

cumcised below all its branches, was, at the time, the largest of half a dozen of the same kind, which were planted at the same time, and is not so at present. I am sorry I cannot be so circumstantial in this particular, as I endeavoured to be in others; and am,

Dear Sir,

Your affectionate

humble servant,

Poland-Street,
Jan. 19, 1761.

Keane Fitzgerald.

XIII. *An Account of the Urtica Marina: In a Letter to Mr. Peter Collinson, F. R. S. from Joseph Gaertner, M. D.*

Dear Sir,

London, Feb. 12, 1761.

Read Feb. 12, 1761. **H**AVING lately visited the southern coasts of Cornwall, I met with several new and undescribed sorts of the *urticæ marinæ*, called by Mr. Hughs the animal flowers. I therefore take the liberty of sending you the inclosed drawings, [*Vide Tab. I.*] together with a short description of them, which, I flatter myself, will not be disagreeable to you, as these animals, in regard of the various and surprizing shape of their bodies, and on account of the few imperfect descriptions, that have hitherto been given even of the common sorts of them, may not be unworthy the notice of the curious. The name of *urtica*, as the celebrated Mr. de Reaumur,

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in a memoir relating to that subject *, justly observes, has been very improperly applied to this kind of animals; for it is certain, that not a single species of them is possessed of that stinging quality like a nettle (which the antients ascribed to them), and that only their tentacula feel rough and clammy, when touched with the finger. Even this roughness is not perceptible, but when the animal attempts to lay hold of the finger: it then throws out of the whole surface of the feeler a number of extremely minute suckers, which, sticking fast to the small protuberances of the skin, produce the sensation of a roughness, which is so far from being painful, that it even cannot be called disagreeable.

The proper genus, which these sea-nettles belong to, is that of the hydra of Linnæus, commonly called the polype. This will evidently appear, from the following characters: first, from the gelatinous substance, of which this whole tribe of animals consists: secondly, from their having only one opening in their bodies, which gives a passage to the food, as well as to the excrements, of the animal: and lastly, from a set of feelers, which surround this opening, and serve these creatures for claws, to catch their prey with, and convey it to their mouths. As the sea-nettles agree perfectly in those general characters with the hydra, so do they also answer to many of its less essential, or merely accidental qualities: they live, for instance, constantly in the water, in which

* Du mouvement progressif et de quelques autres mouvemens de diverses espèces de coquillage, orties, et étoiles de mer. Mémoires de l'Académie Royale des Sciences, 1710. p. 439, &c.

they never swim, but always adhere to some fixed body in it; and when they change their place, most of them crawl along so very slowly, that their progressive motions cannot be perceived with the eye to. This may be added, that they likewise bring forth their young ones alive, and that they grow again, after considerable parts of their bodies have been cut off: all which proves still farther, that these animal flowers, or sea-nettles, are of the same nature, have the same characters, and do consequently belong to the same genus, with the hydra. The polypes in general may be divided into two classes, the one containing those polypes, that cannot conceal their feelers, though ever so much irritated; and the other, those, that, at the least irritation, contract themselves, draw in their feelers, and frequently hide them under a membranaceous cover made for that purpose. The first class, on account of the small number of species belonging to it, needs no subdivisions; but to distinguish properly the several sorts of the second class, it is necessary to divide it according to the various position of the feelers, which are inserted either in the membranaceous cover itself, or into a flower-like production of the body, or lastly, in the very top part, or the disk of the polype: hence arise the three following subdivisions of the second class: 1. *Hydra calyciflora*. 2. *Hydra corolliflora*; and lastly, *Hydra disciflora*. The reason for which appellations will be farther explained, in the descriptions I am now going to give of every sort in particular.

The first class consists but of a single sort, whose specific character may be thus expressed:

Hydra

Hydra tentaculis denudatis, numerosissimis; corpore longitudinaliter sulcato.

The natural size of this animal, grown to its full age, is represented in the first figure, lit. A, shows the animal suspended in the air, and lit. B, is the same whilst under water. The body of this polype is of a light chestnut colour, and feels perfectly smooth, though it be lengthways sulcated by a number of sulci, that are frequently divided into three smaller ones, and are continued into the dentated margin, that surrounds the upper periphery of the body, just beneath the insertion of the feelers. These feelers, rising from the disk of the polype, are, according to the age of the animal, between 120 and 200 in number; they exceed the body, when expanded, by more than an inch in length, and are of a beautiful sea-green colour, except towards their extremities, which are coloured with a lively red, like that of the rose. The disk is of the same brown colour with the rest of the body, and contains in its center the mouth of the animal, which is an aperture of various shape and diameter.

The two varieties of this species, which I met with, differ but little from the already described animal. The feelers of the one, instead of being green, are throughout of a red colour, like that of the mahogany wood. The other variety has pale ash-coloured feelers, marked with a small white line running along their back; its body is of the same chestnut colour with that of the first species; but the sulci are not divided, nor has it a dentated margin surrounding its upper periphery.

I doubt

I doubt whether these animals have yet been taken notice of by the curious, though they are very frequent upon the sea-coasts. A rough sketch of an animal somewhat like this is to be found in Aldrovandus *, with the inscription, *Urtica marina saxo innata*. But as neither he, nor Johnston †, who copied the figure from Aldrovandus, gives any farther explanation of it, it is uncertain what species of urtica the said figure represents.

The polype belonging to the second class, concealing their feelers when irritated, are the following :

Hydra calyciflora, tentaculis retractilibus variegatis, corpore verrucoso.

The second figure represents a polype of this sort. From its small basis rises a cylindric stalk, which supports the roundish body of the animal, from whence afterwards the calyx, being a continued membrane of the body, draws its origin. The stalk, or the pedunculus of the polype, is quite smooth, and its colour inclines towards the carnation. The outside of the calyx, and the body of this animal, are marked with a number of small white protuberances, resembling warts, to which fragments of shells, sand-grains, &c. adhere, and hide the beautiful colour of these parts, which, from that of carnation, is insensibly changed towards the border of the calyx, first into purple, then violet, and at last into a dark brown. The inside of the calyx is covered with the feelers, that grow in several ranges upon it: they differ considerably in length; those that are near the

* Aldrov. de Zoophyt. lib. iv. p. 568.

† Johnst. Exang. Tab. XVIII.

edge of the calyx being but small papillæ, in proportion to those, that surround the disk, or the central part of the body. (Vide fig. 2. lit. C.) They are almost transparent; and some of them are of a pale ash colour, with brown spots; others, on the contrary, are of a chesnut colour, marked with white spots. The disk is formed like a star, which, according to the figure, that is traced out by the innermost row of the feelers, consists of many angles. The colour of this part of the body is a beautiful mixture of brown, yellow, ash-colour, and white, which together form variegated rays, that from the center, or the mouth of the animal, are spread over the whole surface of the disk.

This polype contracting itself, (vide fig. 2. lit. B) changes its body into an irregular hemisphere, which is so covered with the several extraneous bodies that stick to it, that it is extremely difficult to know the animal in this state, and to discern it from the rubbish, that commonly surrounds it.

These animals are frequently found in the pools about the Mount's-Bay. It is rare to meet with a single one in a place, there being most commonly four or five of them living so near together in the same fissure of the rock, which they constantly inhabit, that their expanded calyces form a row of flowers like bodies, that seem to grow upon the cliffs under water.

The second species, is the
Hydra corolliflora, *tentaculis retractilibus frondosis*.

This animal, in its contracted state (vide fig. 3. lit. A), has more the appearance of a caterpillar, than

than of a polype. Its body is covered with a dusky white skin, in which a large opening appears at the thicker extremity of the body, and at the opposite end of it are 5 small denticles, that surround a cavity placed in their middle. The surface of this cylindrical body is marked with six double rows of perforated knots, which the animal can transform into as many legs, if occasion requires, by extending each tuberculum into a small transparent cylinder, whose extremity, like that of the suckers of the star-fish, sticks fast to every thing, which the animal gets hold of, and consequently serves it for an instrument, not only to fix its body with, but also to push it forward, by the help of many of these suckers, that are formed of the several knots of different rows. The head of the polype (vide fig. 3. lit. B) coming out of the above-mentioned opening in the skin, is of an oval, and sometimes of an hemispherical figure, somewhat like the corolla of an asarum, but much larger in size. It is quite hollow within, and consists of a dark brown, yet almost transparent membrane, which, after having formed the head, produces the feelers, that surround the large aperture at the top of it. These feelers are eight or ten in number, and of the same substance and colour with the head; they are divided into several branches, to which, as well as to the principal stems, many clusters of very minute papillæ adhere, which make them exactly resemble small branches of trees covered with their leaves. These leaves, or papillæ, not only contribute to the beauty of the feelers, being of a pale yellow, mixed with a shining white like silver, but they also render

the feelers more useful to the animal, in filling up the interstices between them, through which smaller insects else might pass, without being perceived by the animal, whose natural food they are.

This polype seems to live at the bottom of the sea, distant from the land. I met but once with it upon the shore, between Penzance and Newland, where it was thrown up by the sea, inclosed in a large hollow root of the fucus palmatus.

The third species, is the

Hydra disciflora, tentaculis retractilibus subdiaphanis; corpore cylindrico, miliaribus glandulis longitudinaliter striato.

A polype of this sort is represented in the fourth figure. Its body, when extended, is of a cylindrical figure, and constantly marked with some rows of small knots, or glandulæ, that are placed in straight lines from the top to the basis of this cylindrical stalk. Each row is composed of three files of glandulæ, of which the middle one is remarkably bigger than the two others; their number is uncertain, yet I never met with less than eight rows in an animal grown to its full age. The colour of the stalk near its basis is a pale red, and the rest is of a yellow, mixed with a grey ash-colour. The glandulæ are almost of the same colour with the body, except those of the middle file of each row, which I constantly found to be white. Out of the top part, or the disk of the polype, grow the feelers, from eighteen to thirty-six in number; they are of a half-transparent substance, and of a whitish colour, variegated only at the upper part of the feeler, like the back of
some

some snakes, with several cross-lines, and brown spots of an irregular figure. The disk of this polype is always convex, and chiefly of an orange colour, except towards its periphery, which is marked with many dark brown spots, that surround the insertion of the feelers.

At the least irritation, this animal contracts its body, and changes the cylindrical figure of it into a conoidal one. (Vide fig. 4. lit. A.)

The fissures of the rocks in the sea are the only place, where I met with this sort of polypes, which is not common upon the coasts of Cornwall.

Of this species I found two varieties. The top parts of the one are in shape and colour much the same with those of the already described animal; the stalk only is of a deep green colour. The second variety has likewise a green stalk; but its feelers are not variegated, being throughout of a pale and transparent red colour.

The animal flowers of Mr. Hughes *, and the sea-nettle, with a shagreen skin (Ortie a peau chagrinée), of Mr. de Reaumur †, may, perhaps, belong to this subdivision.

The last species of these polypes I have to propose, is the

Hydra disciflora, tentaculis retractilibus, extimo disci margine tuberculato. (Vide fig. 5. lit. A et B.)

* Philos. Transact. Vol. XLII. p. 590.

† Mem. de l'Acad. Roy. des Sciences, Tab. X. fig. 21.

I only mention this species, to determine its specific character, which has not yet been given by any of the authors, that have already taken notice of this animal *. The colour of its body is always red in the summer, but changes into a dusky green, or brown, towards the latter end of autumn. The outside of it is quite smooth, some few animals of this sort excepted, which are marked, like the first species of this class, with small protuberances, to which several extraneous bodies likewise adhere. The feelers are constantly inserted into the disk of the polype, but they are of various colours, viz. red, blue, white, and sometimes even variegated. Between these feelers and the membranaceous cover of the animal, is a row of small hemispherical tubercula, which, though they vary in colour as much as the feelers, yet are constantly found to be placed upon the edge or periphery of the disk, and consequently afford, together with the insertion of the feelers, a certain mark, by which this animal, so variable in its colour and shape, may be at all times known and distinguished from any other sort belonging to this tribe.

This is what occurred to me, on the figure and external parts of these animals. I could add a description of their internal structure, and some observations on the manner of their propagation; but, as I have already transgressed the limits of a letter, I shall defer

* Bellon. de Aquat. lib. ii. p. 342. Rondelet. de Pisc. lib. xvii. cap. 12 et 14. Gesner. Hist. Anim. p. 1037. &c. Aldrov. de Zoophyt. lib. iv. p. 567. Johnst. Exang. Tab. XVIII. De Reaumur, lib. c. Tab. X. fig. 22. 24.

enlarging on this subject, till another time ; and conclude with assuring you of the most perfect esteem, with which I have the honour to be,

Dear Sir,

Your most obedient,
humble servant,

Joseph Gaertner, M. D.

XIV. *A Catalogue of the Fifty Plants from Chelsea Garden, presented to the Royal Society by the worshipful Company of Apothecaries, for the Year 1760, pursuant to the Direction of Sir Hans Sloane, Baronet, Med. Reg. & Soc. Reg. nuper Præses, by John Wilmer, M. D. clariss. Societatis Pharmaceut. Lond. Socius, Hort. Chelsean. Præfectus & Prælector. Botanic.*

- Read Feb. 19, } 1901 **A** LCEA vulgaris major, flore
1761. } ex rubro roseo. C. B. 316.
- 1902 *Andromeda pedunculis aggregatis, corollis cylindricis, foliis alternis ovatis integerrimis.*
Linn. Spec. Plant. 293.
- 1903 *Aristolochia longa vera.* C. B. 107. Offic. 47.
- 1904 *Asclepias foliis revolutis linearibus verticillatis, caule erecto.* Linn. Sp. 217.
- 1905 *Asphodelus foliis planis, caule ramoso, floribus sparsis.* Dict. Hort. Icon.

Fig. 1.

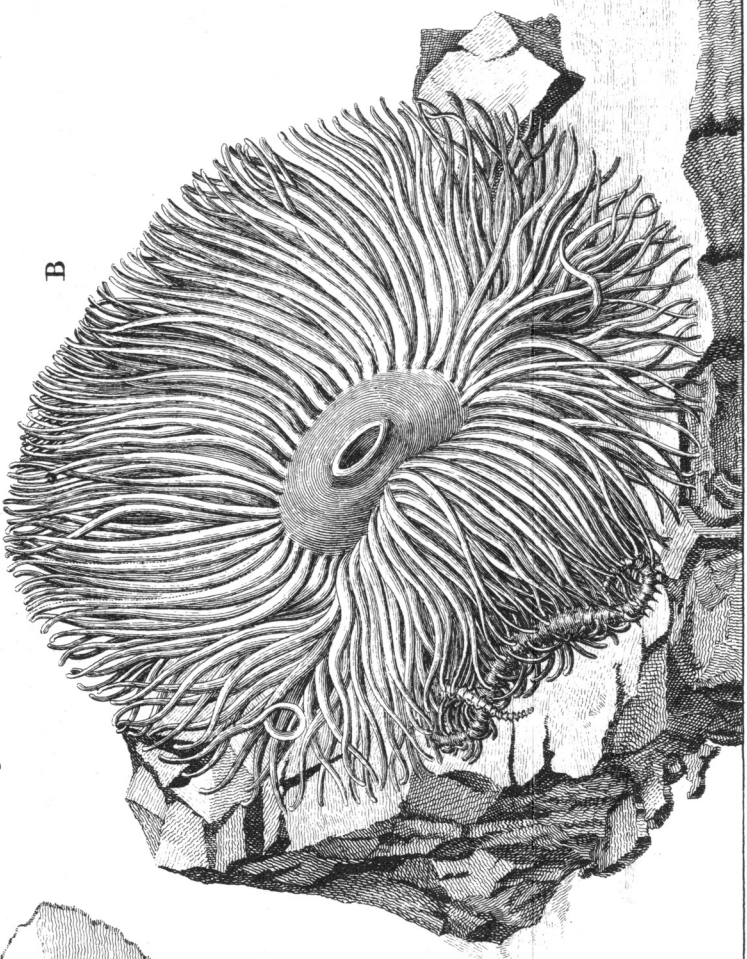
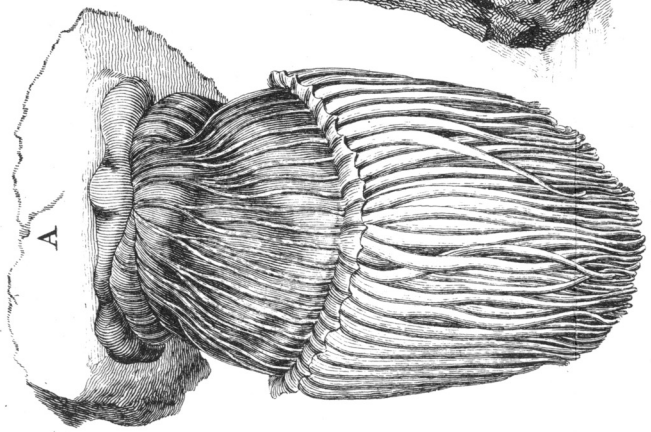


Fig. 3.





A

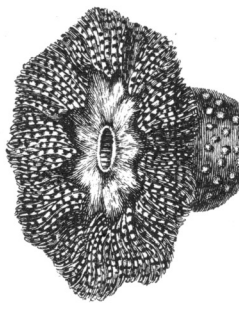


Fig. 2.

B

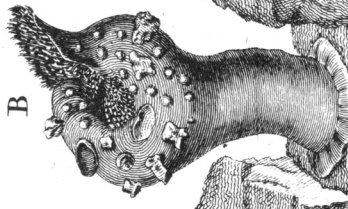


Fig. 3.

B

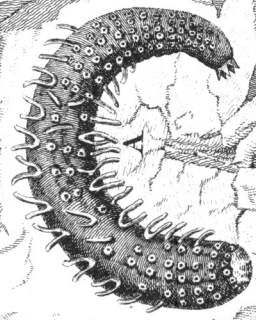
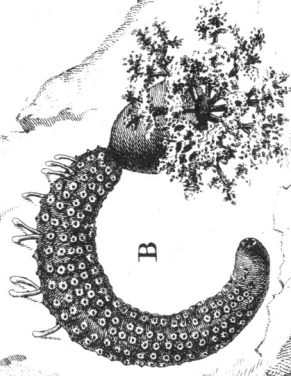
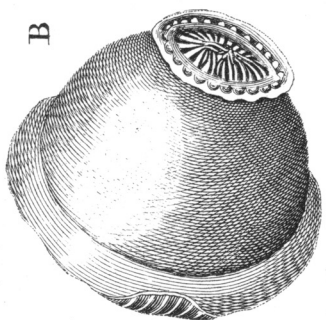


Fig. 5.



A

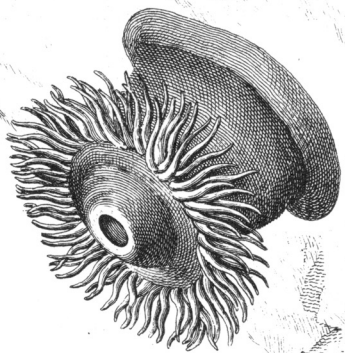
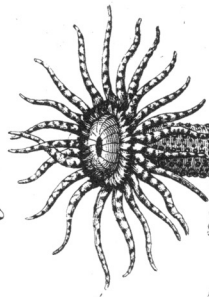
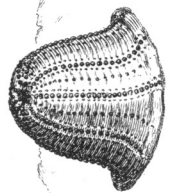


Fig. 4.



B



A

Fig. 1.



Fig. 3.



Fig. 2.



Fig. 4.

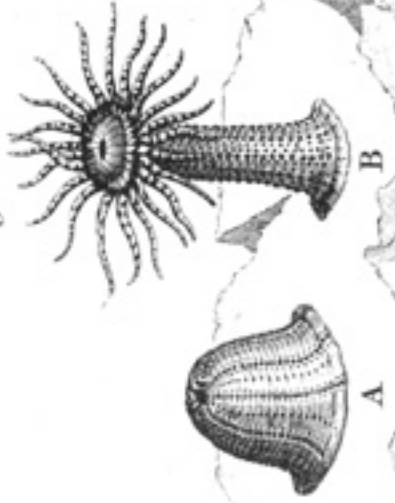


Fig. 5.

