



Preliminary Report on the Fauna of Dublin Bay

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XXVII.—PRELIMINARY REPORT ON THE FAUNA OF DUBLIN BAY. By ALFRED C. HADDON, M.A., M.R.I.A., F.Z.S. &c., Professor of Zoology, Royal College of Science, Dublin.

[Read, February 23, 1885.]

IN 1881 the Academy gave a grant to Mr. A. G. More and myself to investigate the Marine Fauna of Dublin Bay. Mr. More having been prevented by ill health from taking any active share in the work, the duty of reporting to the Academy has devolved upon me.

I have purposely entitled this communication a "Preliminary Report," as I am still investigating the fauna of the Bay as opportunity presents itself; and since additions are continually being made to our knowledge, I consider it would be a mistake to present a final Report to the Academy until it could be reasonably expected to be fairly exhaustive, but some account of the duty entrusted to me is by this time due to the Academy.

As a rule, I have confined the following account to an enumeration of those forms which have not previously been recorded as occurring in the Bay or neighbouring coast, or which are otherwise of interest. I have taken the lists compiled for the Dublin Meeting of the British Association in 1878, by Prof. H. W. Mackintosh and others, and the localities recorded in the various monographs,¹ as my authorities for the presence or absence of any particular form on our coasts.

I should like to take this opportunity of thanking the following gentlemen who have assisted me, viz., Mr. T. A. Bewley for a dredging excursion in a steam-launch, in conjunction with Messrs J. Wright of Belfast, and Mr. F. Balkwill, late of Dublin; Dr. W. Wright of Dalkey, for one afternoon in his yacht, and to Mr. G. Y. Dixon and others of Dublin, for help in shore-collecting at various times. Mr. A. G. More, with characteristic readiness, has always responded to any appeals for advice. The square brackets [] include species added since the Report was read.

Protozoa.—The Foraminifera of this district have already been investigated by Messrs F. Balkwill and J. Wright, and their Report was published by the Academy in 1885, (*Trans.* xxviii., p. 317). I have, therefore, paid no attention to this group, but when examining some Polyzoa, which I had collected in the summer of 1882 at Dalkey Island, in a sheltered spot, between tides, I found several specimens of *Haliphysema tumanowiczii*, Bowk. This remarkable arenaceous Rhizopod has had a chequered history since its discovery by Bower-

¹ Guide to the City and County of Dublin, 1878. Dublin: Hodges, Foster, & Figgis. (Part II., Fauna.)

bank; full references to the literature will be found in H. B. Brady's "Report on the Foraminifera," *Challenger Reports*, vol. ix., p. 281. I found it in material which had been preserved in alcohol, and though I have since searched for it I have not had the good fortune to come across it again, and, therefore, have no contributions to offer concerning its life-history. Messrs Balkwill and Wright have recorded this Rhizopod on p. 354 of their Report. The second species, *H. ramulosum*, Bowk., has been found in Roundstone Bay by Rev. A. M. Norman.

I have made no attempt at present to systematically examine other groups of marine Protozoa.

Porifera.—I have no sponges to add to the British Association List. The largest *Grantia (Sycandra) compressa*, Fabr., I have seen was one given me by Mr. G. Y. Dixon, when we were shore collecting at Salthill. He found it in a shallow rock-pool, and it measured two inches long by three-quarters of an inch broad.

Coelenterata, HYDROZOA.—Dalkey Island is a rich locality for the gymnoblastic hydroids. I have collected the following at the S.W. corner of that Island:—*Coryne pusilla*, Gärtn.; *C. vaginata*, Hincks, the latter growing luxuriantly; *Garveia nutans*, T. S. Wr. So far as I am aware this small but beautiful hydroid has hitherto only been recorded from the Firth of Forth, Shetland, and Morecambe Bay.² I found it associated with *Tubularia humilis*, Allm., and *T. indivisa*, Linn., in a sheltered pool. The only other recorded locality for *T. humilis* being Kinsale Harbour, G. J. Allman.³

I have found *Eudendrium capillare*, Ald., in Dublin Bay, the previously recorded localities being Firth of Forth, Northumberland, Cornwall and Devonshire. *Hydractinia echinata*, Flem., is common everywhere.

The following are the additions to the calyptoblastic hydroids of our coasts:—*Obelia flabellata*, Hincks, previously only recorded from Tenby and Scotland. *Gonothyræa lovèni*, Allm., on various hydroids:

² The recently established Liverpool Marine Biology Committee, under the charge of Prof. Herdman, dredged this form five or six miles off the Great Ormes Head, N. Wales, from fourteen fathoms. Cf. *Liverpool Daily Post*, May 20, 1885.

³ On June 27, 1885, in company with my former pupils, Mr. H. W. and Miss Jacob, we dredged in Scotch Bay, Kingstown, near the shore, the two following Hydroids, which are new to Ireland—*Syncoryne eximia*, Allm., growing on seaweed; owing to the absence of any gonophors, the identification is not absolutely certain, although I have no doubt about it in my own mind. We also had the good fortune to obtain two specimens of *Corymorpha nutans*, Allman. Hæckel in his *Das System der Medusen*, p. 31, states that the *C. nutans* of Allman and Hincks is not the same as the *Corymorpha nutans* of Sars. The latter has priority of name, and stands as *C. nutans* with *Hybocodon nutans* as its medusoid form. It is generally admitted that *Steenstrupia rubra* and *S. flaveola*, Forbes, are one and the same species, and form the medusoid form of the British *C. nutans*. Hæckel takes the unwarranted liberty of ignoring Forbes' priority, and renames the medusa as *Steenstrupia galanthus*, Hæck., the hydroid form being *Corymorpha galanthus*, Hæck. I am at present unable to discuss the question of the distinctness of the *C. nutans* of Sars and of Allman, but hope to do so at no very distant date. In the meantime there is no doubt that a species of *Corymorpha* occurs at Kingstown.

some specimens collected appear to be intermediate between this form and *G. hyalina*. The latter has only been obtained from Shetland. *Lafoëa pocillum*, Hincks, previously recorded from Oban Bay, and “very rare, on Eudendrium, at Monkstown, D. St. J. Grant,” (B. A. List, p. 4.). I have found it on *Diphasia attenuata*; it is very rare. *L. pygmæa*, Alder, is also rare; previously recorded from Tynemouth and Sark. The rarity of these two species is probably more due to their small size and their being inconspicuous, than to their being absent in other localities. This is also the first recorded Irish locality for *Diphasia attenuata*, Hincks.

Especial attention has been paid to the Medusæ of the Bay, as they are forms which possess great interest, apart from their beauty of shape and colour. It is very desirable that a Monograph of the British members of this group should be written, as Forbes' Ray Society Monograph, beautiful and invaluable as it is, is necessarily somewhat out of date (1848). With the works of Forbes, Allman, Hincks, Hæckel, and others to refer to, and the modern facilities for research, such an undertaking is easy, compared with the difficulties Forbes had to contend against.

Stenstrupia rubra, Forbes (= *S. flaveola*, Forbes), was found in June, 1884, in Dalkey Sound; it is the medusa-form of *Corymorpha nutans*, Allman (non Sars *vide* Hæckel). J. R. Green, in the British Association Report for 1857 (Dublin), records a *Stenstrupia* from the Dublin coast, but no details are given; and Alder found *Corymorpha nutans* in the Isle of Man. So far as I am aware, this is the whole history of this beautiful and remarkable species in the Irish seas. The Medusa had evidently not long been liberated from the parent stock, as the single tentacle was quite short. I kept it alive for a day or two, and the tentacle grew to about the length depicted in most of the figures. The fixed form must therefore be regarded as an inhabitant of Dalkey Sound or its immediate neighbourhood. [*S. rubra* is very common in Kingstown Harbour in June, and, as noted above, the hydroid form is now proved to occur in Scotch Bay.]

Several species of *Sarsia* occur: one I identified as *S. tubulosa*; another perfectly agrees with Patterson's description of a form met with at Larne, in Forbes' Monograph, p. 56, and which I propose provisionally to name *S. pattersoni*, sp. nov. *Tiara octona*, Forbes (= *Oceania turrita*, Forbes, and *O. coronata*, Allm., according to Hæckel), occurred once. The genus “*Thaumantias*” is represented by several species, among which I have identified *T. hemispherioa*, Gron.; *T. inconspicua*, Forbes; and *T. globosa*, Forbes. The latter is, according to Hæckel, *Phialidium variabile* (= *Oceania phosphorica* + *O. flavidula*, Per. and Les. 1809; = *Thaumantias sarnica* + *T. convexa* + *T. globosa*, Forbes, 1848; = *Eucope variabilis*, Claus, 1864, &c., &c.). Our knowledge of the forms usually included under the genus *Thaumantias* is at present in a very unsatisfactory condition, as Hæckel and others have shown; the genus is undoubtedly polymorphic, and the char-

acters of the included species are in many cases so ill-defined as to render identification very difficult.

[*Margelis britannica*, Forbes (= *Medusa duodecilia*, Dalyell), was common in June, 1885, at Kingstown and Dalkey. L. Agassiz (1862) and Hæckel (1879) refer *Bougainvillea britannica*, Forbes, to the genus *Margelis*, but Allman (1872) retains the genus. There is sufficient evidence that this is the medusoid form of *Eudendrium ramosum*, van. Beneden (1844), (the *B. ramosa* of Allman's Monograph). According to the strict law of priority, Forbes' species (described as *Hippocrene britannica* in 1841) has precedence of van Beneden's, but both Allman and Hæckel agree in adopting the latter zoologist's name: Allman does so "in the absence of absolute proof of this specific identity;" Hæckel gives no reason. The alteration of the specific name merely depends upon the identity of the two forms in question, and since this is no longer doubted it is clearly our duty to accept the less appropriate specific name of Forbes. Agassiz's generic name, *Margelis*, will be provisionally adopted. The remarkable medusa *Dipleurosoma hemispherica*, Allm., with its irregular gastrovascular canals and generative glands, was very common on June 27th, 1885, at Kingstown. Allman first described it in *Nature*, vol. ix., 1873, p. 73, as *Ametrangia hemispherica* (nov. gen. et spec.), from the south coast of Ireland. Hæckel, on p. 636 of his *Monograph of the Medusæ*, relegates this medusa to what is possibly its correct genus, and very characteristically changes the specific name to *D. irregulare*, Hæck., without stating any reason for so doing. It is true that Allman's name is not particularly well chosen, as there is a *Thaumantias* of the same name, but the rules of priority of nomenclature can not be set aside solely to introduce a more diagnostic term. Hæckel states he also met with this medusa in the spring of 1879, in the neighbourhood of Portobello, Brighton (Sussex). The present is the third record of its capture.]

Strangely enough, I have only seen *Aurelia aurita*, Linn., in July, 1881, in Kingstown Harbour [and *Rhizostoma octopus*, Linn. (= *R. pulmo*, Forbes, not of Linn.); at Dalkey in June, 1885: one specimen of the latter must have been two feet six inches in length, and proportionately broad.]

Only on one occasion, and that was in Dalkey Sound, in September, 1883, did I come across a siphonophore. The specimen was very small, $\frac{1}{8}$ ths inch in length, and was too immature to be identified with anything like certainty; I doubtfully refer it to *Agalmopsis sarsii*, Köll. In the *Natural History Review*, vol. iii., 1856, p. 76, pl. vi. figs. 3, 4; and pl. vii. fig. 1, is an account of a siphonophore named *Stephanomia contorta*, M. Edw., two specimens of which were found by Prof. J. R. Greene, on June 2, 1856, in Kingstown Harbour, in a calm sea, during hot sultry weather. At the same time was published a notice of *Agalma gettyana*, Hyndman, which was seen by Mr. Edmund Getty in great numbers in Belfast Bay, in August, 1841, and also in July, 1852, by Mr. Hyndman, in great abundance in the

same bay (pl. vii., fig. 2). Dr. Melville considered that these two were specifically identical. In the British Association Report for 1857 (Dublin), p. 103 of the Sectional Communications, Prof. J. R. Greene states that "the siphonophoræ were represented by the beautiful *Agalmopsis* of Sars." When I add that there are dried specimens of *Velella spirans* (?) from Dalkey (presented by Dr. J. Tufnell), collected on September 5, 1867, I have recorded all I have been able to gather concerning the occurrence of this most interesting group of Hydrozoa in Dublin Bay. *Cydippe* (*Pleurobrachia*) *pileus* (?) is very abundant. I am under the impression that we have more than one species of *Cydippe*. I have only one specimen of a *Beroë*.

ACTINOZOA.—*Edwardisia* sp. *incert.* This is a minute specimen 18mm. ($\frac{3}{4}$ inch) in length, of a uniform pale pink colour, which I found on June 27, 1881, at Salthill, in dirty sand, between tides, but which has not been met with since. It appears to be a new species, but, being undoubtedly immature, I will not venture to describe it. It would not be out of place to here mention *Halcampa chrysanthellum*,⁴ which was discovered by my friend and former pupil, Miss A. Shannon, at Malahide, on September 14, 1883, and which I have described and figured in the *Proceedings, Royal Dublin Society, N. S.*, vol. iv., 1885, p. 396; also in the same number of that Journal will be found, p. 399, an account of the habits, and a full description, with plates, of *Peachia hastata*, Gosse, first discovered in Dublin Bay by Mr. G. Y. Dixon, and exhibited by him at the Dublin Society, on November 14, 1884. So far as I am aware, this is the first time that any member of the three families to which the above severally belongs has been found in Ireland.

Heliactis (*Sagartia*) *bellis*, Ellis, occurs at Malahide. *H.* (*S.*) *venusta*, Gosse, has been found by Mr. Dixon and myself at Dalkey Island. I hope on a future occasion to publish a revised list of our Irish Anemones; in the meantime I fully concur with Prof. Andres in regarding *S. rosea*, *S. nivea*, and *S. aurora* of Gosse, as varieties of *H. venusta*, Gosse; the two former occur at Dalkey Island, and I have dredged *H.* (*S.*) *miniata*, Gosse, off Bray Head, in twenty-three fathoms, and it also occurs at Dalkey. *Cylista undata*, Müll. (= *Actinia troglodytes*, Johnst., has been found both at Monkstown and Dalkey.

[On June 3, 1885, in Kingstown Harbour, and again on June 20, at Dalkey,⁵ I caught in the tow net a *Thaumantias*, with a minute Anemone attached to its stomach on the sub-umbrella; both were a little under 3mm. in length. The first was killed after keeping it alive a day or two, and it, together with the second living specimen, was exhibited at the Academy, at the meeting on June 22. The latter

⁴ Having recently had several specimens of *Halcampa* from Malahide, and finding that they all vary, I feel it would be wiser to withdraw the name (*H. andresii*) I gave to this specimen, and to refer them all to *H. chrysanthellum*, Peach. I propose to publish a note on this species.

⁵ Mr. Jacob brought me two other specimens from Dalkey on July 3, 1885.

was alive up to the time of going to press; it was fed with living specimens of "Thaumantias." It has undergone several developmental phases, being at first of a uniform yellowish colour, with rudimentary tentacles; though short, the tentacles grew longer, and were tinged with brown and yellowish white; the disk also became variegated, and the body translucent, revealing the yellow œsophagus. Strethill Wright, in *Proc. Phys. Soc., Edinb.*, ii., 1859, p. 91, and again, in *New Edinb. Phil. Jour.*, vii., 1860, p. 156, which was reprinted in *Ann. Mag. Nat. Hist.* (3), viii., 1861, p. 132, published a somewhat imperfect account of two specimens of an Anemone parasitic on Thaumantias from the Firth of Forth. I can find no printed record of another similar capture in England; but Prof. A. Macalister, M.D., F.R.S., of Cambridge (late of Dublin), informs me, by letter, that he has met with the *Halcampa fultoni*, St. Wright, and perhaps with another form, but not in Dublin Bay. As my observations on this interesting anemone are not yet completed, I forbear from describing it, but I hope in due course to be in a position to give a complete and illustrated account of its structure and further development. For the present I will merely state that S. Wright's specimens had twelve tentacles and mesenteries, and, if so, probably belonged to the genus *Bicidium* Agassiz (= *Philomedusa*, Müller?). The Irish specimens have eight tentacles, but twelve mesenteries. There is a remarkable double bi-lateral symmetry in this Anemone—one axis is marked by a single tentacle at each end of the disk, with a lateral group of three on either side, the spaces between the single tentacles and the groups being markedly greater than those between the units of the latter. The twelve mesenteries are so arranged that there is an intermesenterial chamber without a corresponding tentacle on each side of the single tentacles. The second axis is at right angles to the former, and is marked by a deep notch of the wide mouth opposite to the central tentacle of one of the groups of three. This must be regarded as a siphonoglyphe, as it is ciliated; the cilia appear to work outwards.⁶

[Mr. Jacob dredged *Caryophyllia smithii*, Stokes, var. *esmerelda*, on June 6, 1885, under the Martello Tower on Dalkey Island, close to the shore. *Antedon rosacea*, Link., was very abundant at the same spot.]

I have only *Echinocyamus pusillus* to add to the B. A. List of **Echinodermata**; it was dredged off Bray Head, in twenty-three fathoms, together with *Echinus miliaris*, Müll. It is common in Belfast Lough and other parts of the coast.

[On September 24, 1885, Mr. Jacob, and on the 26th, Mr. G. Y. Dixon, each found a single specimen of *Synapta inharens*, O. F. Müll., at Malahide. It is very remarkable that this is the first time, so far

⁶ Since writing the above the Anemone has died. The missing tentacles had just commenced to appear; and although I have, at present, nothing much more definite to add to the above account, I am strongly inclined to regard this parasite as the larval form of *Halcampa chrysanthellum*.

as I can learn, of any Holothurian having been found in Co. Dublin, especially as so many species of Holothuria have been found in Co. Down.]

Vermes.—The following Platyhelminths have been met with :—*Planaria ulva*, Oerst. ; *Tetrastemma dorsalis*, Abildg. ; *T. candida*, O. F. Müll. ; *T. flavida*, Ehren. ; *Lineus marinus*, Mont., and a species of *Amphiporus*, which I believe to be new. All were found at Salthill. *Amphiporus lactiflores*, Johnst., is common at Malahide.

[Mr. Jacob dredged *Carinella annulata*, Mont., on June 6, 1885, in Dalkey Sound.]

Over two dozen species of Annelida have been collected and preserved. I am at present working at this group, and so refrain from detailing my captures. The remarkable pelagic annelid, *Tomopteris scolopendra*, Quoy and Gaim., once occurred in Kingstown Harbour (August 26, 1833). Mr. R. Ball records that *Bryarea scolopendra* was taken in Dublin Bay by Dr. Corrigan (*Report Brit. Association*, 1849, p. 72). Prof. Allman captured some young specimens in 1873, on the south coast of Ireland (*Nature*, ix., 1873, p. 74). Dr. E. Perceval Wright has several times caught it on the south-west coast (*Rep. Brit. Assoc.*, 1860, p. 124), but this is a form which is widely distributed.

[*Sagitta bipunctata*, Krohn, was common at Kingstown in June, 1885.]

I have two undetermined species of Phascolosoma, of which I made careful drawings.

Most of the Polyzoa enumerated in the B. A. List have been identified. I would here merely state that *Pedicellina cernua*, Pall. (= *P. echinata*, Sards), is not at all rare at Salthill at extreme low water, where the sessile form of *Bowerbankia imbricata*, Adams, also occurs on Fucus. The only additions are *Diastopora obelia*, (?) Johnst., on Fucus at Salthill. *Bowerbankia caudata*, Hincks ; *Scrupocellaria scrupea*, Busk., and *Atea truncata*, Landsb.

I hope to procure the assistance of Prof. Herdman of Liverpool with the local Ascidians, of which I have collected a number of forms.

Mollusca.—The Nudibranchs are the only Molluscs to which I have any additions to make to the local list. I have met with the following in Kingstown Harbour: *Eolis drummondi*, Thomp. ; *E. lineata*, Lovén. ; *E. despecta*, Johnst. ; *E. exigua*, Ald. and Hanc.—a variety of *E. exigua* of which I made the following note :—Similar in form and habit, body translucent white, mottled with green along each side below the branchiæ, one or two white dots about the insertion of the dorsal tentacles ; foot as in *E. exigua*, but posterior extremity is long and slender ; dorsal tentacles translucent, with one or two white dots near apex ; branchiæ, shape much as in *E. exigua*, the yellowish alimentary cœca shining through, irregularly spotted with green, tip white. On *Campanularia flexuosa*, Kingstown Harbour, July 1, 1881. *Eolis* sq. *incert.* This species, together with an *Eolis* from Dalkey Island, I am withholding for the present ; one or both may prove to be new species. All the species of *Eolis* mentioned above are new to

Dublin. *E. drummondi* is common in Belfast Lough; *E. lineata* is very rare, and has previously only been found at Saltcoats, Ayrshire, and Douglas, Isle of Man; *E. despecta* and *E. exigua* are probably widely distributed, but their small size and peculiar habit has, doubtless, caused them to be overlooked.

[*Proctonotus mucroniferus*, Ald. and Han.—It is with great satisfaction that I am able to record the recapture of this interesting and beautiful form. Messrs. Alder and Hancock state in their *Monograph*: “A single perfect specimen of this curious animal, and another much injured, were dredged up in Malahide Bay, in September, 1843, adhering to a sponge (*Halichondria panicea*), from rather shallow water.” So far as I am aware, this species has only been met with since by Herdman, in Lamlash Bay, S.E. of Holy Isle, fifteen fathoms (*Proc., R. Phys. Soc., Edinb.*, 1881). I found two specimens on the under side of a large stone at extreme low water, on September 8, 1885, on the shore at Malahide. As in all their other descriptions, that of this form is very exact; there is, however, one point in which they have been misled. The dorsal processes (branchiæ) are arranged six deep, but immediately on putting the living animal into a dilute solution of chromic acid, for the purpose of conservation, all the three internal processes of each side were suddenly cast off in two long rows, leaving the three processes seen by Alder and Hancock; doubtless their specimens had similarly shed their processes whilst being dredged.

Alder and Hancock's specimens were not fully grown, as they state the length to be nearly half an inch, whereas mine measured 20mm. ($\frac{1}{3}$ ths of an inch). I failed to notice that the anterior and posterior papillæ were larger than any other. The coloured core was absent in the anterior papillæ. The core of the papillæ was of a dark brown colour, and there were a number of irregular light lines in addition to the white and minute dark brown spots. The lines and light spots of the inner rows of dorsal papillæ were of a pale creamy burnt-sienna colour, those of the outermost rows were whiter. The animals were rather sluggish in habit, but bristled up their papillæ when excited. The spawn was a long, wavy, irregularly coiled thread.]

Doto coronata, Gmel., occurs at Kingstown, and *Dendronotus arborescens*, Müll., was found with all the above early in July, 1881, browsing upon the luxuriant growth of Campanularia, on the Laminaria which clothed the sides of the dredger; unfortunately this dredger has been kept so well tarred since that I have been unable to procure any more specimens from it. *Polycera quadrilineata*, Müll., occurred at Salthill. *Goniodoris nodosa*, Mont., occurs fairly plentifully at Malahide and at Salthill. *Doris tuberculata*, Cuv., was collected at Dalkey Island, and *D. pilosa*, Müll., is very common round Salthill.

During this last winter I have seen four specimens of *Eledone cirrosa*, Lamk., from Kingstown, and I have reason to believe that this octopod is not at all uncommon; sometimes it is left stranded by the

tide, but it is more frequently caught on fishing lines at the head of the pier.

Mr. H. W. Jacob has undertaken to work up the Irish **Crustacea**, so we may expect a report thereon from him in due course. I have handed over all my material to him.

I have made a practice of carefully preserving my captures, and have presented a set to the Natural History Museum, Kildare-street, where they can be examined by those interested in our marine fauna. With but one or two exceptions, all the forms mentioned above will be found in the Museum. In this matter I am pleased to find that I had anticipated the subsequently framed regulation of the Academy.

I would like to add that I shall be very pleased to communicate with anyone who is interested in marine zoology. Any specimens or information so obtained will be duly acknowledged.