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compliqués pour arriver aux plus simples. L'emploi des hypothèses m'a toujours paru le meilleur moyen d'arriver à l'observation des faits; mais je considère comme entièrement illusoire et absolument chimérique toute hypothèse qui échappe nécessairement au contrôle de l'observation ou de l'éxpérience. Il n'est pas, selon moi, de méthode moins scientifique que celle qui consiste à faire de ces hypothèses invérifiables l'objet même de la science. La connaissance des faits, tel est le vèritable but de la science: tout le reste n'est bon qu'à servir de moyen d'étude.

Grenoble, le 22 mars 1892.

3. On a new species of Cassiopea from Jamaica.

By R. P. Bigelow, Bruce Fellow in the Johns Hopkins University.

eingeg. 25. März 1892.

Cassiopea xamachana[1] nova species.

Diagnosis. The umbrella is concave on the aboral side forming a sucking disk. The number of rhopalia is regularly 16, but often from 17 to 23. When there are 16 rhopalia, there are 80 short, obtuse lobes in the margin of the umbrella, separated by deep grooves on the exumbrella surface (in each of the 16 parameres, 3 velar lobes between 2 ocular ones). The exumbrella is marked by a white circle at the periphery of the concavity, from this there extends outward a white band along each marginal lobe, and in the radius of each rhopalium there is also a white band tapering centrally from this circle to a point about half way to the stomach. These radiating bands are not always connected with the circle of white. The eight oral arms are rounded and slender, never angular, with 10 to 15 alternate primary branches and numerous secondary ones. The distance from the centre of the oral disk to the tip of an extended arm nearly equals the diameter of the umbrella. In the axil of each branch there is a flattened oval or linear vesicle varying in length with the size of the adjoining branch, the length of the eight largest ones (one in the axil of the chief branch of each arm) sometimes equaling $^1/_4$ the diameter of the umbrella, while many do not exceed the size of one of the oral funnels. There are also 5 to 13 large vesicles on the oral disk, the one in the centre being the longest. In full grown individuals there are no oscula or oral funnels on the oral disk except near its margin. Their place is taken by a great number of very small oval vesicles.

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[1] This name was suggested by Professor Brooks and is derived from the ancient Indian name for the Island of Jamaica.

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Special Description. This species is very similar to *Cassiopea andromeda* Esch. and to *C. polypoides* Keller. It differs from the first, as described and figured by Tilesius, in the shape of the umbrella; in having much longer and stouter oral arms with ten or more primary branches that are never triangular in section; in having much larger oral vesicles; and never anything corresponding to the flattened condition of the ultimate branches figured by Tilesius and mentioned by Hæckel. The arrangement of the white spots and other color markings is also somewhat different. It is distinguished from the second by having fewer of the large oral vesicles and having these of a smaller size; by having more slender and graceful oral arms than those figured by Keller, with a greater number of primary branches; and by a difference in the coloration. A more extended account of the anatomy and development of this species with illustrations is now in course of preparation.

Color. The animal has a general greenish brown tint due to the presence of »green cells« in the jelly. There are white markings, similar to those described above, on the dorsal side of the oral arms and their larger primary branches. The subumbrella is marked with a blue circle around the stomach and from this a blue band extends outward to the periphery along each interrhopalial radius. The oral funnels are also colored blue, grading into brown near their margins. The very small vesicles on the oral disk are reddish brown while the large vesicles are greenish yellow with a longitudinal bluish green stripe.

Size. The largest specimens were about 12 cm in diameter.

Ontogeny. The development from the egg has not been observed but in this species the production of buds by the scyphistoma plays an important part in reproduction. The bud is set free as a ciliated, hollow, planula-like body consisting of a layer of ectoderm and one of entoderm with a thick supporting layer between, in which is embedded the four septal muscles.

The mouth is formed during this stage at what was apparently the distal end of the bud. The larva then becomes fixed and develops into a scyphistoma.

The strobilization is monodiscous. The rhopalia are formed in the basal portions of every alternate one of the 32 tentacles. This is followed by the absorption of the distal portions of these tentacles after which the other tentacles are absorbed. The septal funnels do not appear until very late and disappear soon after the medusa is set free. When set free, the medusa has a simple quadrate mouth. Soon after, the lips grow out to form the eight oral arms and, at the tips of these, the formation of the characteristic funnels and vesicles

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begins. The first vesicle formed on each arm remains always the largest. This course of development will be described in detail in the paper referred to above.

Locality. Specimens were collected by me in a lagoon near Kingston Harbor, Jamaica.

Baltimore, Md., U. S. A., March 3rd, 1892.

4. Über die Zonen des Küstenstriches der Solowezki-Inseln.

Aus dem Laboratorium der St. Petersburger Universität.

Von C. Chworostansky.

eingeg. 31. März 1892.

In meiner Mittheilung über die *Bryozoa* der Murmanküste in der Sitzung der Zoologischen Section am 3. März 1890 sprach ich mich aus über eine Eintheilung der gesammten Thierwelt der Solowezkischen Gewässer in eben solche Zonen, wie die von Herzenstein[1] für den Murman festgestellten.

Später wurde von Knipowitsch[2] und Schlater[3] ein Verzeichnis der einzelnen Arten für jede Zone zusammengestellt, wobei aber von den *Bryozoa*, die für die dritte Zone kennzeichnend sind, bei beiden Gelehrten keine Erwähnung gemacht worden ist. Indem ich nun ein Verzeichnis der Bryozoa für die Solowezki-Küsten verfaßte, machte ich folgende Beobachtungen über die Vertheilung der Thiere:

1) In der littoralen Zone sind die Fucus-Arten oft ganz bedeckt von *Hydroidae* und *Bryozoa*; darunter fallen am meisten auf:

Gonothyrea Loveni Allman, *Sertularia pumila* L., *Clava leptostyla* Aggasiz, *Membranipora membranacea* Linnaeus, *Membranipora pilosa* Linn., *Balanus balanoides* L., *Littorina*, *Acmaea testudinalis* Müll., *Chiton marmoreus* Fabr., *Gammaridae*.

2) Für die zweite Zone (die Zone der Laminarien 4—5 Faden und Florideae 6—8 Faden) können hervorgehoben werden: *Obelia geniculata* L., *Lafoea pocillum* Hincks, *Menipea ternata* Ellis und Solander, *Menipea Jeffreysii* Nordmann, *Bugula Murrayana* Johnston, *Membranipora lineata* Linn., *Escharina urna* van Beneden, *Cribrilina gattyae* Busk, *Lagenipora socialis* Hincks, *Schizoporella hyalina* Linn., *Smittia Landsborovii* Johnston, *Diastopora suborbicularis* Hincks, *Membranipora Lacroixii* Audouin, *Membranipora craticula* Alder, *Po-*

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[1] Herzenstein, Beiträge zur Kenntnis der Fauna der Murmanküste und des weißen Meeres. St. Petersburg. 1885.

[2] Knipowitsch, Travaux de la Société des Naturalistes de St. Pétersbourg. Vol. XXII. 1891.

[3] Schlater, Revue des Sciences Naturelles. St. Pétersbourg. 1891. No. 9.

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