the gullet-tube and intestine the insertions of 12 septa are observed (Pl. XVIII, fig. 7 *d*), which divide the entire digestive apparatus into 12 longitudinal areas (Pl. XVIII, fig. 7); at a distance of a couple of millimetres from the anus, there is seen on the intestine (rectum), exactly in each longitudinal belt,

se forer lige ind i Rectum. Spiserørets indre Flade er foldet efter Længden, og Folderne ere forholdsvis meget brede. Tab. XVIII, Fig. 6 *a*; idet Spiseroret gaar over i Tarmen, blive Folderne smalere, men et Stykke bag i Tarmen rage de mere frem og antage næsten Bladformen, Tab. XVIII, Fig. 6 *b*, imedens de i den bageste Del, Rectum, blive overordentlig smale, staa tættere sammen og ere i en langt rigere Mængde tilstede, Tab. XVIII, Fig. 6 *c*.

Legemets Overtræk er dannet af en seig Slimmasse, hvori sees indleiret paa den ydre Flade spredte Sandkorn, imedens den indre Flade er glat og uden organisk Forbindelse med Kropshuden. Denne har et temmelig tykt Ectoderm, bestaaende af et Lag høie, smale, cilierende Cylinderceller med Kjerne og Kjernelegeme, Tab. XVIII, Fig. 8 *a*. Imellem Cellerne og tildels dækket af dem sees kolbeformede, encellede Slimkjertler, Tab. XVIII, Fig 8 *b*, samt en Mængde Nematocyster, Tab. XVIII, Fig. 8 *c*. Disse sidste ere især rigeligt tilstede paa Tentaklerne og Mundskiven. Indenfor Ectodermet er et fibrillært Bindevævslag, Tab. XVIII, Fig. 8 *d*, der er rigt paa Bindevævslegemer med Udløbere, samt Ernæringskanaler. Henimod den indre Flade af dette Bindevæv findes et temmelig smalt Belte af Cirkulærmuskler, som synes at ligge i Bundter, men ere ikke meget udviklede, Tab. XVIII, Fig. 8 *e*. Paa Bindevævets indre Flade er fæstet Længde- og Tværmuskler, Tab. XVIII, Fig. 8 *f*, der ere beklædte med Cylinderepithel, Tab. XVIII, Fig. 8 *g*.

Der er 12 Septa, som tage deres Begyndelse fra Kroppens indre Væg og strække sig lige fra Analaabningen og op til Mundskivens Underflade, hvortil de fæste sig, ligesom de alle inserere sig paa Spiserorets og Tarmens ydre Flade, Tab. XIX, Fig. 2, 3, 4. Herved deles Kropshulheden i 12 Kamre, Tab. XIX, Fig. 2, 3, 4 *a*, der kommunicere med hverandre igjennem en liden, halvmaaneformig Aabning (Oral-Stomata), som findes paa Septa netop der, hvor de fæste sig paa Mundskiven; forovrigt synes Kamrene at være aflukkede. Fortil, eller foroven, omkring Spiseroret ere de meget brede, men jo mere de nærme sig den bageste Ende, desto trangere blive de, saa at de omkring Rectum ere yderst trange. Septumerne staa lige langt fra hverandre, ere ikke parrede, ligesaalidt som der er noget af dem, der kan betragtes som Retningsseptum, Tab. XIX, Tab. 2, 4. Paa et Exemplar syntes nogle Septa at være noget afvigende fra de øvrige, idet de vare noget kortere, saa Afstanden imellem Kropsvæggen og Tarmen blev mindre, og de tilsvarende Kamre som Følge deraf trangere; men det tor hænde, at denne Afvigelse var opstaaet ved en uregelmæssig og voldsom Kontraktion, saa man Intet kan slutte deraf.

consequently between each two septal insertions, an extremely fine fissure about 2^{mm} in length (Pl. XVIII, fig. 7 *e*), and, as we shall subsequently see, it leads right into the rectum. The inner surface of the gullet-tube is longitudinally folded and the folds are relatively very broad (Pl. XVIII, fig. 6 *a*); as the gullet-tube passes over into the intestine the folds become narrower, but a little way back in the intestine they project more forward and assume almost the foliaceous form (Pl. XVIII, fig. 6 *b*), whilst they in the posterior part (rectum) become extremely narrow, stand closer together, and are present in far greater abundance (Pl. XVIII, fig. 6 *c*).

The covering of the body is formed of a mucous mass on whose exterior surface scattered grannules of sand are seen to be entrenched, whilst the interior surface is smooth, and has no organic connection with the integument of the body. The latter has a pretty thick ectoderm, consisting of a layer of long, narrow, ciliating cylinder-cells with nucleus and nucleus-corpuscle (Pl. XVIII, fig. 8 *a*). Between the cells, and partly covered by them, claviform unicellular mucous glands are observed (Pl. XVIII, fig. 8 *b*), also a multitude of nematocysts (Pl. XVIII, fig. 8 *c*). These last are especially richly present on the tentacles and oral disc. Inside of the ectoderm there is a fibrillous connective-tissue layer (Pl. XVIII, fig. 8 *d*) rich in connective-tissue bodies with prolongations, and also nutritory ducts. Towards the inner surface of this connective-tissue there is found a rather narrow belt of circular muscles which appear to be situated in bundles but are not much developed (Pl. XVIII, fig. 8 *e*). On the inner surface of the connective-tissue longitudinal and transversal muscles are secured (Pl. XVIII, fig. 8 *f*), and are covered with cylinder-epithelium (Pl. XVIII, fig. 8 *g*).

There are 12 septa, which have their origin in the inner wall of the body and extend quite from the anal aperture and up to the under surface of the oral disc, to which they attach themselves, whilst, also, they all insert themselves on the exterior surface of the gullet-tube and intestine (Pl. XIX, fig. 2, 3, 4). The cavity of the body is thus divided into 12 chambers (Pl. XIX, figs. 2, 3, 4 *a*) that communicate with each other through a small semilunar opening (oral-stomata) which is found on the septa, exactly at the point where they attach themselves to the oral disc; the chambers appear otherwise to be closed. Anteriorly, or at the top round the gullet-tube, they are very broad, but the more they approach to the posterior extremity the narrower do they become, so that around the rectum they are extremely narrow. The individual septa are placed at uniform distances apart, and not in pairs, whilst, also, there are none of them that can be considered as directive septa (Pl. XIX, figs. 2, 4). In one specimen a few septa appeared to be somewhat different from the rest as they were a little shorter, so that the distance between the wall of the body and the intestine became less, and, as a consequence of that, the corresponding chambers became narrower, but it may perhaps be, that this difference has arisen from an irregular and violent

Septa ere dannede af fibrillært Bindevæv, der her er temmelig tykt og egentlig Fortsættelse af Kropsvæggens Bindevæv og har en Muskelanordning ganske lig den hos Fenja mirabilis, idet begge Sider ere beklædte med longitudinelle Muskler, imedens de transverselle, som kun indtage en Side, synes at være lidet udviklede og dækkede af de longitudinelle Muskler, Tab. XIX, Fig. 1—4. Fra begge Sider af Septa udgaa en Mængde tynde Bindevævsgrene, Tab. XIX, Fig. 1 *a*, og paa disse sidde Muskelfibrillerne, Tab. XIX, Fig. 1 *b*, hvorved det Hele faar et smukt, busket Udseende. Men idet Længdemusklerne udgaa fra Kropsvæggen for at udbrede sig paa begge Sider af Septa, sende de langs deres Insertioner en Samling af stærke Muskelbundter, der danne Kropsvæggens Længdemuskler, som strække sig fra den bagerste Ende til Mundskivens Underflade, hvor de udbrede sig. Disse 12 Længdemuskler ere saa brede, at de, naar Dyret er udspændt, kunne sees igjennem Huden.

Længdemusklerne, som følge begge Sider af Septa, ere omtrent lige brede overalt, Tab. XIX, Fig. 2—4; men henimod Spise- og Tarmroret ligesom samle de sig mere og afgive stærke Muskelbundter, der følge Septainsertionerne paa Digestionsapparatet, Tab. XVIII, Fig. 7 *d*; Tab. XIX, Fig. 1 *c*. Her virke de som 12 særegne Længdemuskler, der bidrage til at forkorte Spise- og Tarmroret.

Men foruden de 12 Septa, som dele hele Kropshulheden i 12 afsluttede Længdekamre, sees paa Spise- og Tarmrorets ydre Væg, imellem hver 2 Septa, en Samling af listeformige Fremspring, der udgaa fra Digestionsapparatets Bindevæv, Tab. XIX, Fig. 1 *d*, 2—4 *b*, er dannet af dette og bekkedes af temmelig korte, cilierende Cylinderceller, Tab. XIX, Fig. 1 *e*. Disse Fremspring rage temmelig langt ind i Kammeret, ja i den bagerste Del af Kamrene naa de næsten hen til Kropsvæggen; de ere temmelig faste og dele sig stundom gaffelformigt uden derfor at tabe noget af Karakteren, Tab. XIX, Fig. 1 *f*.

Jeg har gjort opmærksom paa et lignende Forhold hos Fenja mirabilis; men hos denne er det dog langt fra saa fremtrædende. Jeg ved ikke at sammenligne disse særegne Fremspring med noget andet end med udviklede, ufuldstændige Septa, som man stundom finder hos Actinidерne; men, vel at mærke, altid udgaaende fra Kropsvæggen. Her, som paavist, udgaa de fra Spise- og Tarmroret og har ingen anden histologisk Bygning end den omtalte. Muskler har det ikke været mig muligt at opdage paa disse Organer, der, saavidt jeg kan skjønne, ikke kan have nogen anden Opgave end at dele Kamrene saaledes, at der bliver et langt større Fladerum, som Ernæringsvædsken kan komme i Berørelse med. Nogen korresponderende

contraction, so that we are not in a position to form a definite conclusion from it.

The septa are formed of fibrillous connective-tissue, which is here pretty thick and is really a continuation of the connective-tissue of the wall of the body, with a muscular arrangement quite like that of Fenja mirabilis, as both sides are clad with longitudinal muscles, whilst the transversal muscles, which only occupy one side, appear to be little developed and are covered by the longitudinal muscles (Pl. XIX, figs. 1—4). From both sides of the septa a multitude of thin connective-tissue ramifications issue (Pl. XIX, fig. 1 *a*), and on these sit the muscle-fibrils (Pl. XIX, fig. 1 *b*), causing the whole to acquire a beautiful fruticous appearance. But as the longitudinal muscles issue from the wall of the body, in order to distribute themselves on both sides of the septa, they send along their insertions a collection of strong muscular bundles, which form the longitudinal muscles of the wall of the body and extend from the posterior extremity to the under surface of the oral disc, where they distribute themselves. Those 12 longitudinal muscles are so broad, that, when the animal is dilated, they may be observed through the integument.

The longitudinal muscles, which pass along both sides of the septa, are about uniform in breadth everywhere (Pl. XIX, fig. 2—4), but towards the gullet-tube and intestinal canal they, as it were, collect more together, and give off strong muscular bundles which accompany the insertions of the septa on the digestive apparatus (Pl. XVIII, fig. 7 *d*; Pl. XIX, fig. 1 *c*). Here they operate as 12 special, longitudinal muscles, which assist in shortening the gullet-tube and intestinal canal.

But besides the 12 septa, which divide the entire cavity of the body into 12 closed longitudinal chambers, there is seen, on the exterior wall of the gullet-tube and intestinal canal between each two septa, a collection of fillet-formed prominences that issue from the connective-tissue of the digestive-apparatus (Pl. XIX, fig. 1 *d*, 2—4 *b*), are formed by the connective-tissue, and are clad with rather short ciliating cylinder-cells (Pl. XIX, fig. 1 *e*). These prominences extend pretty far into the chamber, indeed, in the posterior part of the chamber they extend almost to the wall of the body; they are pretty firm, and sometimes divide themselves bifurcately without, however, losing anything of their special character (Pl. XIX, fig. 1 *f*).

I have called attention to a similar relation in Fenja mirabilis, but in that animal they are not nearly so prominent. I do not know with what to compare those peculiar prominences, unless it be with undeveloped, imperfect septa, such as are sometimes met with in the Actinida, but, it must be remembered, always issuing from the wall of the body. Here, as has been shown, they issue from the gullet-tube and intestinal canal, and have no other histological structure than the one spoken of. It has not been possible, for me, to discover muscles on these organs, which, so far as I can make out, can have no other function than to divide the chambers in such a manner, that a far larger surface arises with which the nutritory fluids

Forbindelse imellem dem og Tarmens Lumen existerede ikke; thi der er et meget bredt Bindevævslag, som skarpt adskiller disse Dele fra hinanden.

Spiserorets og Tarmens Bindevæv er meget bredt, stærkt fibrillært, rigt paa Bindevævslegemer og Ernæringskanaler, og paa dets ydre Væg findes longitudinelle og transverselle Muskler. Fra dette Bindevævs indre Flade udgaa tykke, lange Forlængelser, der rage ind i Spiserorets og Tarmens Lumen og danne de betydelige Folder, som her findes, Tab. XIX, Fig. 1 *g*. Disse Bindevævsbjælker ere beklædte med temmelig høie Cylinderceller, der bære Cilier, Tab. XIX, Fig. 1 *h*, og imellem hvilke iagttages hist og her encellede Slimkjertler; især synes den bagre Del af Tarmen at være rig paa saadanne Kjertler.

Tversnit af den bagre Del af Rectum, just hvor der paa den ydre Flade findes de omtalte fine Spalter, viser, at disse Spalter føre direkte ind i Tarmen. Denne er paa dette Sted meget udvidet, og fra dens indre Flade bugter ud 12 Kanaler, som ere aflange, passere igjennem Bindevævet, der her ikke er meget bredt og munder ud netop i Mellemrummet af 2 Septa, hvor den nævnte Spalte findes, Tab. XIX, Fig. 3 *c*. Disse Kanaler ere beklædte med Epithel, bestaaende af cilierende Cylinderceller, Tab. XIX, Fig. 3 *d*, lig det, der beklæder den indre Tarmvæg, og imellem sees hist og her enkelte aflange, ganske klare og tomme Celler, som sandsynligvis ere Slimkjertler, Tab. XIX, Fig. 3 *e*. Her synes næsten at være en Slags Kloakdannelse, hvori Spalterne aabne sig. Paa det afbildede Tversnit sees kun 4 saadanne Kanaler; men der er virkelig 12, som ere paaviselige ved at sammenholde flere paa hinanden følgende Snit, hvorved det sande Antal fremkommer. Her findes altsaa en direkte Kommunikation imellem Kamrene og Tarmen, hvilket ikke er Tilfældet hos Fenja mirabilis, hvor de antagne Genitalspalter, som findes i Bunden af Kamrene udenfor Rectum, aabne sig omkring denne, imellem de beskrevne Hudpapiller eller Folder, og saaledes kommunicere direkte med det ydre Medium (Sovandet). Men begge disse Slags Spalter udføre visselig den samme Funktion, nemlig at føre Afkommet udenfor Legemet.

De 12 Septa bære alle Mesenterialfilamenter og Generationsorganer, Tab. XVIII, Fig. 7. De første udspringe ved Spiserorets forreste Del, lige under Mundaabningen, ere fæstede til Bindevævsmembranen, der danner Septum, og strække sig slangeformigt bagover til omtrent Midten af Tarmen.

Æggestokkene ligge udenfor Mesenterialfilamenterne, længere fjernede fra Spiseroret og Tarmen, men udspringe forrest ved Spiseroret under Mundskiven og strække sig bagover, næsten lige til Genitalspalterne. Paa enkelte Septa vare de dog ikke saa lange, men strakte sig kun noget bagenfor den forreste Halvdel af Tarmen; dog tør

may come in contact. No correspondent connection between them and the channel of the intestine exists, as there is a very broad connective-tissue layer, which sharply defines those parts from each other.

The connective-tissue of the gullet-tube and the intestine is very broad, strongly fibrillous, and rich in connective-tissue corpuscles and nutritory ducts, and upon its exterior surface longitudinal and transversal muscles are found. From the inner surface of this connective-tissue, thick, long prolongations issue, which extend into the channels of the gullet and intestine and form the large folds that are here observed (Pl. XIX, fig. 1 *g*). These connective-tissue beams are clad with pretty long cylinder-cells carrying ciliæ (Pl. XIX, fig. 1 *h*) between which unicellular mucous glands are here and there observed; especially does the posterior part of the intestine appear to be rich in such glands.

A transversal section of the posterior part of the rectum, just at the point where the fine fissures previously mentioned are found upon the exterior surface, shows, that those fissures lead direct into the intestine. In this situation the intestine is much dilated, and from its inner surface 12 canals bulge out; these are oblong, penetrate through the connective-tissue, which is here not very broad, and open out exactly in the interval between 2 septa, where the fissure named is found (Pl. XIX, fig. 3 *c*). These canals are clad with epithelium consisting of ciliating cylinder-cells (Pl. XIX, fig. 3 *d*), like that which clothes the inner wall of the intestine, and in it there are seen here and there, a few oblong, quite clear and empty cells, which are, presumably, mucous glands (Pl. XIX, fig. 3 *e*). Here there appears to be almost a kind of cloacum into which the fissures open. In the transversal section illustrated 4 such canals are seen, but there are really 12, which may be observed on comparison of several closely continuous sections, by which the true number is brought out. Here, therefore, a direct communication between the chambers and the intestine is found, which is not the case in Fenja mirabilis, where the presumable genital fissures found in the bottom of the chambers, outside the rectum open around it, between the integumental papillæ or folds described, and thus communicate direct with the external medium (the sea-water). But both those descriptions of fissures certainly perform the same function viz. to lead the offspring out of the body.

All the 12 septa carry mesenterial filaments and reproductive organs (Pl. XVIII, fig. 7). The first issue from the anterior part of the gullet-tube, exactly under the oral aperture, and are secured to the connective-tissue membrane that forms the septum, and retreat sinuously, backwards, to about the middle of the intestine.

The ovaries are situated outside the mesenterial filaments, farther from the gullet-tube and the intestine, but issue in front at the gullet-tube, under the oral disc, and extend backwards almost right to the genital fissures. In a few septa, however, they were not so long, but extended only a little way behind the anterior half-part of the

det hænde, at disse kortere Æggestokke ikke vare fuldt udviklede. De ere bundne til Septavæggen ved et overmaade løst, yderst fint Bindevæv, der som en baandformet Membran følger den, Tab. XVIII, Fig. 9 *a*. Fra denne Membran udgaa stilkede, navleformede Kapsler, en paa hver Side. Tab. XVIII, Fig. 7 *f*, 9 *b*, og i enhver saadan Kapsel udvikles der et Æg, Tab. XVIII, Fig. 9 *c*.

Man ser, at Æggestokkene her ere meget forskjellige fra dem, som findes hos Fenja mirabilis, hvor de ikke afvige synderligt fra Æggestokkarakteren hos Actiniderne i Almindelighed, imedens de hos Ægir frigidus nærme sig overmaade meget den Form, der er gjennemgaaende for Alcyoniderne.

Testiklerne ligge endnu længere ud fra Spiserør og Tarm og tage deres Begyndelse et Stykke bagenfor Mundskiven, bagenfor baade Æggestokke og Mesenterialfilamenter. De ere byggede paa samme Vis som Actinidernes i Almindelighed og slynge sig bagover i samme Længde som Æggestokkene, Tab. XVIII, Fig. 10. Testikkelfolliklerne ere temmelig store og indeholde runde Celler med særdeles stor Kjerne; i disse Celler udvikle Spermatozoerne sig. Hos det undersøgte Exemplar ere Spermatozoerne kun lidet udviklede og vise sig som yderst smaa, runde, glinsende Molekyler.

Findested.

Station 124. Et Par Exemplarer, hvoraf det ene var stærkt medtaget af Skraben.

Station 200. Flere Exemplarer, men som alle vare mere eller mindre beskadigede, idet en stor Del af Kropshuden var revet bort, saa at kun Mundskiven, Tentakler, samt Spiserør og Tarm med paahængende Septa vare tjenlige til Undersøgelse. Det er muligt, at Dyret borer sig med den bagre Ende ned i Sandet, og at derfor Skraben, idet den tager det med sig, river Huddækket istykker.

Artskarakter.

Legemet cylindrisk, 30^{mm} langt, $8—10^{mm}$ bredt i den forreste og $4—5^{mm}$ bredt i den bagerste Ende, der er forsynet med en rund Anus. Kroppens Overflade har et tyndt, slimet, skedeformet Overtræk, samt 12 Ribber, imellem hvilke fordybede Længdefelter, hvori spredte, yderst smaa Sugevorter; den forreste Del nøgen. Mundskiven bredere end Kroppens forreste Rand, foldet, lidt fordybet mod den aflange Mundaabning. 12 temmelig korte, tykke, retraktile Tentakler, staaende i en Række. Farven: Skeden er dyb, skjøn kastaniebrun, spillende lidt i det Violette. Kroppens Hud laxerød. Tentaklerne intens karmosinrøde. Mundskiven lidt blegere.

Hvad nu disse mærkelige Dyrs systematiske Stilling angaar, saa maa jeg tilstaa, at jeg har været i stor

intestine, but it may be, that those short ovaries are not fully developed. They are attached to the septal walls by an extremely loose, very delicate connective-tissue, which as a tape-like membrane accompanies them (Pl. XVIII, fig. 9 *a*). From this membrane, pedunculated, navel-shaped capsules issue, one on each side (Pl. XVIII, fig. 7 *f*, 9 *b*), and in each of these capsules an ovum is developed (Pl. XVIII, fig. 9 *c*).

We see that the ovaries here are different from those found in Fenja mirabilis, where they do not differ materially from the ovarian character of the Actinida in general; whilst in Ægir frigidus they greatly approach the form that is general in the Alcyonida.

The testicles lie still farther from the gullet-tube and intestine and have their origin a little way behind the oral disc, behind both the ovaries and mesenterial filaments. They are formed in the same manner as in the Actinida usually, and twine backwards for the same length as the ovaries (Pl. XVIII, fig. 10). The follicles of the testicles are pretty large, and contain round cells with a particularly large nucleus; the spermatozoa develope themselves in those cells. In the specimen examined the spermatozoa are but slightly developed, and appear as extremely small round shining molecules.

Habitat.

Station No. 124. A couple of specimens, of which one was much injured by the dredge.

Station No. 200. Several specimens, but all of them more or less injured, inasmuch as a large part of the body-integument is torn away; so that only the oral disc and tentacles, also the gullet-tube and intestine with attached septa, are serviceable for investigation. It is possible that the animal bores itself into the sand with its posterior extremity, and that the dredge, therefore, as it dragged it along, tore the integumental covering in pieces.

Specific characteristics.

The body cylindrical, 30^{mm} in length, $8—10^{mm}$ in breadth at the anterior extremity, and $4—5^{mm}$ in breadth at the posterior extremity, which is furnished with a round anus. The exterior surface of the body, has a thin, mucous vaginal covering, also 12 ribs, between which depressed longitudinal belts in which scattered, extremely small, suckers appear. The anterior part bare. The oral disc broader than the anterior margin of the body, folded, and a little depressed towards the oblong oral aperture. 12 rather short, thick, retractile tentacles, situated in a series. *The colour.* The sheath has a deep, beautiful chestnut brown colour with a violet play. The integument of the body salmon-red. The tentacles intense crimson-red. The oral disc somewhat paler in colour.

In respect of the systematic position of those remarkable animals, I must confess, that I have been in

Forlegenhed. En Ting kan ansees som sikkert, og det er, at de henhøre til den store Dyregruppe „Radiata". Der er Intet, som tyder hen paa en bilateral Symetri, ikke engang en Tendens til at nærme sig denne er tilstede hos de udviklede Dyr, imedens dog Embryonerne frembyde en saadan.

Der blev paa Expeditionen opsamlet ikke saa ganske faa Exemplarer af begge Slægter; men de allerfleste vare mere eller mindre odelagte ved Skrabningen, saa jeg kun havde et Par levende Exemplarer til Observation. Det varede næsten et Døgn, efter at de vare bragte i Observationskarret, forend Dyrene begyndte at rore paa sig ved at udstrække Tentaklerne. Skibet rullede jo noget, saa ganske roligt var der ikke i Karret; men efter et Par Døgns Forløb syntes Fenja mirabilis at være i fuld Vigor og blev da tegnet og observeret. Ved denne Undersøgelse kom jeg forelobig til det Resultat, at jeg havde med en Actinide at gjøre, og at det sandsynligvis var en Halcampa, hvorfor jeg i min Notisebog opførte den midlertidig som saadan. Lidt anderledes forholdt det sig med Ægir frigidus; den var trægere i sine Bevægelser, udstrakte vel efter længere Tid sine Tentakler, men syntes i det Hele taget ikke at befinde sig vel, da den jævnlig holdt sig temmelig meget kontraheret; Observationerne gik dog i den bestemte Retning, at jeg ogsaa her havde for mig en Actinide, der nærmest maatte henføres til Cerianthiderne, og som saadan blev den opført i min Notisebog. De i levende Live observerede Exemplarer bleve omhyggelig konserverede i Alkohol, og det er da disse, der væsentlig have tjent til den mere detaillerede Undersøgelse Af denne fremgaar det da, at man her har for sig ret mærkelige Overgangsformer, der ikke uden Vanskelighed kunne henføres til de for Tiden opstillede Dyreafdelinger.

Huden med dens Epithel, Nematocyster, Slimkjertler og Bindevæv, Tentakelform, Septadannelse, Generationsorganer og Nervesystem. Alt er i den fuldkomneste Overensstemmelse med Coelenteraternes Type; men det, der dog er opstillet som Hovedkarakter for denne, nemlig „Gastrovascularhulheden" mangler, eller er her omdannet til en virkelig Kropshulhed (Coelom), samtidig med at der er en fuldt udviklet Tarmkanal, som tager sin Begyndelse ved Munden og ender i en Anus, og som for Fenjas Vedkommende ikke kommunicerer direkte med Kropshulheden, men denne er ved 12 fuldstændige Septa delt i 12 Længdekamre.

Hos Slægten Ægir er der længst bag paa Rectum, nogle Millimeter foran Anus, 12 fine, knapt en Millimeter lange Spalter, hvorved Kropshulhedens Kamre staa i direkte Kommunikation med Tarmhulheden. Her er et Forhold, som ogsaa med Hensyn til Fordoielsesapparatet nærmer sig noget Coelenterateme, især Ctenophorerne, der som bekjendt har et langt Svælgrør, der strækker sig næsten gjennem Kroppens hele Længde, og som udmunder i de laterale Gastrovascularrum med to trange Sidespalter. Men hvad der dog udgjør en stor Forskjel, er den Omstændig-

great dubiety. One thing may be considered as certain and that is, that they belong to the great animal-group „Radiata". There is nothing that points to a bilateral symmetry, not even any tendency to it is apparent in the developed animals, whilst the embryons, however, present such an indication.

There were collected during the expedition not so very few specimens of both genera, but the greater number were more or less injured by the dredge, so that I only obtained a couple of animate specimens for my investigations. It was nearly 24 hours after the animals had been placed in the glass vessels before they began to show animation by extending the tentacles. The ship, it is true, rolled a good deal, so that it was not altogether quiescent in the glass jars, but after a couple of days and nights Fenja mirabilis appeared to be in full vigour, and was then drawn and observed. Upon this observation, I arrived at the preliminary conclusion, that I had to do with an Actinida, and that it was probably a Halcampa, for which reason I entered it as such, temporarily, in my Note-Book. The case was, however, a little different with Ægir frigidus; it was more sluggish in its movements, and, although it extended its tentacles after a considerable time it did not appear to be at all comfortable, as it generally kept itself pretty much contracted: the observations, however, led in the distinct direction that here, also, I had to do with an Actinida, which ought most properly to be assigned to the Cerianthida, and as such, therefore, it was entered in my Note-Book. The specimens examined during life were carefully preserved in alcohol, and it is therefore those that have principally served for my subsequent, more detailed investigations. From these it results that we have here, very remarkable transition forms, which cannot, without difficulty, be assigned to the present existent, established animal divisions.

The integument with its epithelium, nematocysts, mucous glands and connective-tissue, the tentacular form, septal formation, reproductive organs and nervous system, are all in perfect harmony with the Coelenterata type, but the feature which is, however, established as the chief characteristic of that type viz. the gastro-vascular cavity, is awanting, or is here transformed into a real body-cavity (Coelome), whilst, at same time, there is a fully developed intestinal canal, with its origin at the mouth and terminating in an anus that, in Fenja mirabilis, does not directly communicate with the body-cavity, which is divided by 12 perfect septa into 12 longitudinal chambers.

In the genus Ægir there are at the extremity of the rectum, a few millimetres in front of the anus, 12 minute, scarcely a millimetre long, fissures, by which the chambers of the the body-cavity are placed in direct communication with the intestinal cavity. Here therefore, we have a relation which, also, in respect of the digestive apparatus approaches somewhat to that of the Coelenterata, especially to that of the Ctenophora, which, as is well known, has a long gullet-tube extending almost the whole length of the body and opening into the lateral

hed, at hos Ægir er der en fuldstændig udviklet Tarm, som munder ud i en virkelig Anus, uafhængig af Kropshulheden, imedens hos Ctenophorerne Svælgroret aabner sig i Gastrovascularrummet. Slægten Fenjas Tarmapparat er derimod ganske afstængt fra Kropshulheden og fjerner sig forsaavidt længere fra Coelenterateme end Ægir.

Skal Coelomet være det Afgjorende, saa er det klart, at mine to Slægter maa udaf Coelenteraternes Rækker; men hvor de da skulle henføres, ved jeg sandelig ikke at angive. Det tor imidlerlid hænde, at man har tillagt det saakaldte Gastrovascularapparat en altfor stor systematisk Betydning ved at betegne hele den Dyregruppe, Cuvier kaldte Zoophyter, som Coelenterater. Hvad der kaldes Svælgror hos Actiniderne er muligens en begyndende Tarmdannelse, og de, Kamre, som findes til Siderne af Svælgroret, kunne maaske betragtes som en begyndende Coelomdannelse. Tydeligere bliver dette hos Ctenophorerne, hvor Svælgroret ikke blot har Formen, men ogsaa Funktionen af en virkelig Fordoielseskanal, om den end mangler Anus og staar i direkte Kommunikation med Gastrovascularhulheden. I ethvert Fald er der her i Grunden ikke langt til en fuldstændig Sondring imellem Tarm og Kropshulhed. Muligvis vil man selv inden Actinidernes Gruppe kunne paavise en forskjellig Udvikling af Svælgroret og en hermed i Forbindelse staaende mere eller mindre stærk Sondring af den saakaldte Gastrovascularhulhed, hvorved Forholdet hos Slægterne Ægir og Fenja ville kunne opfattes som Enderesultatet af en Udviklingsproces, der allerede er forberedt hos andre Actinider. Men sikker Kundskab om disse Forhold vil neppe kunne vindes uden gjennem embryologiske Undersogelser; thi da vil det vise sig, om de udvikle sig som virkelige Coelenterater, eller om de muligens vise sig at tilhøre enten Pseudocoelier eller Enterocoelier. Jeg vil imidlertid lade mig noie med at henføre dem til Actinidernes store Afdeling, men har dog fundet det nodvendigt at danne en særskilt Stamme (Tribus) for dem.

gastro-vascular space by two narrow lateral fissures. But what, however, marks an important difference is, the circumstance, that in Ægir there is a perfectly developed intestine which opens into a real anus independent of the body-cavity, whilst in Ctenophora the gullet-tube opens into the gastro-vascular space. The intestinal apparatus of the genus Fenja is, on the other hand, quite shut off from the body cavity, and therefore distinguishes itself more from the Coelenterata than Ægir does.

If we make the Coelome the decisive feature, it is then evident, that my two species must be removed from the ranks of the Coelenterata, but where they should then be placed I can really not indicate. It may, however, be the case, that too much stress has been laid on the so-called gastro-vascular apparatus as a systematic feature in naming the whole of the animal group that Cuvier called Zoophytes, Coelenterata. What is called gullet-tube in Actinida is possibly a rudimentary intestinal formation, and those at the sides of the adjoining chambers may perhaps be considered as a beginning formation of the coloeme. This is still more distinct in the Ctenophora, where the gullet-tube not only has the form of an intestine, but also the function of a real digestive canal, even though anus is awanting, and is placed in direct communication with the gastro-vascular cavity. In any case there is, here, in reality, no great step to a complete separation between the intestine and the body-cavity. Probably, even in the group of the Actinida it may be possible to show a different development of gullet-tube, and, in connection with it, a more or less distinct separation of the so-called gastro-vascular cavity; thus leading the relation in the genera Ægir and Fenja to be regarded as the final stage of a process of development that has already begun in other Actinidæ. But certain knowledge in respect of those relations will scarcely be obtained except by investigations of embryons, as, then, it will be seen whether they develope themselves as genuine Coelenterata, or whether they possibly show themselves to belong to either Psendocoelia or Enterocoelia. In the meantime I am satisfied with their assignment to the great division Actinida, but have, however, found it necessary to form a new race (tribus) for them.

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Forklaring over Figurerne.

Tab. I.

Fig. 1. *Sideractis glacialis*, naturlig Størrelse. *a*. Seet ovenfra; *b*. seet lidt fra Siden.
„ 2. *Kadosactis rosea*, naturlig Størrelse.
„ 3. *Kyathactis hyalina*, naturlig Størrelse.
„ 4. *Korenia margaritacea*, naturlig Størrelse.
„ 5. *Madoniactis lofotensis*, naturlig Størrelse.
„ 6 *Sagartia repens*, naturlig Størrelse.
„ 7. *Tealiopsis polaris*.
„ 8. Den samme en halv Gang forstorret og fri for Sand- og Skjælbeklædningen.

Tab. II.

Fig. 1. *Anthosactis Jan Mayeni*, naturlig Størrelse.
„ 2. *Calliactis Kröyeri*, naturlig Størrelse.
„ 3. *Allantactis parasitica*, naturlig Størrelse.
„ 4. *Stelidiactis Mopseæ*, naturlig Størrelse.
„ 5. Den samme med fremskudt Mund, naturlig Størrelse.
„ 6. *Stelidiactis Tubulariæ*, naturlig Størrelse.
„ 7. Den samme, lidt kontraheret og med fremskudt Mundskive.
„ 8. *Kylindrosactis elegans*, naturlig Størrelse.

Tab. III.

Fig. 1. *Sagartia abyssicola*, naturlig Størrelse.
„ 2. Den samme, berøvet en Del af sit Overtræk, naturlig Størrelse.
„ 3. *Bunodes abyssorum*, betydelig formindsket.
„ 4. *Actinauge nodosa*, naturlig Størrelse.
„ 5. *Phellia flexibilis*, naturlig Størrelse. *a*. Skedens øverste Rand; *b*. den nøgne Del.
„ 6. *Phellia flexibilis, varietas*, naturlig Størrelse.
„ 7. *Phellia margaritacea*, *a*. Skedens øverste Rand; *b*. den nøgne Del.
„ 8. *Phellia arctica*, naturlig Størrelse. *a*. Skedens øverste Rand; *b*. den nøgne Del.

Tab. IV.

Fig. 1. *Phellia bathybia*, naturlig Størrelse.
„ 2. Den samme, indtrukket i sin Skede, naturlig Størrelse.
„ 3. Den samme, berøvet Størstedelen af den inkrusterede Skede, naturlig Størrelse.

Explanation of the Plates.

Plate I.

Fig. 1. *Sideractis glacialis;* life size. *a*. Superior aspect. *b*. the same viewed partly laterally.
„ 2. *Kadosactis rosea;* life size.
„ 3. *Kyathactis hyalina;* life size.
„ 4. *Korenia margaritacea;* life size.
„ 5. *Madoniactis lofotensis;* life size.
„ 6. *Sagartia repens;* life size.
„ 7. *Tealiopsis polaris;* life size.
„ 8. *Tealiopsis polaris;* magnified one half, and freed from the sandy and shelly coating.

Plate II.

Fig. 1. *Anthosactis Jan Mayeni;* life size.
„ 2. *Calliactis Kröyeri;* life size.
„ 3. *Allantactis parasitica;* life size.
„ 4. *Stelidiactis Mopseæ;* life size.
„ 5. Do., with projecting mouth, life size.
„ 6. *Stelidiactis Tubulariæ;* life size.
„ 7. Do., slightly contracted, and the oral disc projected.
„ 8. *Kylindrosactis elegans;* life size.

Plate III.

Fig. 1. *Sagartia abyssicola;* life size.
„ 2. Do., deprived of a portion of its covering, life size.
„ 3. *Bunodes abyssorum;* considerably reduced.
„ 4. *Actinauge nodosa*; life size.
„ 5. *Phellia flexibilis;* life size. *a*. Superior margin of sheath; *b*. The bare portion.
„ 6. Do., *varietas;* life size.
„ 7. *Phellia margaritacea;* life size. *a*. Superior margin of sheath; *b*. The bare portion.
„ 8. *Phellia arctica;* life size. *a*. Superior margin of sheath; *b*. The bare portion.

Plate IV.

Fig. 1. *Phellia bathybia;* life size.
„ 2. Do., withdrawn into the sheath, life size.
„ 3. Do., deprived of the greater part of the encrusted sheath, life size.

Fig. 4. Den samme, fremstillende den overste, nogne Del med Tentakler, naturlig Størrelse.
„ 5. *Phellia norvegica*, naturlig Storrelse.
„ 6. Den samme indtrukken, naturlig Storrelse.
„ 7. *Phellia violacea*, naturlig Størrelse. *a*. Fodskiven; *b*. Skedens overste Rand.
„ 8. *Phellia spitsbergensis*, naturlig Størrelse.
„ 9. *Phellia crassa*, naturlig Storrelse. *a*. Skedens overste Rand; *b*. den nogne Del.
„ 10. *Andrakia mirabilis*, naturlig Storrelse. *a*. Capitulum; *b*. Scapus; *c*. Physa.
„ 11. Den sammes nedre Del, naturlig Storrelse. *a*. Physa.
„ 12. *Sagartia splendens*, naturlig Storrelse.

Fig. 4. *Phellia bathybia;* showing the uppermost bare portion and tentacles, life size.
„ 5. *Phellia Norvegica;* life size.
„ 6. Do., retracted, life size.
„ 7. *Phellia violacea:* life size. *a*. The pedal disc; *b*. Superior margin of sheath.
„ 8. *Phellia spitzbergensis;* life size.
„ 9. *Phellia crassa:* life size. *a*. Superior margin of sheath; *b*. The bare portion.
„ 10. *Andrakia mirabilis:* life size. *a*. Capitulum. *b*. Scapus; *c*. Physa.
„ 11. Do., lower portion, life size. *a*. Physa.
„ 12. *Sagartia splendens*.

Tab. V.

Fig. 1. *Halcampoides abyssorum*, naturlig Storrelse.
„ 2. *Fenja mirabilis*, naturlig Storrelse. *a*. Analaabning.
„ 3. *Edwardsioides ritrea*, naturlig Storrelse. *a*. Scapus; *b*. Capitulum.
„ 4. *Ægir frigidus*, naturlig Storrelse. *a*. Overhud (Scapus); *b*. den nogne Del (Capitulum).
„ 5. *Edwardsia Andresi*, naturlig Storrelse.
„ 6. *Edwardsia fusca*, naturlig Storrelse.
„ 7. *Cerianthus abyssorum*, naturlig Storrelse.
„ 8. *Cerianthus Vogti*, naturlig Storrelse.
„ 9. Den samme liggende i sit Ror. Tentaklerne skjulte af Kroppens overste Rand.

Plate V.

Fig. 1. *Halcampoides abyssorum;* life size.
„ 2. *Fenja mirabilis:* life size. *a*. Anal aperture.
„ 3. *Edwardsioides ritrea;* life size. *a*. Scapus; *b*. Capitulum.
„ 4. *Ægir frigidus;* life size. *a*. Covering of the scapus. *b*. The bare portion (capitulum).
„ 5. *Edwardsia Andresi;* life size.
„ 6. *Edwardsia fusca:* life size.
„ 7. *Cerianthus abyssorum*; life size.
„ 8. *Cerianthus Vogti:* life size.
„ 9. Do., lying in its tube, the tentacles concealed by the upper margin of the body.

Tab. VI.

Fig. 1. *Mardoll Erdmanni*, naturlig Storrelse.
„ 2. Den samme, naturlig Storrelse.
„ 3. *Kodioides pedunculata*, naturlig Storrelse.
„ 4. Den samme, naturlig Storrelse.
„ 5. *Cactosoma abyssorum*, naturlig Storrelse. *a*. Inkrusterede Del; *b*. den nogne Del; *c*. Ribber; *d*. nogne Felter imellem Ribberne.
„ 6. *Epizoanthus arborescens*, naturlig Storrelse. *a*. Fodskiven; *b*. Kroppens overste Rand.
„ 7. *Epizoanthus glacialis*, naturlig Storrelse.
„ 8. En Gruppe af samme, naturlig Storrelse.
„ 9. Den samme indtrukken, naturlig Storrelse.
„ 10. *Epizoanthus roseus*, lidt forstorret.

Plate VI.

Fig. 1. *Mardöll Erdmanni;* life size.
„ 2. Do., life size.
„ 3. *Kodioides pedunculata*; life size.
„ 4. Do., life size.
„ 5. *Cactosoma abyssorum;* life size. *a*. The encrusted portion; *b*. The bare portion; *c*. Ribs; *d*. Bare areas between the ribs.
„ 6. *Epizoanthus arborescens;* life size. *a*. The pedal disc; *b*. Superior margin of body.
„ 7. *Epizoanthus glacialis;* life size.
„ 8. Do., life size. *a*. Group.
„ 9. Do., retracted, life size.
„ 10. *Epizoanthus roseus:* somewhat magnified.

Tab. VII.

Fig. 1. *Korenia margaritacea*, naturlig Storrelse. *a*. Et ungt Exemplar.
„ 2. Den samme, noget forstorret, seet halvt fra Siden, halvt ovenfra.
„ 3. Den samme i kontraheret Tilstand, hvor den sammenfoldede Fodskive sees.
„ 4. Tversnit af en Tentakel af den samme, forstorret. *a*. Ectodermceller med deres Cilier; *b*. encellede Slimkjertler; *c*. Nematocyster; *d*. Længdemuskler; *e*. Bindevæv; *f*. Cirkulærmuskler; *g*. Endothelceller.

Plate VII.

Fig. 1. *Korenia margaritacea;* life size. *a*. A young specimen.
„ 2. Do., somewhat magnified. Semi-lateral semi-superior aspect.
„ 3. Do., seen in contracted condition, displaying the pedal disc folded together.
„ 4. Do., Transversal section of a tentacle, magnified. *a*. Ectoderm cells with their ciliæ; *b*. Unicellular mucous glands; *c*. Nematocysts; *d*. Longitudinal muscles; *e*. Connective-tissue; *f*. Circular muscles; *g*. Endothelial cells.

Fig. 5. Af den samme et Tversnit af Mundskiven og den øverste Del af Kropsvæggen, forstorret. *a.* Ectoderm; *b.* Bindevæv; *c.* Cirkulærmuskler; *d.* Cirkulærmuskler omkring Munden.

„ 6. *Kyathactis hyalina*, naturlig Storrelse.

„ 7. En Del af den ydre Kropsvæg af den samme, forstorret.

„ 8. Fodskivens Rand, og Underflade af den samme, forstorret. *a.* Halvmaaneformigt Indsnit.

„ 9. Tversnit af Kropsvæggen af den samme, forstorret. *a.* Ectoderm; *b.* Bindevæv; *c.* Cirkulærmuskler; *d.* Endothel.

„ 10. Skraasnit af Kropsvæggen af *Sideractis glacialis*, forstorret. *a.* Ectodermceller; *b.* Nematocyster; *c.* Cirkulærmuskler; *d.* Bindevæv; *e.* Endothel.

„ 11. *Kadosactis rosea*, forstorret. *a.* Fodskiven; *b.* Tverfolder med Papiller.

„ 12. *Sideractis glacialis*, lidt forstorret og seet fraoven.

Tab. VIII.

Fig. 1. Tversnit af Kropsvæggen af *Madoniactis lofotensis*, forstorret. *a.* Bindevæv; *b.* Cirkulærmuskler; *c.* et Septum, bærende Generationsorganer; *d.* Æg.

„ 2. Tversnit af Kropsvæggen af *Tealiopsis polaris*, forstorret. *a.* Ectoderm; *b.* Bindevæv; *c.* Cirkulærmuskler.

„ 3. Længdesnit af den samme. *a.* Ectoderm; *b.* Bindevæv; *c.* Cirkulærmuskler; *d.* Endothel.

„ 4. Længdesnit af Kropsvæggen af *Kylindrosactis elegans*, seet i *Camera lucida*. *a.* Ectoderm; *b.* Bindevæv; *c.* Cirkulærmuskler.

„ 5. Tversnit af den samme, forstorret. *a.* Ectoderm; *b.* Bindevæv; *c.* Cirkulærmuskler.

„ 6. Tversnit af Kropsvæggen af *Calliactis Krøyeri*, forstørret. *a.* Ectoderm; *b.* Bindevæv; *c.* Cirkulærmuskler; *d.* et Septum; *e.* Længdemuskler.

„ 7. *Stelidiactis Mopseæ*, naturlig Storrelse.

„ 8. Den samme, forstørret.

„ 9. Den samme, seet fra Fodskivens Underflade, forstorret.

„ 10. Et Tversnit af et Æg af *Stelidiactis Mopseæ*, forstorret.

„ 11. Tversnit af en Æggestok af den samme, forstorret. *a.* Tversnit af et Æg.

„ 12. *Stelidiactis Tubulariæ*, naturlig Storrelse.

„ 13. *Calliactis Krøyeri*, sammentrukken.

„ 14. Længdesnit af Kropsvæggen af den samme, forstorret. *a.* Ectoderm; *b.* Bindevæv; *c.* Cirkulærmuskler.

Fig. 5. *Korenia margaritacea*; Section of the oral disc and the uppermost part of the wall of the body, magnified. *a.* Ectoderm; *b.* Connective-tissue; *c.* Circular muscles; *d.* Circular muscles round the mouth.

„ 6. *Kyathactis hyalina:* life size.

„ 7. Do., Portion of the outer body-wall, magnified.

„ 8. Do., Margin and inferior surface of the pedal disc, magnified. *a.* Semi-lunar incision.

„ 9. Do., section of the body-wall, magnified. *a.* Ectoderm; *b.* Connective-tissue; *c.* Circular muscles; *d.* Endothelium.

„ 10. *Sideractis glacialis;* Diagonal section of the body-wall, magnified. *a.* Ectoderm-cells; *b.* Nematocysts; *c.* Circular muscles; *d.* Connective-tissue; *e.* Endothelium.

„ 11. *Kadosactis rosea:* magnified. *a.* The pedal disc; *b.* Transversal folds with papillæ.

„ 12. *Sideractis glacialis*, slightly magnified. Superior aspect.

Plate VIII.

Fig. 1. *Madoniactis lofotensis.* Transversal section of the body-wall, magnified. *a.* Connective-tissue; *b.* Circular muscles; *c.* A septum carrying reproductive organs; *d.* Ova.

„ 2. *Tealiopsis polaris.* Transversal section of the body-wall magnified. *a.* Ectoderm; *b.* Connective-tissue; *c.* Circular muscles.

„ 3. Do., Longitudinal section. *a.* Ectoderm; *b.* Connective-tissue; *c.* Circular muscles; *d.* Endothelium.

„ 4. *Kylindrosactis elegans.* Longitudinal section of the body-wall. Drawn under the camera lucida. *a.* Ectoderm; *b.* Connective-tissue; *c.* Circular muscles.

„ 5. Do., A transversal section, magnified. *a.* Ectoderm; *b.* Connective-tissue; *c.* Circular muscles.

„ 6. *Calliactis Kröyeri.* Transversal section of the body-wall, magnified. *a.* Ectoderm; *b.* Connective-tissue; *c.* Circular muscles; *d.* A septum; *e.* Longitudinal muscles.

„ 7. *Stelidiactis Mopsiæ;* life size.

„ 8. Do., magnified.

„ 9. Do., Aspect viewed from the inferior surface of the pedal disc, magnified.

„ 10. Do., Transversal section of an ovum, magnified.

„ 11. Do., Transversal section of an ovary, magnified. *a.* Transversal section of an ovum.

„ 12. *Stelidiactis Tubulariæ:* life size.

„ 13. *Calliactis Kröyeri;* contracted.

„ 14. Do., Longitudinal section of the body-wall, magnified. *a.* Ectoderm; *b.* Connective-tissue; *c.* Circular muscles.

Tab. IX.

Fig. 1. Tversnit af den overste Kropsdel med Svælgror af *Allantactis parasitica*, forstørret. *a*. Retningssepta; *b*. De samme.

„ 2. Tversnit af Kropshuden af den samme, forstørret. *a*. Ectoderm; *b*. Cirkulærmuskler i Bindevævet; *c*. Endothel; *d*. Længdemuskler paa Septum; *e*. Æggestok; *f*. Testikler.

„ 3. Testiklerne af den samme, forstørret.

„ 4. Tversnit af Kroppen af den samme med 2 fuldstændige Septapar, imellem hvilke sees 3 Par ufuldstændige Septa af 2den Orden og 4 Par af 3die Orden. *a*. Det midterste Septapar af 2den Orden; *b*. Sidesepta af 2den Orden; *c*. Kamre af 2den Orden; *d*. Septapar af 3die Orden.

„ 5. Tversnit af Kropshuden af *Kylindrosactis elegans*, forstorret. *a*. Ectoderm; *b*. Bindevæv; *c*. Cirkulærmuskler.

„ 6. Længdesnit af den samme, forstorret. *a*. Bindevæv; *b*. Cirkulærmuskler.

„ 7. Tversnit af Hud og Septa af den samme, forstorret. *a*. Septapar af 3die Orden, bærende Generationsorganer; *b*. Æg; *c*. Septum af 4de Orden med Æggestokke.

„ 8. Tversnit af Kroppen og Svælgroret af *Kadosactis rosea*, forstorret. *a*. Ectoderm; *b*. Bindevæv; *c*. Cirkulærmuskler; *d*. fuldstændigt Septum med Bindevævsforlængelser: d^1. Endothel paa indre Kropsvæg; *e*. Længdemuskler paa Septum; *f*. Tværmuskler paa Septum; *g*. Svælgrorets ydre Væg; *h*. Pigmentceller paa Svælgrorets indre Væg; *i*. encellede Slimkjertler paa samme; *k*. Nematocyster paa samme; *l*. Endothelet paa Svælgrorets indre Væg.

Tab. X.

Fig. 1. Halvt Tver-, halvt Længdesnit af Kropshuden af *Anthosactis Jan Mayeni*, forstorret. *a*. Bindevæv; *b*. Cirkulærmuskler; *c*. Bindevævslegemer; og Ernæringskanaler; *d*. Længdemuskler paa et Septum; *e*. Tværmuskler paa samme.

„ 2. Længdesnit af Kropshuden af *Sagartia repens*, forstorret. *a*. Ectoderm; *b*. Cirkulærmuskler; *c*. Bindevæv.

„ 3. Tversnit af den samme, forstorret. *a* Ectoderm; *b*. Cirkulærmuskler; *c*. Bindevæv; *d*. Endothel.

„ 4. *Sagartia abyssicola*, noget sammentrukken og berovet det slimede Overtræk. En stor Mængde Acontier ere slyngede ud igjennem Cinclides.

Plate IX.

Fig. 1. *Allantactis parasitica*. Transversal section of the uppermost part of the body and gullet-tube, magnified. *a*. Directive septa: *b*. The same.

„ 2. Do., Transversal section of the integument of the body, magnified. *a*. Ectoderm; *b*. Circular muscles in the connective-tissue: *c*. Endothelium: *d*. Longitudinal muscles of the septum: *e*. Ovary; *f*. Testicles.

„ 3. Do., the testicles, magnified.

„ 4. Do., Transversal section of the body with two perfect pairs of septa, between which 3 pairs of imperfect septa of the 2nd order and 4 pairs of the 3rd order are observed. *a*. The medial pair of septa of the 2nd order; *b*. Lateral septa of 2nd order: *c*. Chambers of the 2nd order: *d*. A pair of septa of the 3rd order.

„ 5. *Kylindrosactis elegans*. Transversal section of the integument of the body, magnified. *a*. Ectoderm; *b*. Connective-tissue; *c*. Circular muscles.

„ 6. Do., Longitudinal section, magnified. *a*. Connective-tissue: *b*. Circular muscles.

„ 7. Do., Transversal section of the integument and septa, magnified. *a*. Pair of septa of the 3rd order carrying reproductive organs; *b*. Ova; *c*. Septum of the 4th order with ovary.

„ 8. *Kadosactis rosea*. Transversal section of the body and the gullet-tube, magnified. *a*. Ectoderm: *b*. Connective-tissue; *c*. Circular muscles; *d*. Perfect septum with connective-tissue prolongations. d^1. Endothelium of the inner wall of the body. *e*. Longitudinal muscles of the septum; *f*. Transversal muscles of the septum; *g*. Outer wall of the gullet-tube; *h*. Pigment cells of the inner wall of the gullet-tube: *i*. Unicellular mucous glands on the same; *k*. Nematocysts on the same; *l*. The endothelium of the inner wall of the gullet-tube.

Plate X.

Fig. 1. *Anthosactis Jan Mayeni:* semi-transversal semi-longitudinal section of the integument of the body, magnified. *a*. Connective-tissue: *b*. Circular muscles; *c*. Connective-tissue corpuscles and nutritory ducts; *d*. Longitudinal muscles of a septum; *e*. Transversal muscles of the same.

„ 2. *Sagartia repens:* longitudinal section of the integument of the body, magnified. *a*. Ectoderm; *b*. Circular muscles; *c*. Connective-tissue.

„ 3. Do., Transversal section, magnified. *a*. Ectoderm; *b*. Circular muscles; *c*. Connective-tissue; *d*. Endothelium.

„ 4. *Sagartia abyssicola:* somewhat contracted and deprived of the mucous covering. A very great number of acontia are projected through the cinclides.

Fig. 5. *Sagartia abyssicola*. Længdesnit af Kropshuden af den samme, forstorret. *a*. Ectoderm; *b*. Cirkulærmuskler i Midten af Bindevævet; *c*. Endothel.

„ 6. Tversnit af den samme, forstorret. *a*. Ectoderm; *b*. Cirkulærmuskler; *c*. et Septum; *d*. Endothel.

„ 7. *Sagartia abyssicola*, stærkt sammentrukken.

„ 8. Længdesnit af Kropshuden af *Bunodes abyssorum*, forstorret. *a*. Ectoderm; *b*. Bindevæv; *c*. Cirkulærmuskler; *d*. et Septum med Æggestok.

„ 9. Tversnit af den samme forstorret. *a*. Ectoderm; *b*. Bindevæv; *c*. Cirkulærmuskler; *d*. Endothel; *e*. Septum.

„ 10. *Sagartia splendens*, siddende paa *Stylaster gemmaceus*, naturlig Storrelse. *a*. Et ungt Exemplar.

„ 11. Tversnit af Krop og Svælgror af den samme forstorret. *R. R.* Retningssepta. 1. De 4 fuldstændige, principale Septapar. 2. De 2 Par fuldstændige, secundære Septa med Acontier. 3. De 3 ufuldstændige Septa af 3die Orden med Acontier og Generationsorganer. 4. De smaa, ufuldstændige Septapar af 4de Orden. 5. Svælgroret. *a*. Kjonsorganer; *b*. Acontier.

„ 12. 13. Tversnit af Kropshuden, forstorret. *a*. Bindevæv; *b*. Cirkulærmuskler; *c*. Ectoderm; d. Endoderm.

Fig. 5. *Sagartia abyssicola*. Longitudinal section of the body, magnified. *a*. Ectoderm; *b*. Circular muscles in the middle of the connective-tissue; *c*. Endothelium.

„ 6. Do., Transversal section, magnified. *a*. Ectoderm; *b*. Circular muscles; *c*. A septum; *d*. Endothelium.

„ 7. Do., greatly contracted.

„ 8. *Bunodes abyssorum*. Longitudinal section of the body, magnified. *a*. Ectoderm; *b*. Connective-tissue; *c*. Circular muscles; *d*. A septum with ovary.

„ 9. Do., Transversal section, magnified. *a*. Ectoderm; *b*. Connective-tissue; *c*. Circular muscles; *d*. Endothelium; *e*. Septum.

„ 10. *Sagartia splendens:* seated on Stylaster gemmaceus, life size. *a*. A. young specimen.

„ 11. Do., Transversal section of the body and gullet-tube, magnified. *R. R.* Directive septa. 1. The 4 perfect, principal pairs of septa. 2. The 2 perfect, secondary septa with acontia. 3. The 3 pairs of imperfect septa of the 3rd order with acontia and reproductive organs. 4. The small, imperfect pair of septa of the 4th order. 5. The gullet-tube. *a*. The reproductive organs. *b*. Acontia.

„ 12. 13. Do., Transversal section of the integument of the body, magnified. *a*. Connective-tissue; *b*. Circular muscles; *c*. Ectoderm; *d*. Endoderm.

Tab. XI.

Fig. 1. *Andvakia mirabilis*, lidt forstorret. *a*. Capitulum; *b*. Scapus; *c*. Physa; *d*. Bryozoe, som snylter paa Capitulum.

„ 2. Den samme, hvor Capitulum er indtrukket i Scapus. *b*. Scapus; *c*. Physa, berovet sin Kruste.

„ 3. Tversnit af Capitulum med Svælgroret, forstorret. 1. 1. Retningssepta. 2. 2. De 2 Par Sidesepta, som alle fæste sig paa Svælgroret og følgelig ere fuldstændige. *a*. Transverselle Muskler paa den indre Flade af Retningssepta; *b*. longitudinelle Muskler paa den ydre Flade af samme; *c*. longitudinelle Muskler paa den indre Flade af de ovrige 4 Par fuldstændige Septa; *d*. transverselle Muskler paa den ydre Flade af samme; *e*. sekundære, ufuldstændige, listeformige Septapar med deres Muskulatur; *f*. Svælgror.

„ 4. Tversnit, af en Tentakel, forstorret. *a*. Encellede Slimkjertler i Ectodermet; *b*. Nematocyster; *c*. longitudinelle Muskler; *d*. Bindevævsforlængelser beklædte med Epithel, hvilke danne et Kanalsystem; *e*. transverselle Muskler.

Plate XI.

Fig. 1. *Andvakia mirabilis:* slightly magnified. *a*. Capitulum; *b*. Scapus; *c*. Physa; *d*. Bryozoa, existing as a parasite on the capitulum.

„ 2. Do., the capitulum withdrawn into the scapus; *b*. Scapus; *c*. The physa, deprived of its crust.

„ 3. Do., transversal section of the capitulum, with the gullet-tube, magnified.
1. 1. Directive septa. 2. 2. The two pairs of lateral septa, all of which are adherent to the gullet-tube, and, consequently, are perfect ones. *a*. Transversal muscles on the inner surface of the directive septa; *b*. Longitudinal muscles on the outer surface of the same; *c*. Longitudinal muscles on the inner surface of the remaining 4 pairs of perfect septa; *d*. Transversal muscles on the outer surface of same; *e*. Secondary, imperfect, fillet-formed pairs of septa with their musculosity; *f*. gullet-tube.

„ 4. Do., Transversal section of a tentacle, magnified. *a*. Unicellular mucous glands of the ectoderm; *b*. Nematocysts; *c*. Longitudinal muscles; *d*. Connective-tissue prolongations clothed with epithelium, forming a ductiferous system; *e*. Transversal muscles.

Fig. 5. Længdesnit af Scapus af *Andrakia mirabilis*, forstorret. *a*. Krustelaget; *b*. Ectodermet; *c*. Bindevæv; *d*. Cirkulærmuskler.

„ 6. Tversnit af den samme, forstorret. *a*. Krustelaget; *b*. Ectoderm; *c*. Bindevæv; *d*. Cirkulærmuskler.

„ 7. En Acontie med sit Nematocystbatteri, forstorret.

„ 8. Tversnit af den nederste Del af Scapus, forstorret. 1—6. Fuldstændige Septapar. *a*. Ufuldstændige, listeformige Septapar.

„ 9. Tværsnit af Physa, efter at den er berøvet Krusten, forstorret. *a*. Ectoderm; *b*. Bindevæv; *c*. Ganglieceller; *d*. Nerveceller; *e*. et Septum med Muskler og Endothel.

„ 10. *Andrakia mirabilis*, aabnet efter Længden, forstorret. *a*. Mesenterialfilamenter; *b*. Længdemuskler paa de fuldstændige Septa; *c*. ufuldstændige, listeformige Septa; *d*. Acontier.

„ 11. Tversnit af Capitulum med Svælgroret, forstorret. *a*. fuldstændigt Septapar; *b*. longitudinelle Muskler paa samme; *c*. Mesenterialfilamenter; *d*. ufuldstændige, listeformige Septapar.

„ 12. Mundskiven med Tentakler, forstorret. *a*. Læbefligene med deres Fure; *b* Gonidieknude.

Tab. XII.

Fig. 1. *Phellia flexibilis*, lidt forstorret. *a*. Skedens overste Rand; *b*. Kroppens nogne Del.

„ 2. Den samme, noget kontraheret, lidt forstorret. *a*. Skedens overste Rand; *b*. Kroppens nogne Del.

„ 3. Den samme fuldstændig indtrukken i Skeden, lidt forstorret.

„ 4. Tversnit af den af Skeden bedækkede Kropsdel, forstorret. *a*. Skeden; *b*. Cuticula; *c*. Ectoderm; *d*. Bindevæv; *e*. Cirkulærmuskler.

„ 5. Tværsnit af Kroppens øverste Del med Svælgroret. 1. Retningssepta. 2. fuldstændige Septa. 3. Sekundære, ufuldstændige Septa. 4. Tertiære Septa. *a*. Transverselle Muskler paa Retningssepta; *b*. longitudinelle Muskler paa samme; *c*. Mesenterialfilamenter; *e*. longitudinelle Muskler paa de øvrige 4 Par fuldstændige Septa.

„ 6. *Phellia margaritacea*, lidt forstorret. *a*. Skedens overste Rand; *b*. Kroppens nogne Del.

„ 7. Halvdelen af et Tversnit af den midterste Del af Kroppen af *Phellia margaritacea*, stærkt forstorret. *R*. Retningssepta. 1. De øvrige 2 Par

Fig. 5. *Andrakia mirabilis*. Longitudinal section of the scapus, magnified. *a*. The encrusted covering; *b*. The ectoderm; *c*. Connective-tissue; *d*. Circular muscles

„ 6. Do., transversal section, magnified. *a*. The encrusted covering; *b*. The ectoderm; *c*. Connective-tissue; *d*. Circular muscles.

„ 7. Do., Acontia with its nematocyst battery, magnified.

„ 8. Do., transversal section of the lowest portion of the scapus, magnified. 1—6. Pairs of perfect septa. *a*. Pairs of imperfect fillet-formed septa.

„ 9. Do., transversal section of Physa after being deprived of the crust, magnified. *a*. Ectoderm; *b*. Connective-tissue; *c*. Ganglia cells; *d*. Nerve cells; *e*. A septum with muscles and endothelium.

„ 10. Do., dissected longitudinally, magnified. *a*. Mesenterial filaments; *b*. Longitudinal muscles on the perfect septa; *c*. Imperfect fillet-formed septa; *d*. Acontia.

„ 11. Do., transversal section of the capitulum with the gullet-tube, magnified. *a*. Perfect pair of septa; *b*. longitudinal muscles of the same; *c*. Mesenterial filaments; *d*. Imperfect fillet-formed pair of septa.

„ 12. Do., oral disc with tentacles, magnified. *a*. The labial lobes with their grooves; *b*. Gonidial nodule.

Plate XII.

Fig. 1. *Phellia flexibilis:* somewhat magnified. *a*. Uppermost margin of the sheath; *b*. The bare part of the body.

„ 2. Do., somewhat contracted, slightly magnified. *a*. Uppermost margin of the sheath; *b*. The bare part of the body.

„ 3. Do., completely withdrawn into the sheath, slightly magnified.

„ 4. Do., transversal section of the portion of the body covered by the sheath, magnified. *a*. The sheath; *b*. Cuticulum; *c*. Ectoderm; *d*. Connective-tissue; *e*. Circular muscles.

„ 5. Do., transversal section of the uppermost part of the body with the gullet-tube. 1. Directive septa. 2. Perfect septa. 3. Secondary, imperfect septa. 4. Tertiary septa. *a*. Transversal muscles of the directive septa; *b*. Longitudinal muscles of the same; *c*. Mesenterial filaments; *e*. Longitudinal muscles of the remaining 4 pairs of perfect septa.

„ 6. *Phellia margaritacea:* slightly magnified. *a*. Uppermost margin of the sheath; *b*. The bare portion of the body.

„ 7 Do., the half of the medial portion of the body, greatly magnified. *R*. Directive septa. 1. The remaining 2 pairs of perfect septa. 2. Septa

fuldstændige Septa. 2. Septa af anden Orden, ufuldstændige. 3. 4. 5. Septa af tredie Orden. *a*. Ydre Lag af den inkrusterede Skede; *b*. Cuticula; *c*. Ectoderm; *d*. Bindevæv; *e*. Cirkulærmuskler; *f*. transverselle Muskler; *g*. longitudinelle Muskler paa Retningssepta; *h*. longitudinelle Muskler; *i*. transverselle Muskler paa de ovrige, fuldstændige Septa.

Fig. 8. Acontie, stærkt forstorret.

„ 9. Acontiekapsler, do.

„ 10. Acontiekapsel med en udslynget Neldetraad, do.

„ 11. En Del af en Æggestok, do.

„ 12. Tversnit af Kroppen og Svælgrøret, lidt forstorret. *R*. Retningssepta. 1. De ovrige, fuldstænige Septa. 2. Sekundære, ufuldstændige Septa.

„ 13. *Phellia arctica*, noget indtrukken. *a*. Den nøgne Del.

„ 14. Sugevorterne paa Kroppens ydre Flade, forstorret.

Tab. XIII.

Fig. 1. *Phellia arctica*, naturlig Storrelse. *a*. Skedens øverste Rand; *b*. Kroppens nøgne Del.

„ 2. Tversnit af Kroppens midterste Del, forstorret. *a*. Ectodermet, berøvet Skeden; *b*. Bindevæv med Bindevævslegemer og Ernæringskanaler; *c*. Cirkulærmuskler.

„ 3. Længdesnit fra samme Sted, forstorret. *a*. Ectoderm; *b*. Bindevæv; *c*. Cirkulærmuskler.

„ 4. Tversnit af Kroppen og Svælgroret, forstorret. *a*. Længdemuskler paa et fuldstændigt Septum; *b*. Tværmuskler paa samme; *c*. ufuldstændige Septa; *d*. Længdemuskler paa et ufuldstændigt Septum; *e*. Tværmuskler paa samme; *f*. ufuldstændige Septa af 3die Orden med deres Muskulatur; *g*. Svælgror.

„ 5. *Phellia crassa*, lidt forstorret. *a*. Skedens fri Rand; *b*. Kroppens øverste, nøgne Del.

„ 6. Den samme, stærkt kontraheret. *a*. Skeden borttaget for at vise Sugevorterne paa Kroppen.

„ 7. *Phellia bathybia*, naturlig Størrelse. *a*. Rester af Skeden; *b*. den øverste, nøgne Kropsdel; *c*. Kroppen blottet for Skeden.

„ 8. Skraasnit af Huden af den samme, forstorret. *a*. Ectoderm; *b*. Bindevæv; *c*. Cirkulærmuskler.

„ 9. Tversnit af Hud og Svælgror af den samme, forstorret. *a*. Svælgror; *b*. Svælggrube; *c*. Længdemuskler paa Retningssepta. *R*. Retningssepta.

of the second order, imperfect. 3, 4, 5. Septa of the third order. *a*. The exterior layer of the encrusted sheath; *b*. Cuticulum; *c*. Ectoderm; *d*. Connective-tissue; *e*. Circular muscles; *f*. Transversal muscles; *g*. Longitudinal muscles of the directive septa; *h*. Longitudinal muscles; *i*. Transversal muscles of the remaining perfect septa.

Fig. 8. *Pheltia margaritacea;* Acontia, greatly magnified.

„ 9. Do., Capsules of acontia, greatly magnified.

„ 10. Do., Capsule of an acontia, greatly magnified.

„ 11. Do., Portion of an ovary, greatly magnified.

„ 12. Do., Transversal section of the body and the gullet-tube, somewhat magnified. *R*. Directive septa. 1. The remaining perfect septa. 2. Secondary imperfect septa.

„ 13. *Phellia arctica:* somewhat retracted. *a*. The bare portion.

„ 14. Do., the suckers on the exterior surface of the body, magnified.

Plate XIII.

Fig. 1. *Phellia artica:* life size. *a*. Uppermost margin of the sheath; *b*. The bare portion of the body.

„ 2. Do., transversal section of the medial portion of the body, magnified. *a*. Ectoderm, deprived of the sheath; *b*. Connective-tissue, with connective-tissue corpuscles and nutritory ducts; *c*. Circular muscles.

„ 3. Do., Longitudinal section from the same situation, magnified. *a*. Ectoderm; *b*. Connective-tissue; *c*. Circular muscles.

„ 4. Do., Transversal section of the body and the gullet-tube, magnified. *a*. Longitudinal muscles of a perfect septum; *b*. Transversal muscles of same; *c*. Imperfect septa; *d*. Longitudinal muscles of an imperfect septum; *e*. Transversal muscles of the same; *f*. Imperfect septa of the third order, showing their musculosity; g. The œsophagus.

„ 5. *Phellia crassa:* somewhat magnified. *a*. Free margin of the sheath; *b*. Uppermost bare portion of the body.

„ 6. Do., strongly contracted. *a*. The sheath removed here in order to show the suckers on the body.

„ 7. *Phellia Bathybia;* life size. *a*. Remnants of the sheath; *b*. The superior, bare portion of the body; *c*. The body with the sheath removed.

„ 8. Do., oblique section of the integument, magnified. *a*. Ectoderm; *b*. Connective-tissue; *c*. Circular muscles.

„ 9. Transversal section of the integument, magnified. *a*. The œsophagus; *b*. Gullet-groove; *c*. Longitudinal muscles of the directive septa. *R*. Dir-

1. Principale. fuldstændige Septa. 2. Sekundære, fuldstændige Septa.

„ 10. *Phellia violacea*, indtrukken i Skeden, naturlig Størrelse.

Tab. XIV.

Fig. 1. Tversnit af en Tentakel af *Phellia crassa*, forstørret. *a*. Ectodermceller; *b*. Nematocyster; *c*. Bindevæv med Bindevævslegemer og Ernæringskanaler; *d*. Længdemuskler; *e*. Tvermuskler; *f*. Endothel.

„ 2. Tversnit af en Del af Kroppen med Svælgroret, forstørret. *a*. Svælggrube; *b*. Folder paa Svælgrorets indre Væg; *c*. Retningssepta; *d*. longitudinelle Muskler paa samme; *e*. transverselle Muskler paa samme; *f*. longitudinelle Muskler paa de øvrige, fuldstændige Septa; *g*. transverselle Muskler paa samme; *h*. et Par ufuldstændige Septa: *i*. Generationsorganer.

„ 3. Do., af Kroppens nøgne Del, forstørret. *a*. Ectoderm; *b*. Nematocyster; *c*. Bindevæv; *d*. Cirkulærmuskler

„ 4. Længdesnit af samme, forstørret. *a*. Cirkulærmuskler.

„ 5. Tversnit af en Fold paa Svælgroret, forstørret. *a*. Endothel paa Svælgrorets ydre Flade; *b*. Bindevæv; *c*. listeformig Forlængelse af Bindevævet; *d*. Cirkulærmuskler; *e*. longitudinelle Muskelfibre; *f*. Epithelet paa Svælgrorets indre Flade; *g*. en tom, encellet Slimkjertel; *h*. en saadan fyldt.

„ 6. *Phellia norvegica*, omtrent naturlig Størrelse. *a*. Den nøgne Kropsdel; *b*. den af Skeden bedækkede Kropsdel, hvor en stor Del af Skeden er borttaget.

„ 7. Tversnit af Kropshuden, forstørret. *a*. Ectoderm; *b*. Bindevæv; *c*. Cirkulærmuskler; *d*. Endothel.

„ 8. Do., af Kroppen med Svælgroret, forstørret. *a*. Retningssepta; *b*. fuldstændige Septa; *c*. Mesenterialfilamenter; *d*. ufuldstændige Septa; *e*. Acontier; *f*. Generationsorganer; *g*. Svælgroret.

„ 9. Do., af den med Skeden beklædte Hud af *Phellia violacea*, forstørret. *a*. Ectoderm; *b*. Bindevæv; *c*. Cirkulærmuskler; *d*. Entoderm.

„ 10. Do., af Kroppens og Svælgrorets midterste Del af *Phellia violacea*, forstørret. *R*. Retningssepta; *a*. Længdemuskler paa samme; *b*. Tvermuskler paa samme; *c*. de 4 Par principale, fuldstændige Septa; *d*. Længdemusklerne paa samme; *e*. de 6 Par sekundære, fuldstændige Septa; *f*. Længdemusklerne paa samme; *g*. de 4 Par tertiære, ufuldstændige Septa med deres

eetive septa. 1. Principal, perfect septa. 2. Secondary, perfect septa.

Fig. 10. *Phellia violacea:* withdrawn into the sheath, life size.

Plate XIV.

Fig. 1. *Phellia crassa:* transversal section of tentacle, magnified. *a*. Ectoderm cells; *b*. Nematocysts; *c*. Connective-tissue, with connective-tissue corpuscles and nutritory ducts: *d*. Longitudinal muscles; *e*. Transversal muscles; *f*. Endothelium.

„ 2. Do., transversal section of a portion of the body with the gullet-tube, magnified. *a*. Gullet-groove: *b*. Folds on the inner wall of the œsophagus: *c*. Directive septa: *d*. Longitudinal muscles of same; *e*. Transversal muscles of same; *f*. Longitudinal muscles of the remaining perfect septa; *g*. A pair of imperfect septa; *i*. Reproductive organs.

„ 3. Do., transversal section of the bare portion of the body, magnified. *a*. Ectoderm; *b*. Nematocysts; *c*. Connective-tissue; *d*. Circular muscles.

„ 4. Do., longitudinal section of the same, magnified. *a*. Circular muscles.

„ 5. Do., transversal section of a fold of the gullet-tube, magnified. *a*. Endothelium on the outer surface of the gullet-tube: *b*. Connective-tissue: *c*. Fillet-formed prolongation of the connective-tissue; *d*. Circular muscles: *e*. Longitudinal muscle-fibres; *f*. The epithelium on the inner surface of the gullet-tube: *g*. An empty unicellular mucous gland: *h*. Another such gland filled.

„ 6. *Phellia norvegica:* about life size. *a*. The bare portion of the body; *b* The portion of the body clothed with the sheath, but with a large part of the sheath removed.

„ 7. Do., transversal section of the integument of the body, magnified. *a*. Ectoderm: *b*. Connective-tissue: *c*. Circular muscles: *d*. Endothelium.

„ 8. Do., transversal section of the body with the gullet-tube, magnified. *a*. Directive septa; *b*. Perfect septa: *c*. Mesenterial filaments; *d*. Imperfect septa; *e*. Acontia; *f*. Reproductive organs; *g*. The gullet-tube.

„ 9. *Phellia violacea:* transversal section of the integument covered by the sheath, magnified. *a*. Ectoderm; *b*. Connective-tissue; *c*. Circular muscles; *d*. Endoderm.

„ 10. Do., transversal section of the medial portion of the body and gullet-tube, magnified. *R*. Directive septa. *a*. Longitudinal muscles of same: *b*. Transversal muscles of same; *c*. The 4 pairs of principal perfect septa: *d*. The longitudinal muscles of the same; *e*. The 6 pairs of secondary perfect septa: *f*. The longitudinal muscles of the same; *g*. The 4 pairs of tertiary imper-

Længde- og Tvermuskler; *h.* Svælggruberne; *i.* de 24 Længdefolder paa Svælgrorets indre Væg.

Tab. XV.

Fig. 1. *Phellia spitsbergensis.* lidt forstorret.

„ 2. Tversnit af Huden med Skede af den samme, forstorret. *a.* Skedens ydre, slimede, inkrusterede Lag; *b.* Skedens indre, fibrillære, membranose Lag (Cuticula); *c.* Ectoderm; *d.* Bindevæv; *e.* Cirkulærmuskler; *f.* Endothel.

„ 3. Do., af den halve Krop og Svælgrør, forstørret. *R.* Retningssepta. *a.* Principale, fuldstændige Septa; *b.* sekundære, fuldstændige Septa; *c.* ufuldstændige, tertiære Septa; *d.* Acontier; *e.* Generationsorganer.

„ 4. *Halcampoides abyssorum*, opbevaret i Spiritus.

„ 5. Et Stykke Hud af den samme, forstorret. *a.* Længdefure; *b.* Felt imellem Furerne med spredte Sugevorter.

„ 6. Mundskiven med Tentakler af den samme, seet fraoven, forstorret.

„ 7. Tversnit af Kropshuden af den samme, forstørret. *a.* Ectoderm; *b.* Bindevæv; *c.* Cirkulærmuskler.

„ 8. Længdesnit af samme, forstorret. *a.* Cirkulærmuskler.

„ 9. *Halcampoides abyssorum*, aabnet efter Længden. Huden slaaet til Siden. *a* Septa ved deres Udspring nær Candalaabningen; *b.* Septumets storste Bredde; *c.* Septumet aftaget lidt i Bredde, idet det fæster sig paa Svælgrøret, *d*; *e.* Septumets Insertion paa Mundskiven; *f.* Længdemuskel; *g.* Mesenterialfilamenter; *h.* Kjonsorganer; *i.* Mesenterialfilamentets Begyndelse paa Svælgroret.

„ 10. Et Tversnit af den overste Kropsdel med Svælgroret, forstorret. *a.* Retningssepta, *V.* Ventralsiden. *D.* Dorsalsiden; *b.* de fire øvrige Par Septa; *c.* Længdemusklerne paa Retningssepta; *d.* Tvermusklerne paa samme; *e.* Længdemusklerne paa de øvrige Septa; *f.* Tvermusklerne paa samme; *g.* Udvidning af Svælgrøret paa Dorsalenden; g^1. Udvidning af Svælgrøret paa Ventralsiden (Rectum); *h.* Bindevævet, hvorved Rectum er forenet med Svælgrøret; *i.* Svælgroret; *k.* Svælgrørsgrube.

„ 11. Tversnit af Rectum og en Del af Svælgroret, forstorret. *a.* Den afrundede Del af Rectum; *b.* Bindevævet, der adskiller Rectum fra Svælgroret; *c.* Bindevævslaget; *d.* Svælgrøret; *e.* Epithelet, bestaaende af lange Pidskeceller, der beklæde Rectums indre Flade; *f.* Slim i Rectum;

fect septa with their longitudinal and transversal muscles; *h.* The gullet-grooves; *i.* The 24 longitudinal folds of the inner wall of the gullet-tube.

Plate XV.

Fig. 1. *Phellia spitzbergensis;* somewhat magnified.

„ 2. Do., transversal section of the integument and sheath, magnified. *a.* External, viscous, encrusted layer of the sheath; *b.* Internal, fibrillar, membranous layer of the sheath (cuticulum) *c.* Ectoderm; *d.* Connective-tissue; *e.* Circular muscles; *f.* Endothelium.

„ 3. Do., transversal section of the half of the body and gullet-tube, magnified. *R.* Directive septa; *a.* principal, perfect septa; *b.* Secondary, perfect septa; *c.* Imperfect, tertiary septa; *d.* Acontia; *e.* Reproductive organs.

„ 4. *Halcampoides abyssorum;* preserved in alcohol.

„ 5. Do., a portion of the integument, magnified. *a.* Longitudinal furrow; *b.* Area between the furrows showing suckers distributed about them.

„ 6. Do., Oral disc with tentacles, superior aspect, magnified.

„ 7. Do., transversal section of the integument of the body, magnified. *a.* Ectoderm; *b.* Connective-tissue; *c.* Circular muscles.

„ 8. Do., longitudinal section, magnified. *a.* Circular muscles.

„ 9. Do., dissected longitudinally and the integument pushed aside. *a.* Septa, at their origin near the caudal aperture; *b.* Greatest breadth of the septum; *c.* Diminished breadth of the septum at the point where it attaches itself to the gullet-tube *(d)*; *e.* The insertion of the septum on the oral disc; *f.* Longitudinal muscle; *g.* Mesenterial filaments; *h.* Reproductive organs; *i.* Mesenterial filaments at their origin in the gullet-tube.

„ 10. Do., transversal section of the superior portion of the body with the gullet-tube, magnified. *a.* Directive septa. *V.* The ventral side. *D.* The dorsal side. *b.* The four remaining pairs of septa; *c.* Longitudinal muscles of the directive septa; *d.* Transversal muscles of same; *e.* Longiludinal muscles of the remaining septa; *f.* Transversal muscles of the same; *g.* Dilation of the gullet-tube on the dorsal side; g^1. Dilation of the gullet-tube on the ventral side; *h.* The connective-tissue; *i.* The gullet-tube; *k.* gullet-groove.

„ 11. Do., transversal section of the rectum and a portion of the gullet-tube, magnified. *a.* The rounded portion of the rectum; *b.* The connective-tissue separating the rectum from the gullet-tube; *c.* The connective-tissue layer; *d.* The gullet-tube; *e.* The epithelium, consisting of long

g. Rectums Lumen, hvori sees Grus; *h.* Epithelet, der beklæder Svælgrørets indre Flade, bestaaende af korte, cilierende Cylinderceller.

Tab. XVI.

Fig. 1. *Halcampoides abyssorum.* Et Tversnit af Dyrets bagerste Ende, der viser Aabningen, omgiven af stærke Muskelfibre, forstørret. *a.* Muskler.

„ 2. Et Tversnit af den sammes Tentakler, forstørret. *a.* Ectodermets Cylinderceller med Cilier; *b.* Slimkjertler; *c.* Nematocyster; *d.* Længdemuskler; *e.* Nervefibriller; *f.* Bindevæv; *g.* Tværmuskler; *h.* Endothel

„ 3. Et Tversnit af Mundskiven af den samme, forstørret. *a.* Store Ganglieceller med Udløbere; *b.* Udløbere fra den brede Ende; *c.* en Udløber fra Gangliets smale Ende; *d.* Nervenet, dannet af Gangliernes Udløbere; *e.* mindre Ganglier, der afvexle med de store; *f.* Udløbere fra de mindre Ganglier.

„ 4. *Edwardsioides ritrea*, efter et Spiritusexemplar, forstørret. *a.* Stykker af det tynde Overtræk; *b.* Længdefurer; *c.* Længdefelter med Sugevorter; *d.* Overtrækkets overste, fri Rand; *e.* Physa; *f.* Capitulum.

„ 5. Et Stykke Hud af den samme, forstørret. *a.* Sugevorter.

„ 6. Tversnit af Kropshuden, forstørret. *a.* Ectoderm; *b.* Bindevæv med Bindevævslegemer og Ernæringskanaler; *c.* Cirkulærmuskler.

„ 7. Tversnit af den halve Krop med Svælgrør, forstørret. *a.* Retningssepta; *b.* Svælggrube; *c.* Længdemuskler paa Septa; *d.* Tværmuskler paa samme; *e.* Generationsorganer.

„ 8. Et Stykke af et Septum med Generationsorganer, forstørret. *a.* Længdemuskler: *b.* Testikler; *c.* Æggestokke.

„ 9. En Testikel, forstørret. *a.* Celler; *b.* Celle, hvori Spermatozoe; *c.* frie Spermatozoer.

„ 10. Et Stykke af Overtrækket, hvori sees løsrevne Cylinderceller og Nematocyster fra Ectodermet, forstørret.

„ 11. *Edwardsia costata*, naturlig Størrelse. *a.* Scapus med Ribber; *b.* Capitulum; *c.* Physa.

„ 12. Et Stykke af Huden med dens Ribber, forsynet med Papiller, forstørret. *a.* Ribber med Papiller; *b.* Længdefelter imellem Ribberne.

flagellate cells, covering the inner surface of the rectum; *f.* Mucus of the rectum; *g.* The passage of the rectum, containing small gravel; *h.* The epithelium that covers the inner surface of the gullet-tube, consisting of short ciliating cylinder-cells.

Plate XVI.

Fig. 1. *Halcampoides abyssorum:* A transversal section of the posterior extremity of the animal, showing the aperture surrounded by strong muscle fibres, magnified. *a.* Muscles.

„ Do., transversal section of the tentacles, magnified. *a.* The cylinder-cells of the ectoderm with cilia; *b.* Mucous glands; *c.* Nematocysts; *d.* Longitudinal muscles; *e.* Nerve fibrils; *f.* Connective-tissue; *g.* Transversal muscles; *h.* Endothelium.

„ 3. Do., transversal section of the oral disc, magnified. *a.* Large ganglial cells with prolongations; *b.* Prolongations from the broad extremity; *c.* A prolongation from the narrow extremity of the ganglion; *d.* Nervous reticulation formed of the prolongations of the ganglia; *e.* Small ganglia that alternate with the larger ones; *f.* Prolongations of smaller ganglia.

„ 4. *Edwardsioides ritrea:* illustrated from a specimen preserved in alcohol, magnified. *a.* Portions of the thin outer covering; *b.* Longitudinal furrows; *c.* Longitudinal areas with suckers; *d.* The superior free margin of the covering; *e.* Physa; *f.* Capitulum.

„ 5. Do., a portion of the integument, magnified. *a.* Suckers.

„ 6. Do., transversal section of the integument of the body, magnified. *a.* Ectoderm; *b.* Connective-tissue, with connective-tissue corpuscles and nutritory ducts; *c.* Circular muscles.

„ 7. Do., transversal section of a half of the body with gullet-tube, magnified. *a.* Directive septa; *b.* Gullet-groove; *c.* Longitudinal muscles of the septa; *d.* Transversal muscles of same; *e.* Reproductive organs.

„ 8. Do., portion of a septum with reproductive organs, magnified. *a.* Longitudinal muscles; *c.* Testicles; *c.* Ovaries.

„ 9. Do., a testicle, magnified. *a.* Cells; *b.* Cell containing spermatozoa; *c.* Loose spermatozoa.

„ 10. Do., a portion of the external covering in which cylinder-cells, that have been torn loose, and nematocysts from the ectoderm are observed, magnified.

„ 11. *Edwardsia costata:* life size. *a.* Scapus with ribs; *b.* Capitulum; *c.* Physa.

„ 12. Do., a portion of the integument with its ribs, furnished with papillæ, magnified. *a.* Ribs with papillæ; *b.* Longitudinal areas between the ribs.

Tab. XVII.

Fig. 1. *Fenja mirabilis*. opskaaret efter Længden og lidt forstørret. *a*. Længdemuskler: *b*. Mesenterialfilamenter; *c*. Æggestokke; *d*. Testikler; *e*. Spiserør; *f*. Tarm; *g*. Rectum; *h*. Anus.

„ 2. Den samme; baade Hud og Tarmkanal aabnet efter Længden. *a*. Spiserørets indre Flade med dets Længdefolder; *b*. Tarmens indre Flade med dens Folder; *c*. Rectums indre Flade med dens Folder; *d*. Anus.

„ 3. Mundskiven med Tentakler, seet fra oven, forstorret.

„ 4. Dyrets bagerste Ende, forstorret. *a*. Anus; *b*. Papiller rundt Anus; *c*. Folder paa Rectum.

„ 5. Et Stykke Hud af den samme, seet fra den indre Flade, forstorret. *a*. Længdemuskel med Septumsinsertionen; *b*. Tværmuskler; *c*. Tværmuskler, som gaa under Længdemuskelen henimod Septum.

„ 6. Tversnit af Huden af den samme, forstorret. *a* Ectoderm; *b*. Bindevæv; *c*. Cirkulærmuskler.

„ 7. Tversnit af Hud og Tarmkanal af den samme, forstorret. *a*. Den midterste Del af et Septum (Længdemusklerne ere bortrevne); *b*. Kamrene imellem Septa; *c*. Længdemusklerne paa Kropsvæggen; *d*. Længdemusklerne paa begge Sider at Septa; *e*. listeformige Fremspring paa Tarmkanalens ydre Væg; *f*. Bindevævsforlængelser fra Tarmkanalens indre Væg, hvilke danne Folderne paa samme; *g*. Epithel paa samme.

„ 8. Et Stykke af den Bindevævsmembran, der binder Generationsorganerne til Septum, forstørret. *a*. Bindevævsmembran; *b*. Æggestokke; *c*. Testikler.

„ 9. Bindevævsmembran med Testikler, forstørret. *a*. Bindevæv; *b*. Celler paa Testikelrørenes indre Væg (Spermatoblaster); *c*. lignende Celler fyldte med undviklede Spermatozoer; *d*. frigjorte, undviklede Spermatozoer; *e*. mere udviklede Spermatozoer.

„ 10. Bindevævsmembran med Æggestokke, forstorret. *a*. Bindevæv; *b*. Æg.

„ 11. Tversnit af Hud og Tarm af Kroppens bagerste Del, forstørret. *a*. Midterste Del af et Septum; *b*. listeformige Bindevævsforlængelser paa Rectums ydre Væg. Paa Septa sees tilhæftede Æg.

„ 12. Tversnit af Krop og Tarm nær Anus, forstørret. *a*. Spalte i Bunden af et Kammer; *b*. listeformige Bindevævsforlængelser paa Rectums ydre Flade.

Plate XVII.

Fig. 1. *Fenja mirabilis;* dissected longitudinally and slightly magnified. *a*. Longitudinal muscles; *b*. Mesenterial filaments; *c*. Ovaries; *d*. Testicles; *e*. Gullet-tube; *f*. Intestine; *g*. Rectum; *h*. Anus.

„ 2. Do., the integument and intestinal canal, dissected longitudinally. *a*. Inner surface of the gullet-tube, showing its longitudinal areas; *b*. Inner surface of the intestine with its folds; *c*. Inner surface of the rectum with its folds; *d*. Anus.

„ 3. Do., Oral disc with tentacles, superior aspect, magnified.

„ 4. Do., posterior extremity, magnified. *a*. Anus; *b*. Papillæ round the anus; *c*. Folds of the rectum.

„ 5. Do., portion of the integument viewed from the inner surface, magnified. *a*. Longitudinal muscle with the insertion of the septum; *b*. Transversal muscles; *c*. Transversal muscles, which pass under the longitudinal muscle towards the septum.

„ 6. Do., transversal section of the integument magnified. *a*. Ectoderm; *b*. Connective-tissue; *c*. Circular muscles.

„ 7. Do., transversal section of the integument and intestinal canal, magnified. *a*. The middle portion of a septum with the longitudinal muscles removed. *b*. The chambers between the septa; *c*. The longitudinal muscles on the wall of the body; *d*. The longitudinal muscles on both sides of the septa; *e*. Fillet-formed projection on the outer wall of the intestinal canal; *f*. Connective-tissue prolongations from the inner wall of the intestinal canal, which form its folds; *g*. The epithelium on same.

„ 8. Do., a portion of the connective tissue membrane that connects the reproductive organs with the septum, magnified. *a*. Connective-tissue membrane; *b*. Ovaries; *c*. Testicles.

„ 9. Do., connective-tissue with testicles, magnified. *a*. Connective-tissue; *b*. Cells on the inner wall of the testicular tubes (spermatoblasts); *c*. Similar cells filled with undeveloped spermatozoa; *d*. Liberated undeveloped spermatozoa; *e*. More fully developed spermatozoa.

„ 10. Do., Connective-tissue membrane with ovaries, magnified. *a*. Connective-tissue; *b*. Ova.

„ 11. Do., transversal section of the integument and intestine of the posterior part, magnified. *a*. The middle portion of a septum; *b*. Fillet-formed connective-tissue prolongations on the outer wall of the rectum. Ova are seen attached to the septum.

„ 12. Do., transversal section of the body and intestine near the anus, magnified. *a*. Fissure at the bottom of a chamber; *b*. fillet-formed connective-tissue prolongations on the outer surface of the rectum.

Fig. 13. Tversnit af Bunden af et Kammer med et Stykke af Rectum. *a*. Spalten i Bunden af Kammeret; *b*. Rectum.

„ 14. Et Stykke af Hudens ydre Flade, hvorpaa sees Sugevorter, forstorret.

Tab. XVIII.

Fig. 1. Tversnit af Kropshuden af *Fenja mirabilis*, forstørret. *a*. Cylinderepithel (Ectoderm); *b*. encellede Slimkjertler; *c*. Nematocyster.

„ 2. Et Stykke af et Tversnit af Krop og Tarmkanal, forstørret. *a*. Længdemuskler paa Septa; *b*. de forgrenede Bindevævsforlængelser fra Septa, paa hvilke Muskelfibrene ere fæstede; *c*. Bindevævsforlængelser paa Tarmens ydre Væg; *d*. Epithel paa samme; *e*. cirkulære Muskelfibre paa Tarmen; *f*. Bindevævslag; *g*. Bindevævsforlængelser fra Tarmens indre Væg; *h*. Længde- og Tværmuskelfibre paa den indre Væg af Bindevævslaget og dets Forlængelser; *i*. Epithel.

„ 3. Tversnit af den øverste Del af Spiseroret, nærmest Mundskiven (Macerationspræparat), forstorret. *a*. Nervenet; *b*. Epithel; *c*. Muskler; *d*. Ganglieceller. Epithelet er rykket langt fra Muskellaget.

„ 4. Nerveganglier og opsvulmede Nervetraade fra den underste Del af Mundskiven og den tilstødende Del af Kropshuden, forstorret. *a*. Nerveganglier; *b*. opsvulmede Nervetraade.

„ 5. *Ægir frigidus*, forstorret. *a*. Fremspringende Ribber; *b*. Længdefelter med Sugevorter; *c*. den nøgne Del af Kroppen; *d*. en Excrementprop, der passerer Anus.

„ 6. Fordøielsesapparatet, aabnet efter Længden, forstørret. *a*. Spiserorets Folder; *b*. Tarmens Folder; *c*. Rectums Folder.

„ 7. Spiseror, Tarm, Mundskive og Tentakler, forstørret. *a*. Spiseroret; *b*. Tarmen; *c*. Rectum; *d*. Septa-insertion; *e*. Spalter paa Rectum; *f*. Æggestokke.

„ 8. Tversnit af Kroppens Hud. *a*. Ectodermets Cylinderceller; *b*. Slimkjertler, *c*. Nematocyster; *d*. Bindevæv; *e*. Cirkulærmuskler; *f*. Længde- og Tværmuskler; *g*. Endothel.

„ 9. En Del af en Æggestok, losrevet fra Septum, forstorret. *a*. Bindevæv; *b*. stilket Æggekapsel; *c*. Æg.

„ 10. Et Stykke af en Testikel, forstorret.

Fig. 13. *Fenja mirabilis:* transversal section of the bottom of a chamber with a portion of the rectum. *a*. The fissure at the bottom of the chamber; *b*. Rectum.

„ 14. Do., portion of the external surface of the integument, upon which suckers are observed, magnified.

Plate XVIII.

Fig. 1. *Fenja mirabilis:* transversal section of the integument of the body, magnified. *a*. Cylinder-epithelium (ectoderm); *b*. Unicellular mucous glands; *c*. Nematocysts.

„ 2. Do., portion of a transversal section of the body and intestinal canal, magnified. *a*. Longitudinal muscles of the septum; *b*. The ramificated connective-tissue prolongations of the septa, upon which the muscle-fibres are attached; *c*. Connective-tissue prolongations on the outer wall of the intestine; *d*. Epithelium of the same; *e*. Circular-muscle fibres of the intestine; *f*. Connective-tissue layer; *g*. Connective-tissue prolongations from the inner wall of the intestine; *h*. Longitudinal and transversal muscle-fibres on the inner wall of the connective-tissue layer; *i*. Epithelium.

„ 3. Do., transversal section of the superior portion of the œsophagus, next the oral disc. *a*. macerated preparation, magnified. *a*. Nervous reticulation; *b*. Epithelium; *c*. Muscles; *d*. Ganglia-cells. The epithelium is removed far from the musculous layer.

„ 4. Do., Nervous ganglia and tumified nervous filaments from the inferior portion of the oral disc and the adjoining part of the integument of the body, magnified. *a*. Nervous ganglia; *b*. Tumified nervous filaments.

„ 5. *Ægir frigidus*; magnified. *a*. Protuberant ribs; *b*. Longitudinal folds with suckers; *c*. The bare portion of the body; *d*. An excremental plug passing from the anus.

„ 6. Do., the digestive apparatus, dissected logitudinally, magnified. *a*. Folds of the gullet-tube; *b*. Folds of the intestine; *c*. Folds of the rectum.

„ 7. Do., œsophagus, intestine, oral disc and tentacles, magnified. *a*. The œsophagus; *b*. The intestine; *c*. Rectum; *d*. Septal insertion; *e*. Fissures of the rectum; *f*. Ovaries.

„ 8. Do., transversal section of the integument of the body. *a*. Cylinder-cells of the ectoderm; b. Mucous glands; *c* Nematocysts; *d*. Connective-tissue; *e*. Circular muscles; *f*. Longitudinal and transversal muscles; *g*. Endothelium.

„ 9. Do., portion of an ovary, detached from the septum, magnified. *a*. Connective-tissue; *b*. Pedunculated ovarian capsule; *c*. Ova.

„ 10. Do., portion of a testicle, magnified.

Tab. XIX.

Fig. 1. Tversnit af Hud og Tarm af *Ægir frigidus*, forstorret. *a*. Bindevævsforlængelser, udgaaende fra Septum; *b*. Længdemuskler fæstede paa disse Forlængelser; *c*. Længdemuskler paa begge Sider af Septum, dannende Buske; *d*. Bindevævsforlængelse, udgaaende fra Tarmens ydre Væg; *e*. Epithel paa samme; *f*. en saadan Bindevævsforlængelse, gaffelformigt delt; *g*. Bindevævsforlængelse, udgaaende fra Tarmens indre Væg, dannende en Tarmfold; *h*. Epithelbeklædningen paa samme.

„ 2. Et Tversnit af Kroppens bagre Del af *Ægir frigidus*, fremstillende Huden, Skillevæggene og Tarmen, i hvis Hulhed sees Excrementer, forstorret. *a*. Et Kammer; *b*. de listeformede Bindevævsforlængelser fra Tarmens ydre Væg.

„ 3. Do., af Kroppen og Tarmen, nogle Millimeter foran Rectum. *a*. Kamre; *b*. de listeformede Bindevævsforlængelser fra Tarmens ydre Væg; *c*. Kanaler, hvorved Tarmen kommuniserer med Kamrene, og som udmunde i de paa Rectum værende Spalter; *d*. Epithel, beklædende Kanalernes Vægge; *e*. Slimkjertler.

„ 4. Tversnit af Kroppens bagre Del noget længere foran Fig. 2, hvorpaa sees Kropshuden, Septa, Kamrene og Tarmen med dens mange, meget fremragende Folder beklædte med Epithel, imellem hvis Celler sees Slimkjertler. *a*. Kamre; *b*. listeformede Forlængelser fra Tarmens ydre Væg.

„ 5. *Edwardsia fusca*, naturlig Storrelse. *a*. Det skedeformige Overtræk paa Scapus; *b*. De kastaniebrune Linier paa Capitulum; *c*. Physa.

„ 6. Et Stykke Hud, indenfor Skeden, lidt forstorret. Paa den ydre Flade sees de 2 Rækker Papiller.

„ 7. Et Tversnit af Huden, forstorret. *a*. Den skedeformige Del, hvori sees inkrusteret Sand; *b*. Ectoderm; *c*. Bindevæv med Ernæringskanaler og Bindevævslegemer med Udlobere; *d*. Nematocystkapselen; *e*. *A*. Bindevævsnet; *e*. *B*. Epithel; *f*. losrevne Epithelceller, hvoraf enkelte ere meget forlængede; *g*. Nematocyster; *h*. Cirkulærmuskler; *i*. Muskellaget paa den indre Væg.

„ 8. Tversnit af Krop og Svælgror, forstorret. *a*. Papiller med deres Nematocystkapsler; *b*. Septum; *c*. Længdemuskler paa samme; *d*. Septumets

Plate XIX.

Fig. 1. *Ægir frigidus;* transversal section of the integument and intestine, magnified. *a*. Connective-tissue prolongations issuing from the septum; *b*. Longitudinal muscles attached to these prolongations; *c*. Longitudinal muscles on both sides of the septum, forming tufts; *d*. Connective-tissue prolongation issuing from the outer wall of the intestine; *e*. Epithelium of the same; *f*. One of these connective-tissue prolongations bifurcated; *g*. Connective-prolongation issuing from the inner wall of the intestine, forming an intestinal fold; *h*. Epithelial covering of same.

„ 2. Do., transversal section of the posterior portion of the body, magnified; showing the integument, divisional walls and intestine, in whose cavity excrementa are observed. *a*. A chamber; *b*. The fillet-formed connective-tissue prolongations from the outer wall of the intestine.

„ 3. Do., transversal section of the body and intestine a few millimetres in front of the rectum. *a*. Chambers; *b*. The fillet-formed connective-tissue prolongations from the outer wall of the intestine; *c*. Ducts through which the intestine communicates with the chambers, and which debouch into the fissures appearing in the rectum; *d*. Epithelium clothing the walls of the ducts; *e*. Mucous glands.

„ 4. Do., transversal section of the posterior part of the body — somewhat in front of fig. 2 — in which is seen the integument of the body, septa, chambers, and the intestine with its numerous, very prominent folds clad with epithelium, between whose cells mucous glands are seen. *a*. Chambers; *b*. Fillet-formed prolongations from the outer wall of the body.

„ 5. *Edwardsia fusca:* life size. *a*. The vaginate covering of the scapus; *b*. The chestnut-brown lines on the capitulum; *c*. Physa.

„ 6. Do., A portion of the integument, inside the sheath, a little magnified. On the outer surface the two series of papillæ are observed.

„ 7. Do., transversal section of the integument, magnified. *a*. The vaginate portion, showing sand encrusted in it; *b*. Ectoderm; *c*. Connective-tissue with nutritory ducts, and connective-tissue corpuscles with prolongations; *d*. The nematocyst capsule; *e*. *A*. The connective-tissue reticulation; *e*. *B*. Epithelium; *f*. Detached epithelial cells, of which some are a little prolongated; *g*. Nematocysts; *h*. Circular muscles; *i*. Musculous layer of the inner wall.

„ 8. Do., transversal section of the body and œsophagus, magnified. *a*. Papillæ with their nematocyst capsules; *b*. Septum; *c*. Longitudinal

Insertion paa Osophagus med dets Længdemuskler; *e.* Midtpartiet af Septum.

Fig. 9. Længdesnit af den bagerste Halvdel af Kroppen. forstørret. *a.* Længdemuskler paa Septa; *b.* Æggestokke med Æg; *c.* Acontier.

Tab. XX.

Fig. 1. *Edwardsia Andresi.* naturlig Storrelse. *a.* Scapus; *b.* Physa; c. Capitulum.

„ 2. Den samme aabnet efter Længden. lidt forstørret. *a.* Septa i den bagerste Ende; *b.* Septa længere fortil med Længdemuskler og Mesenterialfilamenter; *i.* Svælgrør med Septainsertioner.

„ 3. Tversnit af Huden paa den midterste Del af Kroppen, forstørret. *a.* Det skedeformige Overtræk; *b.* Ectoderm; *c.* Bindevæv; *d.* Cirkulærmuskler; *e.* Endothel; *f.* Nematocystkapsel. nedsænket i Bindevævet; *g.* Bindevævslegemer med Udløbere; *h.* Epithel.

„ 4. Tver- og Længdemuskler paa den indvendige Kropsvæg. forstørret. *a.* Tvermuskler; *b.* Længdemuskler.

„ 5. Tversnit af Kropshuden. forstørret. *a.* Skedeformigt Overtræk; *b.* Ectoderm; *c.* Bindevæv; *d.* Cirkulærmuskler; *e.* Endothel; *f.* Nematocystkapsel; *g.* Bindevævslegemer med Udløbere; *h.* Epithel; *i.* Nematocyster; *k.* Nematocyster i Udvikling.

„ 6. En Nematocyst fra Kapselen. stærkt forstørret. Zeiss. Homogen. Immers. 2,0^{mm}. Ocul. 4.

„ 7. Tversnit af Dyrets forreste Del. gjennem Hud og Svælgrør, forstørret. *a.* Septum; *b.* Kamre; *c.* Længdemusklerne ved Septumets Udspring fra Kropsvæggen; *d.* Septumets Insertion paa Spiseroret med dets Længdemuskel; *e.* Septumets midterste Del.

„ 8. Tversnit af Kroppen længere bag. hvor Svælgrøret er ophørt. *a.* Ectoderm; *b.* Nematocystkapsel i Bindevævet; *c.* Acontier. fæstede til Septa; *d.* Længdemuskler paa Septa.

„ 9. Tversnit fra Kroppens bagre Del. forstørret. *a.* Ectoderm; *b.* Nematocyster i Bindevævet; *c.* Æggestokke. fæstede til Septa; *d.* Testikler ligesaa.

„ 10. En Acontie, stærkt forstørret.

„ 11. Et Stykke af et Septum med Længdemuskler og Testikel. forstørret. *a.* Bindevævsmembran; *b.* Længdemuskel; *c.* Blindsække; *d.* Epithelialbeklædningen paa Blindsækkenes indre Væg; *e.* Spermatozoer.

muscles of same; *d.* Insertion of the septum on the œsophagus with its longitudinal muscles; *e.* Mesial portion of the septum.

Fig. 9. *Edwardsia fusca:* longitudinal section of the posterior half portion of the body. magnified. *a.* Longitudinal muscles of the septa; *b.* Ovaries containing ova; *c.* Acontia.

Plate XX.

Fig. 1. *Edwardsia Andresi:* life size

„ 2. Do., dissected longitudinally. slightly magnified. *a.* Septa of the posterior portion; *b.* Septa farther forward. with longitudinal muscles and mesenterial filaments; *c.* Gullet-tube with septal insertions.

„ 3. Do., transversal section of the integument on the middle portion of the body. magnified. *a.* The vaginate covering; *b.* Ectoderm; *c.* Connective-tissue; *d.* Circular muscles; *e.* Endothelium; *f.* Nematocyst capsule embedded in the connective-tissue; *g.* Connective-tissue corpuscles with prolongations; *h.* Epithelium.

„ 4. Do., transversal and longitudinal muscles on the internal wall of the body. magnified. *a.* Transversal muscles; *b.* Longitudinal muscles.

„ 5. Do., transversal section of the integument of the body. magnified *a.* The vaginate covering; *b.* Ectoderm; *c.* Connective-tissue; *d.* Circular muscles; *e.* Endothelium; *f.* Nematocyst capsule; *g.* Connective-tissue corpuscles with prolongations; *h.* Epithelium; *i.* Nematocysts; *k.* Nematocysts in course of development.

„ 6. Do., a nematocyst from the capsule. greatly magnified. Zeiss. Homogen. Immert. 2,0^{mm} Ocul. 4.

„ 7. Do., transversal section of the anterior part of the animal. through the integument and œsophagus. magnified. *a.* Septum; *b.* Chambers; *c.* The longitudinal muscles at the origin of the septum in the body wall; *d.* The insertion of the septum on the œsophagus with its longitudinal muscle; *e.* Middle portion of the septum.

„ 8. Do., transversal section of the body farther back. where the gullet-tube ceases. *a.* Ectoderm; *b.* Nematocyst capsule in the connective-tissue; *c.* Acontia attached to the septum; *d.* Longitudinal muscles on the septa.

„ 9. Do., transversal section of the posterior part of the body. magnified. *a.* Ectoderm; *b.* Nematocysts in the connective-tissue; *c.* Ovaries attached to septa; *d.* Testicles, attached in same manner.

„ 10. Do., An acontia greatly magnified.

„ 11. Do., portion of a septum with longitudinal muscle and testicle. magnified. *a.* Connective-tissue membrane; *b.* Longitudinal muscle; *c.* Cæcum; *d.* Epithelial covering on the inner wall of the cæcum; *e.* Spermatozoa.

Fig. 12. Tversnit af en Del af Svælgroret, forstorret. *a*. Epithel; *b*. Bindevæv; *c*. Muskellag; *d*. pyramideformige Bindevævstremspring fra Bindevævets indre Væg; *e*. Epithel med Cilier.

„ 13. Tversnit af en Tentakel, forstorret. *a*. Ectoderm med Nematocyster; *b*. kornet Lag (Nervesystem?); *c* Længdemuskler; *d*. Bindevæv; *e*. Tvermuskler; *f*. cilierende Endothel.

Tab. XXI.

Fig. 1-10. *Mardöll Erdmanni*, mere eller mindre sammentrukne af Opbevaringen i Spiritus.

„ 11. Den samme. En Koloni Polyper, seet fra oven, naturlig Størrelse.

„ 12. Samme Koloni, seet fra neden og lidt til Siden, naturlig Størrelse.

„ 13 To sammenhængende Polyper af den samme; Spiritusexemplar.

„ 14. En Koloni Polyper af den samme, seet fra oven, naturlig Størrelse.

„ 15. Den samme seet fra neden, naturlig Størrelse.

„ 16. Et Tversnit af Hud og Svælgror af den samme, forstorret. *a*. Ectoderm; *b*. Ernæringskanaler i Bindevævet, fyldte med Celler; *c*. Epithel, beklædende den indre Kropsvæg; *d*. Septum med Muskler og Epithel; *e*. Generationsorganer og Mesenterialfilamenter; *f*. Epithel paa Svælgrorets ydre Flade.

„ 17. Et Tversnit af Kroppen længere nede, hvor Svælgroret er ophørt, forstorret. *a*. To Macrosepta paa Bugsiden (Retningssepta), bærende Generationsorganer, hvori Æg, samt Mesenterialfilamenter; *b*. Microsepta paa Rygsiden (Retningssepta); *c*. Æg; *d*. Microsepta med Muskulatur.

„ 18. Tversnit af Huden og et Septum, stærkt forstorret *a*. Ectoderm; *b*. Bindevæv, der ved et Bjælkenet danner Kanaler; *c*. Bindevævsbjælke; *d*. Bindevævslegeme; *e*. Kanal i Bindevævet, udfyldt med Celler; *f*. Sandkorn, der udfylde Maskerne (Kanalerne); *g*. Cirkulærmuskler; *h*. Længdemuskler paa Hudens indre Flade; *i* Epithel, beklædende denne; *k*. Septumets Bindevæv; *l*. Længdemuskler.

„ 19. En Enkeltpolyp udviklet af et Æg, naturlig Størrelse.

„ 20. Den samme, forstorret.

Tab. XXII.

Fig. 1. Halvt Tver-, halvt Længdesnit af den nederste Basaldel med det dertil stødende Cœnenchym af *Mardöll Erdmanni*, forstorret. *a*. Gastro-

Fig. 12. *Edwardsia Andresi;* transversal section of a portion of the œsophagus, magnified. *a*. Epithelium; *b*. Connective-tissue; *c*. Musculous layer; *d*. Pyramidal connective-tissue prominence on the inner wall of the connective-tissue; *e*. Epithelium with cilia.

„ 13. Do., transversal section of a tentacle, magnified. *a*. Ectoderm with nematocysts; *b*. Granular layer (Nerve-system?); *c*. Longitudinal muscles; *d*. Connective-tissue; *e*. Transversal muscles; *f*. Ciliating endothelium.

Plate XXI.

Fig. 1-10. *Mardöll Erdmanni;* more or less shrunk from its preservation in alcohol.

„ 11. Do., superior aspect of a colony of polyps, life size.

„ 12. Do., inferior, semi-lateral aspect of the same colony, life size.

„ 13. Do., two united polyps. Specimen preserved in alcohol.

„ 14. Do., superior aspect of a colony of polyps, life size.

„ 15. Do., inferior aspect of the colony, life size.

„ 16. Do., transversal section of the integument and œsophagus, magnified. *a*. Ectoderm; *b*. Nutritory ducts in the connective-tissue, filled with cells; *c*. Epithelium clothing the inner wall of the body; *d*. Septum with muscles and epithelium; *e*. Reproductive organs and mesenterial filaments; *f*. Epithelium of the outer surface of the gullet-tube.

„ 17. Do., transversal section of the body lower down, where the gullet-tube ceases, magnified. *a*. Two macrosepta on the ventral side (directive septa) carrying reproductive organs, containing ova, and mesenterial filaments; *b*. Microsepta on the dorsal side (directive septa); *c*. Ova; *d* Microsepta with musculosity.

„ 18. Do., transversal section of the integument and a septum, greatly magnified. *a*. Ectoderm: *b*. Connective-tissue, which by a reticulation of beams forms ducts; *c*. Connective-tissue beams; *d*. The connective-tissue layers; *e* Duct in the connective-tissue, filled with cells; *f*. Grains of sand that fill the meshes (the ducts); *g*. Circular muscles; *h*. Longitudinal muscles on inner surface of the integument; *i*. Epithelium clothing same; *k*. Connective-tissue of the septum; *l*. Longitudinal muscles.

„ 19. Do., a single polyp developed from an ovum, life size.

„ 20. Do., the same, magnified.

Plate XXII.

Fig. 1. *Mardöll Erdmanni;* semi-transversal, semi-longitudinal section of the polyp's basal part with the adjoining sarcosoma, magnified. *a*. Gastro-

vaskularhulheden, samt Septa; *b.* en Kanal fra Gastrovaskularhulheden ind i Coenenchymet, beklædt med Epithel; *c. d.* lignende Kanaler; *e.* Epithelet, som beklæder Kanalens Vægge; *f.* Coenenchymet.

„ 2. Tversnit af en Tentakel, stærkt forstørret. *a.* Ectoderm; *b.* Nematocyst; *c.* Længdemuskler; *d.* Bindevæv; *e.* Tvermuskler; *f.* Epithel, som beklæder Tentakelens indre Væg.

„ 3. Tversnit af Polypkroppens nederste Basaldel. *a.* Polypens Bund; *b.* Macroseptum, der tager sit Udspring fra Bunden; *c.* Septumets bredere Del langs Kropsvæggen; *d.* Aabning imellem to Macrosepta, der fører ind til Coenenchymets Kanaler; *e.* Microseptum og Huden, slaaet til Siden.

„ 4. To sammenhængende Polyper, aabnet efter Længden, forstørret. *a.* Polypernes Bund (Grændse); *b.* Macrosepta, der udgaa fra Bunden; *c.* Macroseptum længere oppe paa Polypkroppens indre Flade; *d.* Macroseptum, insereret paa Svælgroret og bærende Generationsorganer og Mesenterialfilamenter; *e.* Microseptum; *f.* Svælgrøret.

„ 5. Et Macroseptum med Generationsorganer og Mesenterialfilamenter, forstørret. *a.* Kjertelformigt Organ, hvorfra Mesenterialfilamentet, *d.* udgaar; *b.* Furen paa samme; *c.* Celler; *e.* Æggestok; *f.* Æg.

„ 6. Et Tversnit af Svælgroret og et paa dette fæstet Septum. *a.* Længdemuskler paa Septum; *b.* Tvermuskler paa Svælgrøret; *c.* dettes Bindevæv; *d.* Længdemuskler paa Svælgrørets indre Væg; *e.* Epithel paa samme; *f.* encellede Slimkjertler; *g.* Nematocyster.

„ 7. Tversnit af Kroppens overste Del med Svælgroret lige under Mundskiven, forstorret. *a.* To Macrosepta paa Bugsiden, der fæste sig et paa hver Side af Svælggruben; *b.* Svælggruben; *c.* Microsepta paa Rygsiden; *d.* Svælgrøret, krænget udad, saa at dets indre Væg med Folder kunne sees.

„ 8. *Kodioides pedunculata*, noget forstørret og berovet en Del af sin Kruste, hvorved Sugevorterne komme tilsyne.

„ 8*a*. Et Stykke af Hudens Overflade af den samme for at vise Sugevorterne, forstørret.

„ 9. Den samme opskaaret efter Længden til Stilkens Begyndelse. *a.* Fuldstændige Septa; *b.* ufuldstændige Septa; *c.* et Par Septa (Retningssepta); *d.* det spaltede Svælgror; *e.* Folderne paa Svælgrorets indre Væg.

„ 10. En Acontie, forstorret.

vascular cavity and septa; *b.* A duct from the gastro-vascular cavity leading into the sarcosoma, clad with epithelium; *c. d.* Similar ducts; *e.* The epithelium that clothes the walls of the ducts; *f.* The sarcosoma.

Fig. 2. *Mardöll Erdmanni;* transversal section of a tentacle, greatly magnified. *a.* Ectoderm; *b.* Nematocyst: *c* Longitudinal muscles; *d.* Connective-tissue; *e.* Transversal muscles; *f.* Epithelium that clothes the inner wall of the tentacle.

„ 3. Do., transversal section of the lowest part of the basal portion of the polyp's body. *a.* The bottom of the polyp; *b.* Macroseptum, which has its origin in the bottom; *c.* The broader part of the septum along the wall of the body; *d.* Aperture between two macrosepta, leading to the ducts of the sarcosoma; *e.* Microseptum.

„ 4. Do., two united polyps, dissected longitudinally and the integument pushed aside, magnified. *a.* The bottom of the polyps (Margin); *b.* Macrosepta issuing from the bottom; *c.* Macroseptum farther up on the inner surface of the body of the polyp: *d.* Macroseptum, inserted in the œsophagus and carrying reproductive organs and mesenterial filaments; *e.* Microseptum; *f.* The œsophagus.

„ 5. Do., a macroseptum with reproductive organs and mesenterial filaments, magnified. *a.* Glandular organ from which the mesenterial filament *(d)* issues: *b.* The groove of the same; *c.* Cells; *e.* Ovary: *f.* Ova.

„ 6. Do., transversal section of the œsophagus and a septum attached to it. *a.* Longitudinal muscles of the septum: *b.* Transversal muscles of the œsophagus: *c.* Connective-tissue of the œsophagus; *d* Longitudinal muscles of the inner wall of the œsophagus: *e.* Epithelium on same; *f.* Unicellular mucous glands; *g.* Nematocysts.

„ 7. Do., transversal section of the superior portion of the œsophagus just below the oral disc, magnified. *a.* Two macrosepta on the ventral side, which attach themselves one on each side of the gullet-cavity: *b.* Gullet-cavity: *c.* Macrosepta on the dorsal side; *d.* The gullet-tube, turned outwards so that the inner wall with its folds may be seen.

„ 8. *Kodioides pedunculata*; somewhat magnified, and deprived of a portion of its crust, permitting the suckers to be seen.

„ 8*a*. Do., a portion of the outer surface of the integument, showing the suckers, magnified.

„ 9. Do. the same dissected longitudinally as far as the commencement of the stem. *a.* Perfect septa; *b.* Imperfect septa; *c.* A couple of septa (directive septa): *d.* The fissured œsophagus; *e.* Folds on the inner wall of the gullet-tube.

„ 10. Do. an acontia, magnified.

Fig. 11 Tversnit af den inkrusterede Kropshud, forstørret. *a*. Slimmembranen, hvori de fremmede Legemer ere indleirede; *b*. Ectodermet; *c*. en Sugevorte, lidt indtrukken, og i hvis Fordybning sees Slimmembranen med de inkrusterede Sandkorn og Foraminiferer; *d*. Bindevævslag; *e*. mesodermale Ringmuskler; *f*. Muskellaget paa den indre Kropsvæg; *g*. Endothelet; *h*. et Septum med sine Tvermuskler; *i*. Bindevævet, der danner Septumets Midtparti; *k*. Endothelet, som beklæder Septa og hele Gastralhulheden; *l*. Æggestok.

Fig. 11. *Kodioides pedunculata;* transversal section of the encrusted integument of the body, magnified *a*. The viscous membrane in which the foreign bodies are embedded; *b*. The ectoderm: *c*. A sucker slightly retracted, in whose depression the viscous membrane is seen containing the encrusted grains of sand and foraminifera: *d*, Connective-tissue layer; *e*. Mesodermal annular muscles; *f*. The muscular layer on the inner wall of the body; *g*. The endothelium; *h*. A septum with its transversal muscles: *i*. The connective-tissue forming the medial part of the septum; *k*. The endothelium that coats the septa and entire gastral cavity; *l*. Ovary.

Tab. XXIII.

Fig. 1. Tversnit af den indre Flade af Fodskiven hos *Kodioides pedunculata*, forstørret. *a*. Et Septum i sit Udspring fra den centrale Del af Gastrovascularhulhedens Bund.

„ 2. Tversnit af Kropshuden, berøvet sin Kruste, forstørret. *a*. Ectoderm: *b*. encellede Slimkjertler; *c*. en Sugevorte med sin ydre Epithelbeklædning: *d*. en gjennemskaaret Sugevorte, hvorved sees Hulheden med dens Epithelbeklædning af runde Celler: *e*. en Sugevorte, lidt nedsænket i Bindevævet: *f*. Bindevævslag; *g*. mesodermale Ringmuskler; *h*. Stykke af et Septum.

„ 3. Tversnit af Stilkens Hud ned imod Fodskiven, forstørret. *a*. Ectoderm; *b*. Bindevæv; *c*. mesodermale Ringmuskler; *d*. Stykke af et Septum.

„ 4. Tversnit af Stilkens midterste Del, forstørret. *a*. Et Par Septa; *b*. Stilkens Hulrum; *c*. Retningssepta; *d*. Længdemuskler paa samme; *e*. Tvermuskler paa samme; *f*. Længdemuskler paa de øvrige Septa.

„ 5. *Cactosoma abyssorum*, noget forstørret og berøvet en Del af sit inkrusterede Overtræk. *a*. Den nogne Del; *b*. Sugevorter; *c*. Grube, hvori flere Sugevorter ere indtrukne.

„ 6. Tversnit af Huden af den samme, forstørret. *a*. Slimmembranen med indleirede Sandkorn; *b*. Ectoderm; *c*. Nematocyster; *d*. encellede Slimkjertler; *e*. Bindevæv; *f*. Cirkulærmuskler; *g*. Længdemuskler paa Kropsvæggens indre Flade; *h*. et Septum.

„ 7. Et Tversnit af Kroppens midterste Del, forstørret. *a*. Retningssepta; *b*. Længdemuskler paa samme; *c*. den smalere Del af samme Septa; *d*. Længdemusklerne paa den bredere Del af samme, dannende Buske; *e*. de øvrige 4 fuldstændige Septa med deres mod hverandre stillede Længdemuskler; *f*. de ufuldstændige Septa med

Plate XXIII.

Fig. 1. *Kodioides pedunculata*: transversal section of the inner surface of the pedal disc, magnified. *a*. A septum at its origin in the central part of the bottom of the gastro-vascular cavity.

„ 2. Do., transversal section of the integument of the body, deprived of its crust, magnified. *a*. Ectoderm; *b*. Unicellular mucous glands; *c*. A sucker with its external epithelial covering; *d*. A transsected sucker, showing the cavity with its epithelial coating of round cells; *e*. A sucker, slightly depressed in the connective-tissue; *f*. Connective-tissue layer; *g*. Mesodermal annular muscles; *h*. Portion of a septum.

„ 3. Do., transversal section of the integument of the stem down towards the pedal disc, magnified. *a*. Ectoderm: *b*. Connective-tissue: *c*. Mesodermal annular muscles: *d*. A portion of a septum.

„ 4. Do., transversal section of the middle portion of the stem, magnified. *a*. A couple of septa; *b*. The hollow of the stem; *c*. Directive septa: *d*. Longitudinal muscles of same: *e*. Transversal muscles of same; *f*. Longitudinal muscles on the other septa.

„ 5. *Cactosoma abyssorum;* somewhat magnified, and deprived of a portion of its encrusted covering. *a*. The bare portion; *b*. Suckers; *c*. Cavity into which several suckers are withdrawn.

„ 6. Do., transversal section of the integument, magfied. *a*. The viscous membrane with grains of sand embedded in it: *b*. Ectoderm; *c*. Nematocysts; *d*. Unicellular mucous glands; *e*. Connective-tissue; *f*. Circular muscles on the inner surface of the wall of the body; *h*. A septum.

„ 7. Do., transversal section of the middle part of the body, magnified. *a*. Directive septa; *b*. Longitudinal muscles of same: *c*. The narrow part of the same septa; *d*. The longitudinal muscles on the broad part of same, forming tufts: *e*. The other 4 perfect septa with their longitudinal muscles standing opposite each other; *f*. The

deres Længdemuskler: *g*. Endothel, der beklæder hele indre Kropsvæg.

Fig. 8. Tversnit af en Del af Kroppen noget længere oppe, forstørret. *a*. Retningssepta; *b*. Bindevævslamellen; *c*. Længdemuskler: *d*. den smalere Del af Septumet; *e*. Længdemusklerne i Form af Buske paa Septumets bredere Del; *f*. Bindevævsstræng, udgaaende fra Septum og dannende en Membran, *g*, hvori Mesenterialfilamenter og Generationsorganer ligge: *h*. Æggestok; *i*. ufuldstændige Septa; *k*. Længdemuskler paa samme; *l*. Endothel, beklædende Kropsvæggens indre Flade.

imperfect septa with their longitudinal muscles; *g*. Endothelium that clothes the entire inner wall of the body.

Fig. 8. *Cactosoma abyssorum;* transversal section of a part of the body somewhat farther up, magnified. *a*. Directive septa; *b*. The connective-tissue lamella; *c*. Longitudinal muscles; *d*. The narrow part of the septum; *e*. Longitudinal muscles, appearing like tufts, on the broad part of the septum; *f*. Connective-tissue cord issuing from the septum and forming a membrane *(g)*, in which mesenterial filaments and reproductive organs lie; *h*. Ovary; *i*. Imperfect septa; *k*. Longitudinal muscles on same; *l*. Endothelium coating the inner surface of the wall of the body.

Tab. XXIV.

Fig. 1. *Epizoanthus arborescens*, lidt forstørret. *a*. Coenenchym, der har omspundet et Serpularør.

„ 2. Tversnit af Huden, forstørret. *a*. Ydre Epithel (Ectoderm); *b*. Bindevæv; *c*. fremmede Legemer, som udfylder Maskerne i Bindevævet; *d*. mesodermale Ringmuskler: *e*. kompakt Inkrustation af Bindevævet; *f*. Muskellaget paa Bindevævets indre Flade.

„ 3. Tversnit af Krop med Svælgrør, forstørret. *a*. Retningssepta paa Bugsiden; *b*. Retningssepta paa Rygsiden; *c*. Macrosepta; *d*. en Kanal i Bindevævsmembranen; *e*. Microsepta; *f*. Svælggruben med sit Epithel.

„ 4. Tversnit af Kroppens nedre (bagre) Del, forstørret. *a*. Mesenterialfilamenter; *b*. Mesenterialfilamenter og Generationsorganer.

„ 5. *Epizoanthus glacialis* med Coenenchymet omspundet et Tubularieror, naturlig Størrelse. *a*. Ribber paa Kroppens overste Rand.

„ 6. Samme siddende paa en Sten. *a*. Coenenchymet med sit udbredte Net, bestaaende af rørformede Kanaler og Masker.

„ 7. Tversnit af Kropshuden af den samme, forstørret. *a*. Bindevæv; *b*. Bindevævslegemer med Udlobere; *c*. Ernæringskanaler; *d*. fremmede Legemer i Bindevævet; *e*. mesodermale Ringmuskler; *f*. Epithel paa den indre Flade af Kropsvæggen.

„ 8. Tversnit af Krop og Svælgror af den samme, forstørret. *a*. Macrosepta med Mesenterialfilamenter og Generationsorganer; *b*. Retningssepta paa Bugsiden; *c*. Retningssepta paa Rygsiden; *d*. Microsepta; *e*. Bindevævet paa Svælgrøret; *f*. Svælgrørets Bindevæv, betydelig udvidet i

Plate XXIV.

Fig. 1. *Epizoanthus arborescens;* somewhat magnified. *a*. The sarcosoma, which has entwined a tube of Serpula.

„ 2. Do., transversal section of the integument, magnified. *a*. Outer epithelium (ectoderm); *b*. Connective-tissue; *c*. Foreign bodies that occupy the meshes of the connective-tissue; *d*. Mesodermal annular muscles; *e*. Compact encrustation of the connective-tissue; *f*. The muscular layer of the inner surface of the connective-tissue.

„ 3. Do., transversal section of the body with the œsophagus, magnified. *a*. Directive septa on the ventral side; *b*. Directive septa on the dorsal side; *c*. Macrosepta; *d*. A channel in the connective-tissue membrane; *e*. Microsepta; *f*. The gullet-groove with its epithelium.

„ 4. Do., transversal section of the lower (posterior) part of the body, magnified. *a*. Mesenterial filaments and reproductive organs.

„ 5. *Epizoanthus glacialis;* with the sarcosoma coiled spirally round a tube of Tubularia, life size. *a*. Ribs on the uppermost margin of the body.

„ 6. Do., seated on a stone. *a*. The sarcosoma with its extended reticulation, consisting of tubular ducts and meshes.

„ 7. Do., transversal section of the integument of the body, magnified. *a*. Connective-tissue; *b*. Connective-tissue corpuscles with prolongations; *c*. Nutritory ducts; *d*. Foreign bodies in the connective-tissue; *e*. Mesodermal annular muscles; *f*. Epithelium on the inner surface of the wall of the body.

„ 8. Do., transversal section of the body and œsophagus, magnified. *a*. Macrosepta with mesenterial filaments and reproductive organs: *b*. Directive septa of the ventral side: *c*. Directive septa of the dorsal side; *d*. Microsepta; *e*. Connective-tissue on the œsophagus; *f*. Connective-tissue

Bredden: *g.* Sælggruben med sine Cylinderceller, der bære lange Cilier; *h.* Epithelet paa den ovrige Del af Svælgrørets indre Flade.

Tab. XXV.

Fig. 1. Et Tversnit af Kroppen af *Epizoanthus glacialis*, forstorret. *a.* Cirkulærmuskler: *b.* Endothel paa den indre Kropsvæg; *c.* Mesenterialfilamenter og Æggestokke: *d.* Æg; *e.* Spore af en Parasit (Gregarin?); *f.* Sporen forlænget: *g.* en videre Udvikling.

„ 2. Parasiten stærkere udviklet, forstorret.

„ 3. Fremdeles en videre Udvikling af Parasiten, isoleret og forstorret. *a.* De elliptisk udvidede Ender; *b.* Kjærne; *c.* muligens begyndende Embryodannelse; *d.* Vacuoler.

„ 4. *Epizoanthus roseus;* naturlig Størrelse. *a.* De inkrusterede, lancetformede Ribber; *b.* ydre Tentakler; *c.* indre Tentakler.

„ 5. Tversnit af Krop og Svælgror af den samme, forstorret. *a.* Ectoderm: *b.* Bindevæv, hvori fremmede Legemer ere indleirede; *c.* fuldstændige Septa (Macrosepta); *d.* ventrale Retningssepta; *e.* dorsale Retningssepta; *f.* Svælggruben med sit Epithel; *g.* ufuldstændige Septa (Microsepta).

„ 6. Tversnit af Kropshuden, forstorret. *a.* Sandkorn i Bindevævet: *b.* Circulærmuskler; *c.* Muskellag paa Bindevævets indre Væg, beklædt med Epithel.

„ 7. Tversnit af Huden af *Cerianthus Vogti*, forstorret. *a.* Cuticula: *b.* Epithel (Ectoderm): *c.* encellede Slimkjertler, *d.* Længdemuskler; *e.* forlænget Epithelcelle; *f.* Bindevæv; *g.* Muskellag paa dettes indre Væg.

„ 8. Tversnit af Krop med Svælgrør strax under Mundskiven, lidt forstørret. *a.* Ventral Svælggrube med sine glatte Sidevolde; *b.* dorsal Svælggrube; *c.* Svælgrørets indre Sidefolder; *d.* ventrale Retningssepta; *e.* det store, ventrale Kammer (loge ventrale impaire) imellem Retningssepta; *f.* de dorsale Retningssepta; *g.* det dorsale, uparrede Kammer (loge dorsale impaire); *h.* Septumet nærmest de ventrale Retningssepta, hvilket danner det kontinuerende Septum; *i.* de øvrige ventrale Septa; *k.* de inter- og intraseptale, ventrale Kamre; *l.* de inter- og intraseptale, dorsale Kamre.

„ 9. Mundtentaklerne, lidt forstorret. *a.* De, der omgive den ventrale Side; *b.* de, der omgive den dorsale Side.

on the œsophagus, greatly dilated in breadth; *g.* Gullet-groove with its cylinder-cells carrying long ciliæ; *h.* The epithelium on the rest of the inner surface of the œsophagus.

Plate XXV.

Fig. 1. *Epizoanthus glacialis;* transversal section of the body magnified. *a.* Circular muscles; *b.* Endothelium on the inner wall of the body; *c.* Mesenterial filaments and ovaries; *d.* Ova; *e.* Spore of a parasite (Gregarine); *f.* The spore prolongated; *g.* A more advanced development.

„ 2. Do., the parasite still more developed, magnified.

„ 3. Do., a still greater development of the parasite, isolated and magnified. *a.* The elliptically dilated extremities; *b.* Nuclei; *c.* Possibly a rudimentary embryonal formation; *d.* Vacuoli.

„ 4. *Epizoanthus roseus*; life size. *a.* The encrusted lanceolate ribs; *b.* Outer tentacles; *c.* Inner tentacles.

„ 5. Do., transversal section of the body and œsophagus, magnified. *a.* Ectoderm; *b.* Connective-tissue in which foreign bodies are entrenched; *c.* Perfect septa (Macrosepta); *d.* Ventral directive septa; *e.* Dorsal directive septa; *f.* The gullet-groove with its epithelium; *g.* Imperfect septa (Microsepta).

„ 6. Do., transversal section of the integument of the body, magnified. *a.* Grains of sand in the connective-tissue: *b.* Circular muscles; *c.* Layer of muscles on the inner wall of the connective-tissue, clothed with epithelium.

„ 7. *Cerianthus Vogti;* transversal section of the integument, magnified. *a.* Cuticulum; *b.* Epithelium (Ectoderm); *c.* Unicellular mucous glands; *d.* Longitudinal muscles; *e.* Prolongated epithelial cell; *f.* Connective-tissue; *g.* The muscular layer upon its inner wall.

„ 8. Do., transversal section of the body and œsophagus immediately below the oral disc, somewhat magnified. *a.* Ventral gullet-groove with its smooth lateral ramparts; *b.* Dorsal gullet-groove; *c.* Folds on the inner side of the œsophagus; *d.* Ventral directive septa; *e.* The large chamber (loge ventrale impaire) between the directive septa; *f.* The dorsal directive septa; *g.* The dorsal unpaired chamber (loge dorsale impaire): *h.* The septum next to the ventral directive septa, which forms the continuing septum; *i.* The remaining ventral septa: *k.* The inter- and intra-septal, ventral chambers; *l.* The inter- and intra-septal, dorsal chambers.

„ 9. Do., oral tentacles, slightly magnified. *a.* The tentacles that surround the ventral side; *b.* Those that surround the dorsal side.

Fig. 10. Den øverste Del af Kroppen aabnet langs Rygsiden, Svælgrøret borttaget, lidt forstorret. *a*. De kontinuerende Septa; *b*. Retningssepta; *c*. Buggruben, hvori en fin Aabning udad; *d*. Furen imellem Retningsseptum og det kontinuerende Septum; *e*. Bugrenden, der ender i Buggruben.

„ 11. Tversnit af Krop med Svælgrør, noget længere nede end Fig. 8, forstorret. *a*. Dorsal Svælggrube; *b*. Sidefolderne paa Svælgrørets indre Væg; *c*. ventrale Retningssepta; *d*. det uparrede, ventrale Kammer; *e*. dorsale Retningssepta; *f*. det uparrede, dorsale Kammer; *g*. de kontinuerende Septa; *h*. ventrale, inter- og intraseptale Kamre; *i*. dorsale, inter- og intraseptale Kamre.

„ 12. Tversnit af Kroppens Bugside med Svælgrøret, forstorret. *a*. Epithelet paa Svælgrørets ydre Flade: *b*. Muskellaget paa samme: *c*. Bindevævet: *d*. det brede Bindevævslag ved Svælggruben; *e*. Svælggruben med sit Epithel; *f*. Folderne med deres Epithel paa Svælgrørets indre Sidevægge; *g*. ventrale Retningssepta; *h*. Længdemuskler paa samme; *i*. Tværmuskler paa samme: *k*. det ventrale, uparrede Kammer (loge ventrale impaire, Vogt): *l*. de kontinuerende Septa.

„ 13. Et isoleret Septum, forstorret. *a*. Mesenterialfilamenter; *b*. Æggestok; *c*. Æg.

„ 14. Et Tversnit af Kroppen paa dennes nedre (bagre) Trediedel, forstorret, visende Septaparrene med Æggestokke og de deri udviklede Æg.

Fig. 10. *Cerianthus Vogti:* the uppermost part of the body dissected along the dorsal side, the œsophagus removed, slightly magnified. *a*. The continuing septa; *b*. The directive septa; *c*. The ventral groove, in which there is a fine opening outwards; *d*. The furrow between the directive septum and the continuing septum; *e*. The ventral channel that terminates in the ventral cavity.

„ 11. Do., transversal section of the body with the œsophagus, taken somewhat lower down than in fig. 8, magnified. *a*. Dorsal gullet-groove; *b*. Lateral folds of the inner wall of the œsophagus: *c*. Ventral directive septa; *d*. The unpaired ventral chamber; *e*. Dorsal directive septa; *f*. The unpaired dorsal chamber; *g*. The continuing septa: *h*. Ventral, inter- and intraseptal chambers: *i*. Dorsal, inter- and intraseptal chambers.

„ 12. Do., transversal section of the ventral side of the body with the œsophagus, magnified. *a*. The epithelium on the outer surface of the œsophagus; *b*. The muscular layer of the same; *c*. The connective-tissue; *d*. The broad layer of connective-tissue on the gullet-groove; *e*. The gullet-groove with its epithelium; *f*. The folds with their epithelium on the inner lateral wall of the œsophagus; *g*. Ventral directive septa: *h*. Longitudinal muscles on same; *i*. Transversal muscles on same: *k*. The ventral unpaired chamber (Loge ventrale impaire, Vogt); *l*. The continuing septa.

„ 13. Do., an isolated septum, magnified. *a*. Mesenterial filaments; *b*. Ovary.

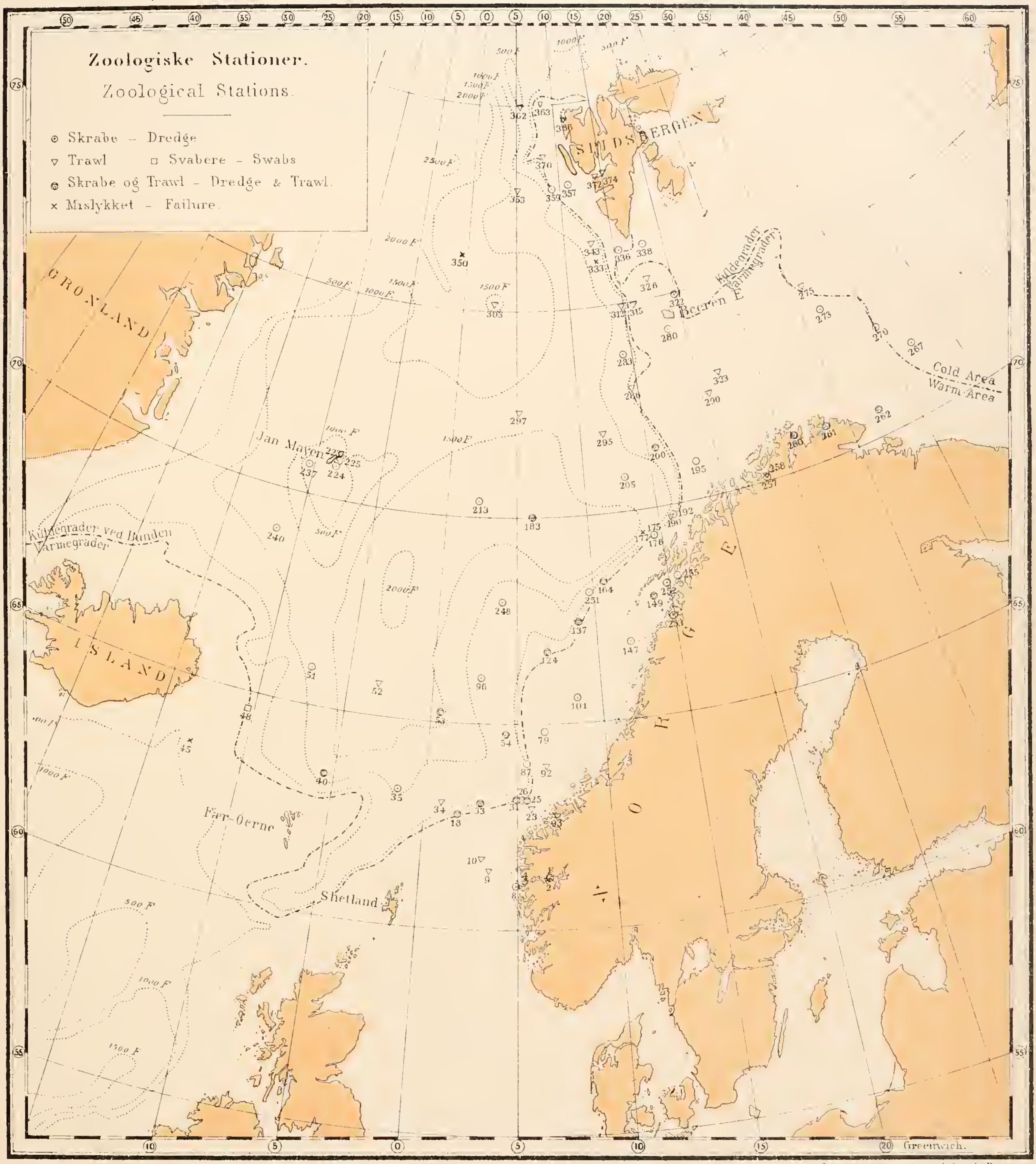
„ 14. Do., a transversal section of the body, from its lower (posterior) third-part, magnified, showing the pairs of septa with ovaries and the ova developed in them.

Translated into English by **Thomas M. Wilson.**

Zoologiske Stationer.
(Zoological Stations.)

Station No.	Datum. (Date.)	Nordlig Bredde. (North Latitude.)	Længde fra Greenwich. (Longitude.)		Dybde. (Depth.) Engl. Favne. (Fathoms.)	Meter. (Metres.)	Bundens Temperatur. (Temperature at Bottom.) C.	Bunden.	Bottom.	Apparat. (Apparatus.) S. Skrabe. (Dredge.) T. Trawl. s. Svabere. (Swabs.)
	1876									
1	Juni 3	61° 13′	6° 36′	E.	650	1189	6.°6	Sandler.	Sabulous Clay.	S.
2	*(June)* 3	61 10	6 32	E.	672	1229	6. 7	Sandler.	Sabulous Clay.	T.
4	„ 8	61 5	5 14	E.	566	1035	6. 6	Sandler, Grus, Singel.	Sabulous Clay, Pebbles.	T.
8	„ 9	61 0	4 49	E.	200	366	6. 6	Ler, Sand, Sten.	Clay. Sand. Stones.	S.
9	„ 20	61 30	3 37	E.	206	377	5. 9	Ler.	Clay.	T.
10	„ 21	61 41	3 19	E.	220	402	6. 0	Slik. Ler.	Ooze, Clay.	T.
18	„ 21	62 44	1 48	E.	412	753	—1. 0	Ler.	Clay.	S. T.
23	„ 23	62 52	5 50	E.						T.
25	„ 28	63 10	5 25	E.	98	179	6. 9	Sandler.	Sabulous Clay.	T. S.
26	„ 28	63 10	5 16	E.	237	433	7. 1	Sandler.	Sabulous Clay.	S.
31	„ 29	63 10	5 0	E.	417	763	—1. 0	Sandler.	Sabulous Clay.	S. T.
33	„ 30	63 5	3 0	E.	525	960	—1. 1	Ler.	Clay.	T. S.
34	Juli 1	63 5	0 53	E.	587	1073	—1. 0	Ler.	Clay.	T.
35	*(July)* 5	63 17	1 27	W.	1081	1977	—1. 0	Biloculinler.	Biloculina Clay.	S.
40	„ 18	63 22	5 29	W.	1215	2222	—1. 2	Biloculinler.	Biloculina Clay.	S. T.
48	Aug. 6	64 36	10 22	W.	299	547	—0. 3	Mørkegraat Ler.	Dark-grey Clay.	s.
51	„ 7	65 53	7 18	W.	1163	2127	—1. 1	Biloculinler.	Biloculina Clay.	S.
52	„ 8	65 47	3 7	W.	1861	3403	—1. 2	Biloculinler.	Biloculina Clay.	T.
53	„ 10	65 13	0 33	E.	1539	2814	—1. 3	Biloculinler.	Biloculina Clay.	S & T.
54	„ 12	64 47	4 24	E.	601	1099	—1. 2	Biloculinler.	Biloculina Clay.	S & T.
79	„ 21	64 48	6 32	E.	155	283	6. 9	Sandler.	Sabulous Clay.	S.
87	„ 22	64 2	5 35	E.	498	911	—1. 1	Ler.	Clay.	S.
92	„ 22	64 0	6 42	E.	178	326	7. 2	Sandholdigt Ler.	Sabulous Clay.	T.
93	„ 24	62 41	7 8	E.	158	289	6. 4	Blodt Ler.	Soft Clay.	T.
		(Romsdalsfjord).								
	1877									
96	Juni 16	66 8	3 0	E.	805	1472	—1. 1	Biloculinler.	Biloculina Clay.	S.
101	*(June)* 17	65 36	8 32	E.	223	408	6. 0	Sandler.	Sabulous Clay.	S.
124	„ 19	66 41	6 59	E.	350	640	—0. 9	Grovkornet Ler.	Coarse Clay.	S. T.
137	„ 21	67 24	8 58	E.	452	827	—1. 0	Ler.	Clay.	S. T.
147	„ 22	66 49	12 8	E.	142	260	6. 2	Graat Ler.	Grey Clay.	S.
149	„ 23	67 52	13 58	E.	135	247	4. 9	Ler.	Clay.	T. S.
		(Vestfjord).								
164	„ 29	68 21	10 40	E.	457	836	—0. 7	Sandler.	Sabulous Clay.	S. T.
175	Juli 2	69 17	14 35	E.	415	759	3. 0	Ler, Smaasten.	Clay, Pebbles.	S.
176	*(July)* 3	69 18	14 33	E.	536	980	—0. 2	Ler.	Clay.	S.
177	„ 3	69 25	13 49	E.	1443	2639	—1. 2	Biloculinler.	Biloculina Clay.	S & T.
183	„ 5	69 59	6 15	E.	1710	3127	—1. 3	Biloculinler.	Biloculina Clay.	S & T.
190	„ 7	69 41	15 51	E.	870	1591	—1. 2	Sandholdigt Ler.	Sabulous Clay.	T.
192	„ 7	69 46	16 15	E.	649	1187	—0. 7	Sandler.	Sabulous Clay.	S.
195	„ 16	70 55	18 38	E.	107	196	5. 1	Sten, Ler.	Stones, Clay.	S.
200	„ 17	71 25	15 41	E.	620	1134	—1. 0	Ler.	Clay.	S. T.
205	„ 18	70 51	13 3	E.	1287	2354	—1. 2	Biloculinler.	Biloculina Clay.	S.
213	„ 26	70 23	2 30	E.	1760	3219	—1. 2	Biloculinler.	Biloculina Clay.	S.
223	Aug. 1	70 54	8 24	W.	70	128	—0. 6	Graasort Sandler.	Dark-grey sabulousClay	S.
		(Jan Mayen).								
224	„ 1	70 51	8 20	W.	95	174	—0. 6	Graasort Sandler.	Dark-grey sabulousClay	S.
225	„ 2	70 58	8 4	W.	195	357	—0. 6	Graasort Sandler.	Dark-grey sabulousClay	S.
237	„ 3	70 41	10 10	W.	263	481	—0. 3	Brunt Ler, Stene.	Brown Clay. Stones.	S.
240	„ 4	69 2	11 26	W.	1004	1836	—1. 1	Biloculinler.	Biloculina Clay.	S.
248	„ 8	67 56	4 11	E.	778	1423	—1. 4	Biloculinler.	Biloculina Clay.	S.
251	„ 9	68 6	9 44	E.	634	1159	—1. 3	Ler.	Clay.	S.
252	„ 11	Vestfjord.						Ler.	Clay.	S.
253	„ 15	Skjerstadfjord.			263	481	3. 2	Ler.	Clay.	S.

Station No.	Datum. (Date.)	Nordlig Bredde. (North Latitude.)	Længde fra Greenwich. (Longitude.)		Dybde. (Depth.) Engl. Favne. (Fathoms.)	Dybde. (Depth.) Meter. (Metres.)	Bundens Temperatur. (Temperature at Bottom.) C.	Bunden.	Bottom.	Apparat. (Apparatus.) S. Skrabe. (Dredge.) T. Trawl. s. Svabere. (Swabs.)
253b	Aug. 17	Saltstrommen.			90	165		Sten.	Stones.	S.
	1878.									
255	Juni 19	68° 12′	15° 40′	E.	341	624	6.°5	Ler.	Clay.	S.
		(Vestfjord).								
257	*(June)* 21	70 4	23 2	E.	160	293	3. 9	Ler.	Clay.	S.
		(Altenfjord).								
258	„ 21	70 13	23 3	E.	230	421	4. 0	Ler.	Clay.	T.
		(Altenfjord).								
260	„ 24	70 55	26 11	E.	127	232	3. 5	Ler.	Clay.	S. T.
		(Porsangerfjord).								
261	„ 25	70 47	28 30	E.	127	232	2. 8	Ler.	Clay.	S. T.
		(Tanafjord).								
262	„ 27	70 36	32 35	E.	148	271	1. 9	Ler.	Clay.	T. S.
267	„ 29	71 42	37 1	E.	148	271	—1. 4	Ler. Sten.	Clay. Stones.	S.
270	„ 30	72 27	35 1	E.	136	249	—0. 0	Ler.	Clay.	S.
273	Juli 1	73 25	31 30	E.	197	360	2. 2	Ler.	Clay.	S.
275	*(July)* 2	74 8	31 12	E.	147	269	—0. 4	Ler.	Clay.	T.
280	„ 4	74 10	18 51	E.	35	64	1. 1	Sten.	Stones.	S.
		(Beeren Eiland).								
283	„ 5	73 47	14 21	E.	767	1403	—1. 4	Ler.	Clay.	S.
286	„ 6	72 57	14 32	E.	447	817	—0. 8	Ler.	Clay.	T.
290	„ 7	72 27	20 51	E.	191	349	3. 5	Sandler.	Sabulous Clay.	T.
295	„ 14	71 59	11 40	E.	1110	2030	—1. 3	Biloculinler.	Biloculina Clay.	T.
297	„ 16	72 36	5 12	E.	1280	2341	—1. 4	Biloculinler.	Biloculina Clay.	T.
303	„ 19	75 12	3 2	E.	1200	2195	—1. 6	Biloculinler.	Biloculina Clay.	T.
312	„ 22	74 54	14 53	E.	658	1203	—1. 2	Ler.	Clay.	T.
315	„ 22	74 53	15 55	E.	180	329	2. 5	Ler. Sand.	Clay. Sand.	T.
322	„ 23	74 57	19 52	E.	21	38	0. 2	Haard.	Hard.	S.
323	„ 30	72 53	21 51	E.	223	408	1. 5	Ler.	Clay.	T.
326	Aug. 3	75 31	17 50	E.	123	225	1. 6	Ler.	Clay.	T.
333	„ 4	76 6	13 10	E.	748	1368	—1. 3	Biloculinler.	Biloculina Clay.	T.
336	„ 5	76 19	15 42	E.	70	128	0. 4	Ler. Haard B.	Clay. Hard Bottom.	S.
338	„ 6	76 19	18 1	E.	146	267	—1. 1	Haard.	Hard.	S.
343	„ 7	76 34	12 51	E.	743	1359	—1. 2	Ler.	Clay.	T.
350	„ 8	76 26	0 29	W.	1686	3083	—1. 5	Biloculinler.	Biloculina Clay.	T.
353	„ 10	77 58	5 10	E.	1333	2438	—1. 4	Biloculinler.	Biloculina Clay.	T.
357	„ 12	78 3	11 18	E.	125	229	1. 9	Ler.	Clay.	S.
359	„ 12	78 2	9 25	E.	416	761	0. 8	Ler.	Clay.	S.
362	„ 14	79 59	5 40	E.	459	839	—1. 0	Ler.	Clay.	T.
363	„ 14	80 3	8 28	E.	260	475	1. 1	Ler.	Clay.	T.
366	„ 17	79 35	11 17	E.	61	112	—2. 1	Ler.	Clay.	T.
„		Magdalene Bay.		„	37	68	—0. 2			
370	„ 18	78 48	8 37	E.	109	199	1. 1	Ler.	Clay.	T.
372	„ 19	78 9	14 7	E.	129	236	1. 2	Ler.	Clay.	T.
		(Isfjord).								
374	„ 22	78 16	15 33	E.	60	110	0. 7	Ler.	Clay.	T.
		(Advent Bay).								



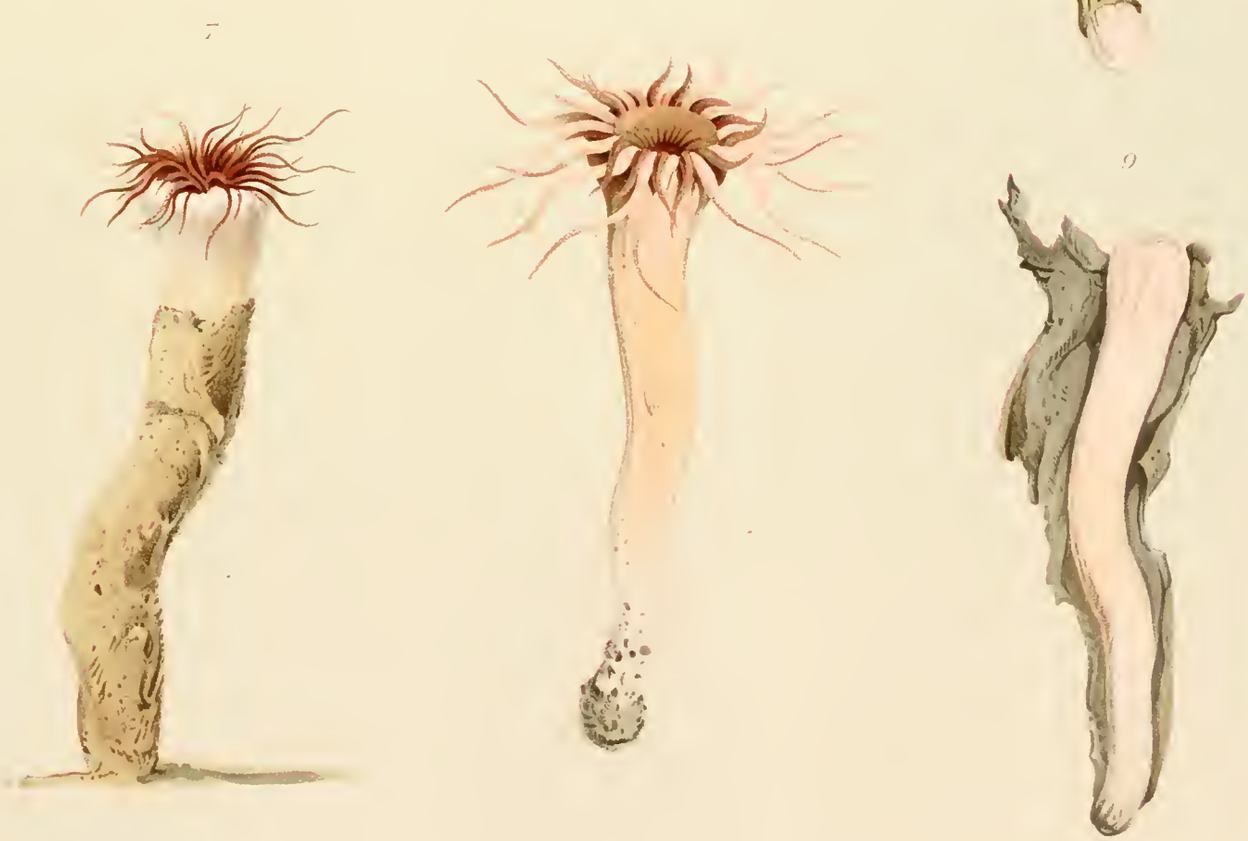
Den privat. Gymnatiops lith. Anstalt Kristiania

1. Sideractis glacialis n.g.et.sp. 2. Kadosactis rosea n.g.et.sp. 3. Kyathactis hyalina n.g et.sp.
4. Korenia margaritacea n.g et sp. 5. Madomactis lofotensis n.g et.sp.
6. Sagartia repens n.g.et.sp. 7-8. Tealiopsis polaris n g et.sp.

1. Anthosactis Jan Mayeni n.g et.sp. 2. Calliactis Kroyeri n.g et.sp. 3. Mantactis parasitica n.g et.sp.
4.5. Stilidiactis Mopsea n.g.et.sp. 6.7. Stilidiactis Tubularia n.sp.
8. Kylindrosactis elegans n.g.et.sp

1. 2. Sagartia abyssicola n. sp. 3. Bunodes abyssorum n. sp. 4. Actinauge nodosa
5. Phellia flexibilis n. sp. 6. Phellia flexibilis variet. 7. Phellia margaritacea n. sp.
8. Phellia arctica n. sp.

1.2 3.4. Phellia bathybia n sp. 5 6 Phellia norvegica n.sp. 7.Phellia violacea n sp
8.Phellia spitsbergensis n.sp 9.Phellia crassa n.sp 10 11.Andvakia mirabilis n g et sp.
12. Sagartia splendens n.sp



1 Halcampoides abyssorum 2 Fenja mirabilis. 3 Edwardsioides vitrea
4 Aegir frigidus 5 Edwardsia Andresi 6 Edwardsia fusca
7 Cerianthus abyssorum. 8 9 Cerianthus Vogti

1. 2. Mardolla Fridmani. 3. 4. Kodioides pedunculata. 5. Cactosoma abyssorum.
6. Epizoanthus arborescens. 7. 9. Epizoanthus glacialis.
10. Epizoanthus roseus.

1–5. Korenia margaritacea 6–9. Kyathactis hyalina. 10. Sideractis glacialis. 11 Kadosactis rosea
12. Sideractis glacialis.

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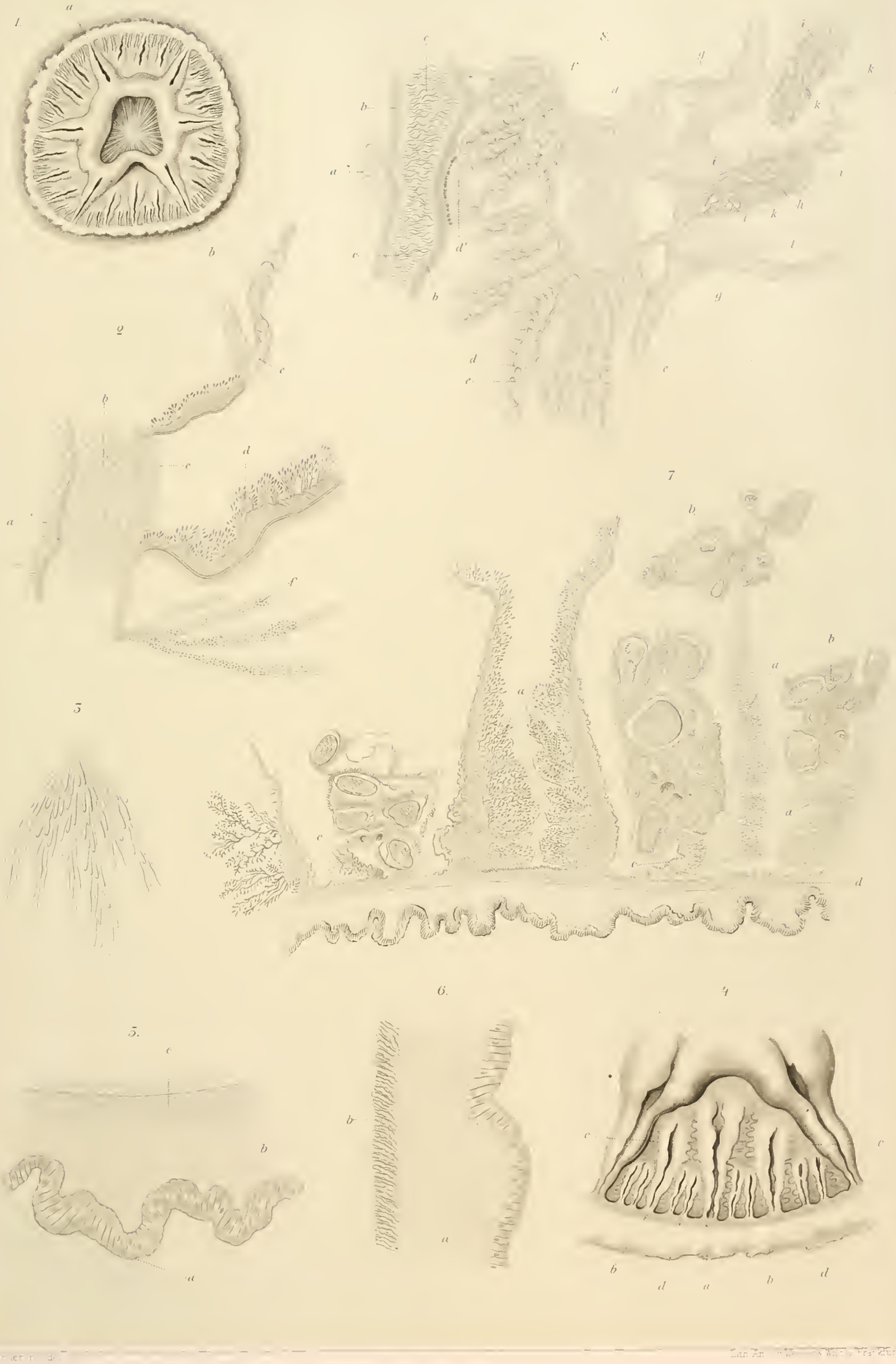
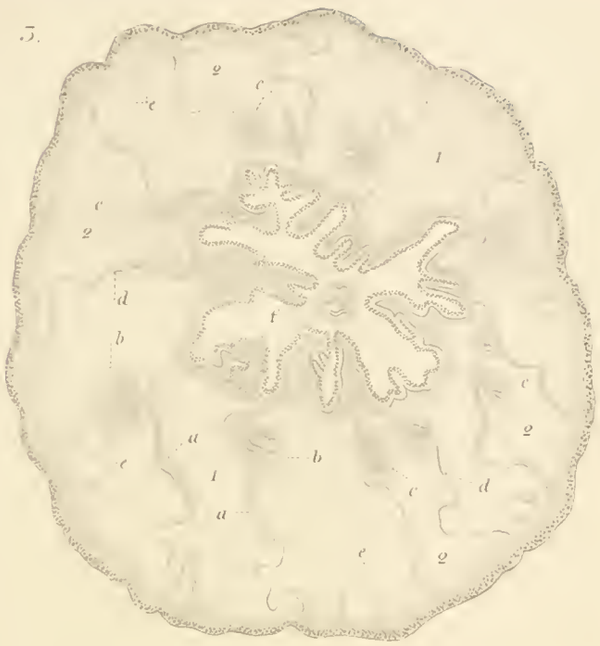
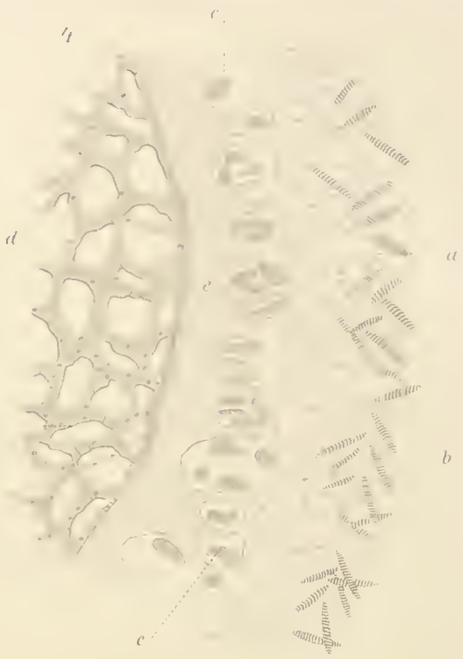
1. Madoniactis lofotensis. 2–3. Tealiopsis polaris. 4–5. Kylindrosactis elegans.
6. Calliactis Kröyeri. 7–11. Stilidiactis Mopseæ. 12. Stilidiactis Tubulariæ.
13–14. Calliactis Kröyeri.

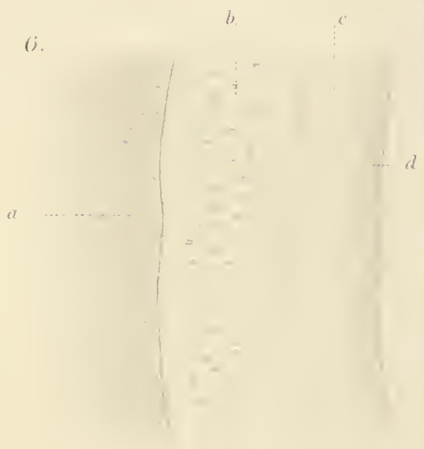


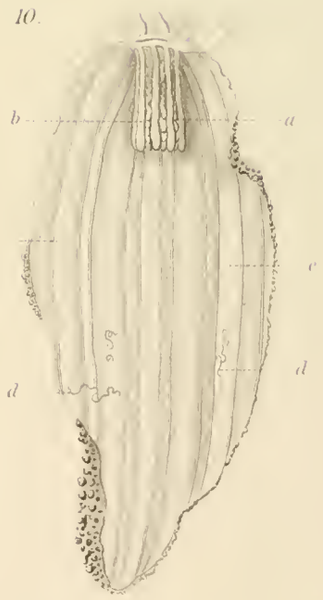
1-4 Allantactis parasitica 5 7. Kylindrosactis elegans 8. Kadosactis rosea

1 Anthosactis Jan Mayeni. 2-3. Sagartia repens. 4-7. Sagartia abyssicola
8-9 Bunodes abyssorum. 10-13. Sagartia splendens.





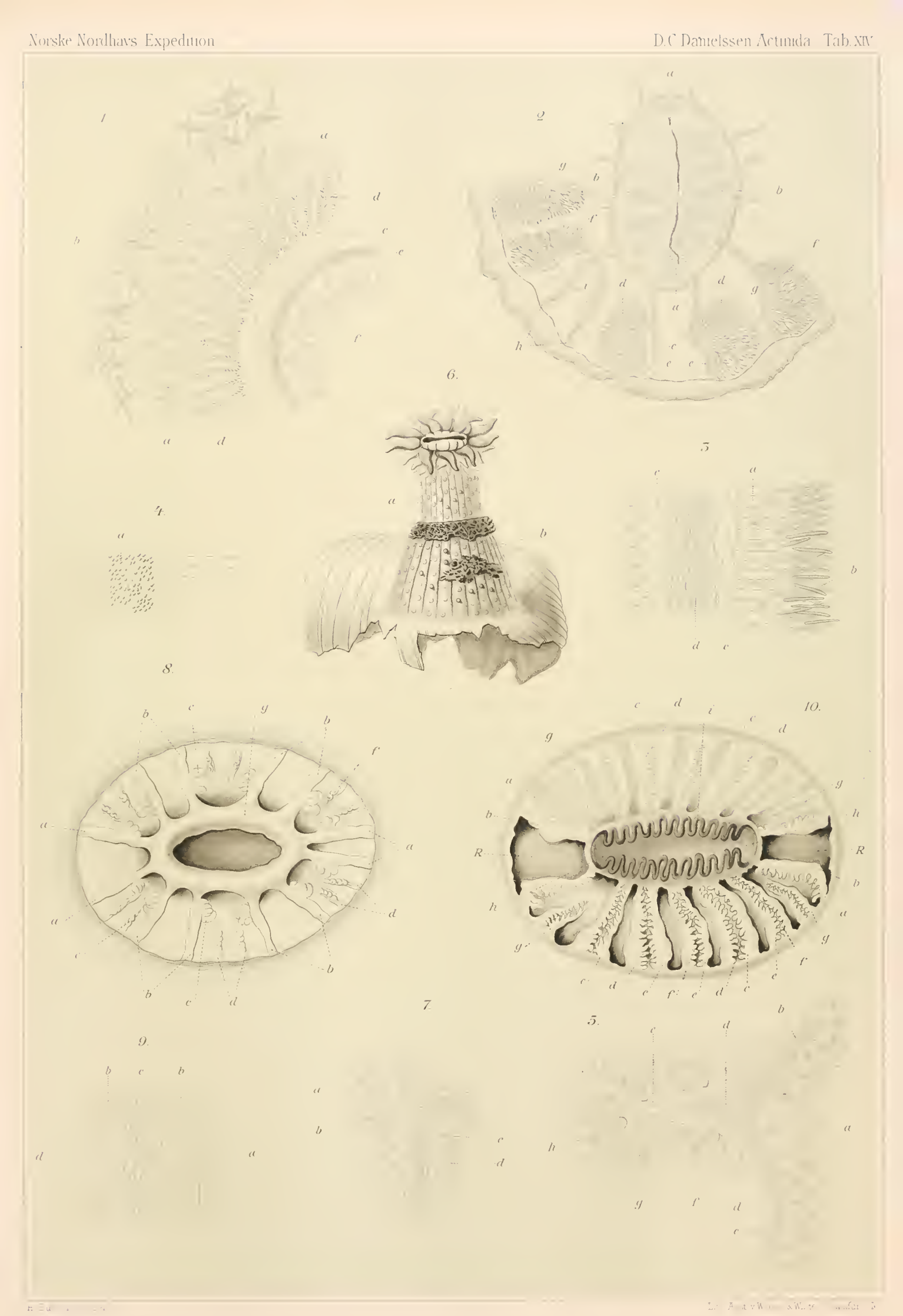




Andvakia mirabilis n. g. et sp

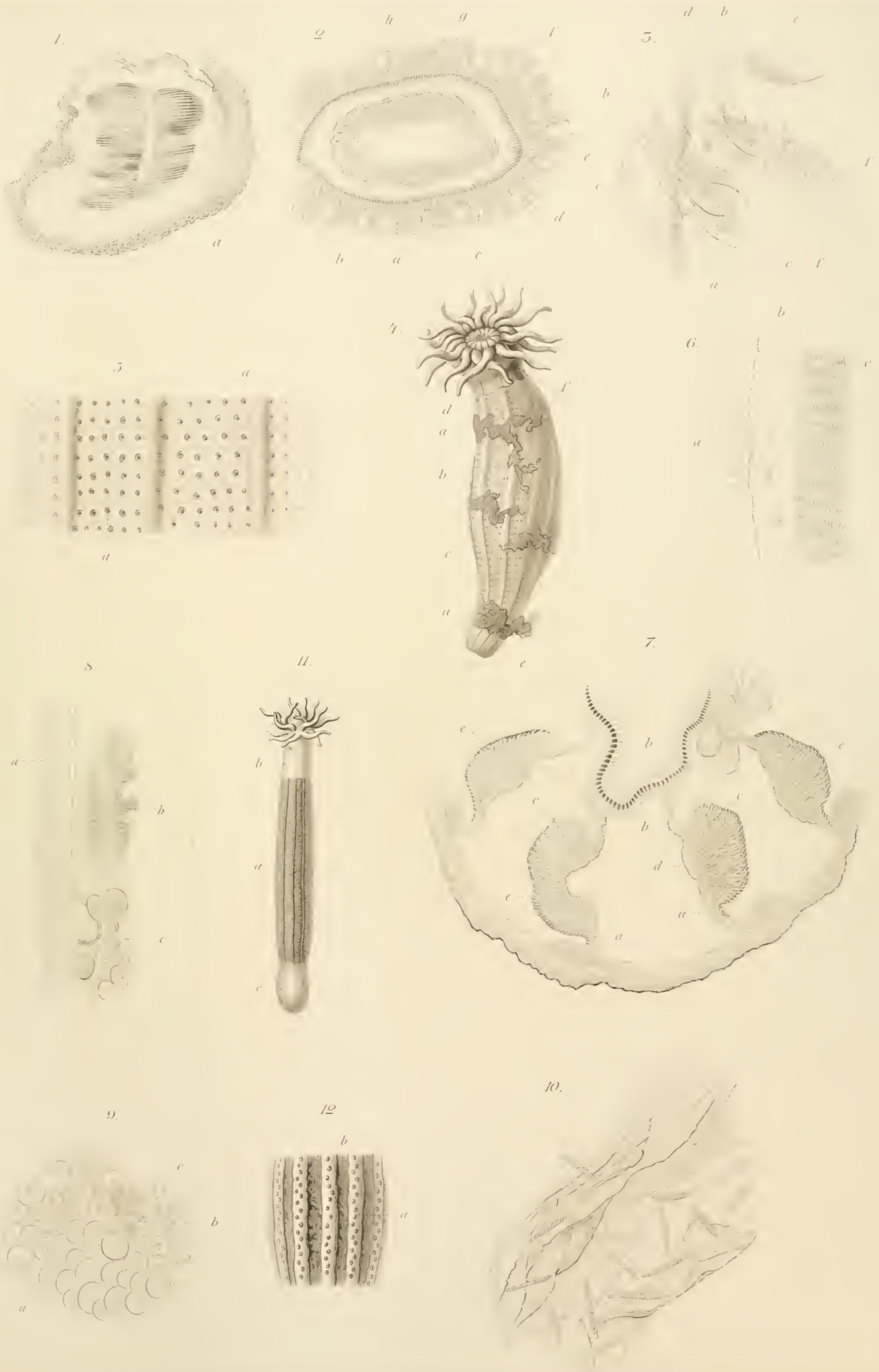
1–5. Phellia flexibilis n sp 6–12. Phellia margaritacea n sp 13–14. Phellia arctica n sp

1–4. Phellia arctica 5–6. Phellia crassa 7–9 Phellia bathybia. 10. Phellia violacea



1-5 Phellia crassa 6-8 Phellia norvegica. 9-10 Phellia violacea.

1-3. Phellia spitsbergensis. 4-11. Halcampoides abyssorum.

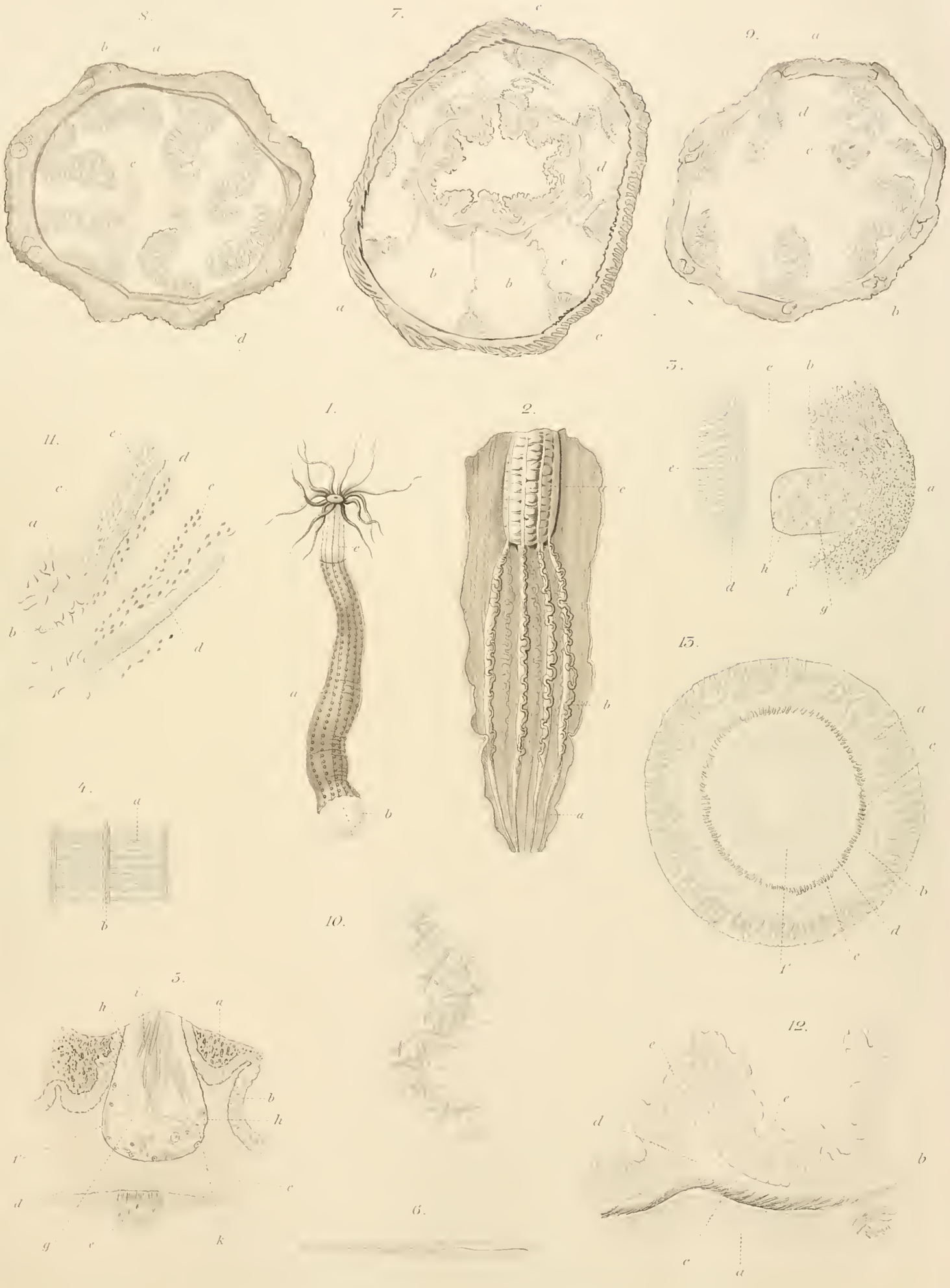


1-3. Halcampoides abyssorum. 4-10. Edwardsioides vitrea. 11-12. Edwardsia costata.

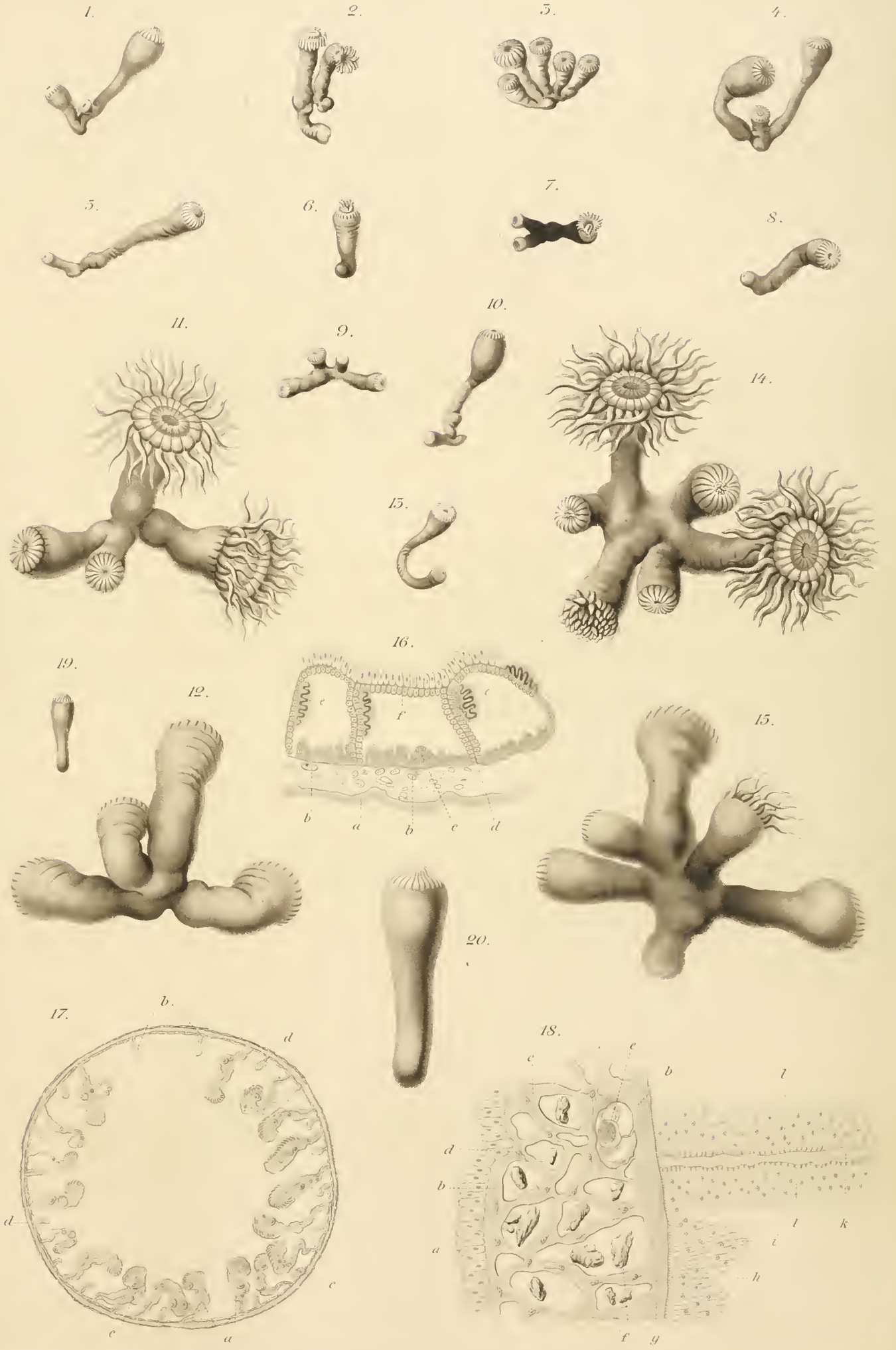
Fenja mirabilis.

1-4. Fenja mirabilis. 5-10. Aegir frigidus.

1-4. Aegir frigidus. 5-9. Edwardsia fusca.



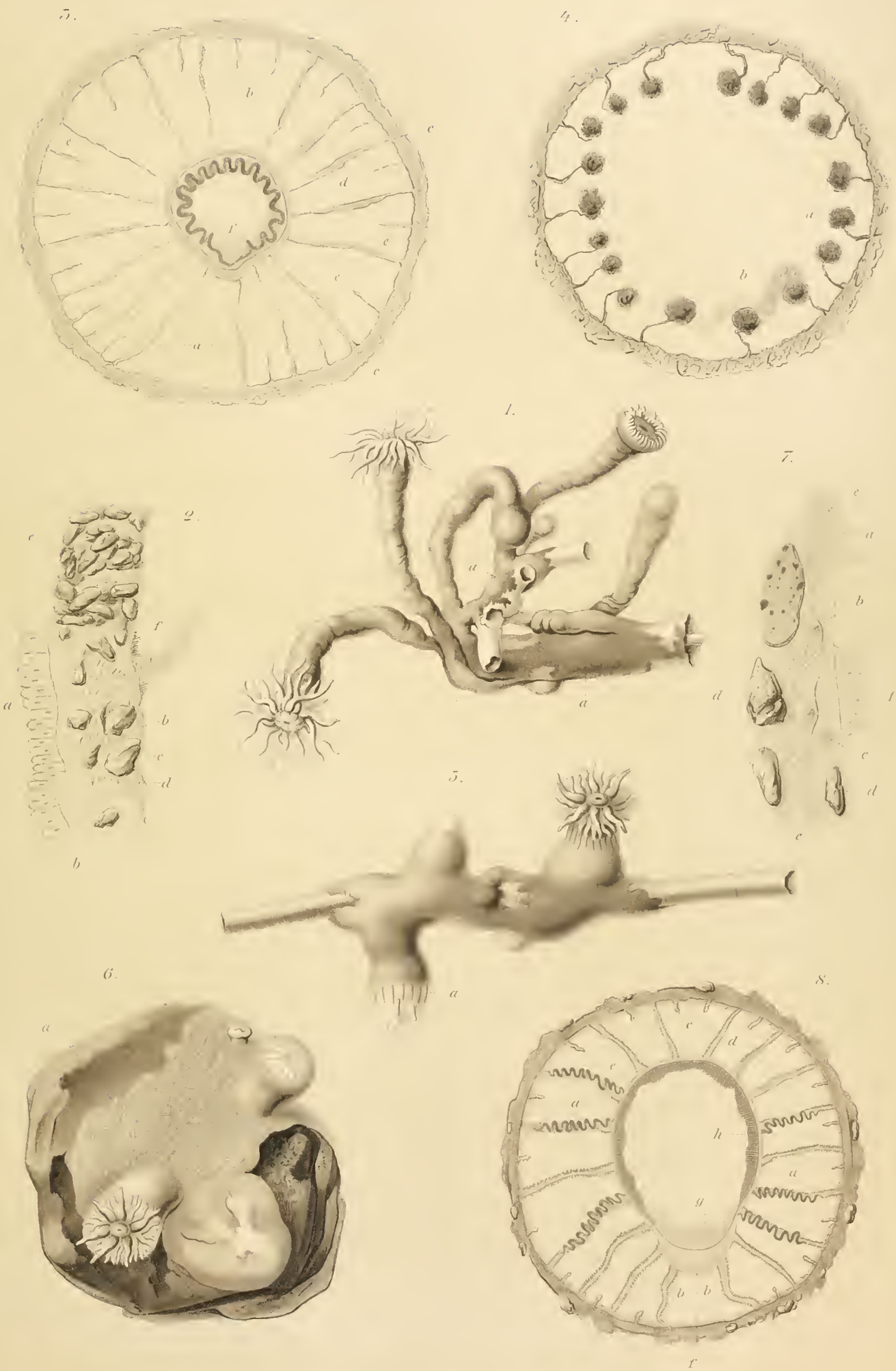
Edwardsia Andresi.



Mardöll Erdmanni.

1-7. Mardöll Erdmanni. 8-11. Kodioides pedunculata.

1 & Kodioides pedunculata. 3–8. Cactosoma abyssorum.



1–4. Epizoanthus arborescens. 5–8. Epizoanthus glacialis.

1-3. Epizoanthus glacialis. 4-6. Epizoanthus roseus. 7-14. Cerianthus Vögti.