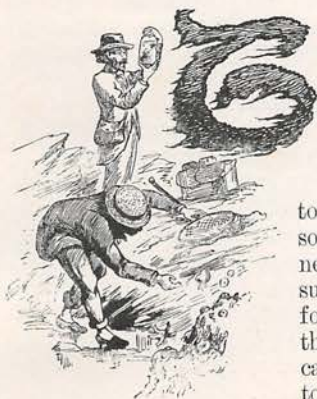


HUNTING THE ANEMONE.

BY EDWARD STEP.

Illustrated by T. CARRERAS.

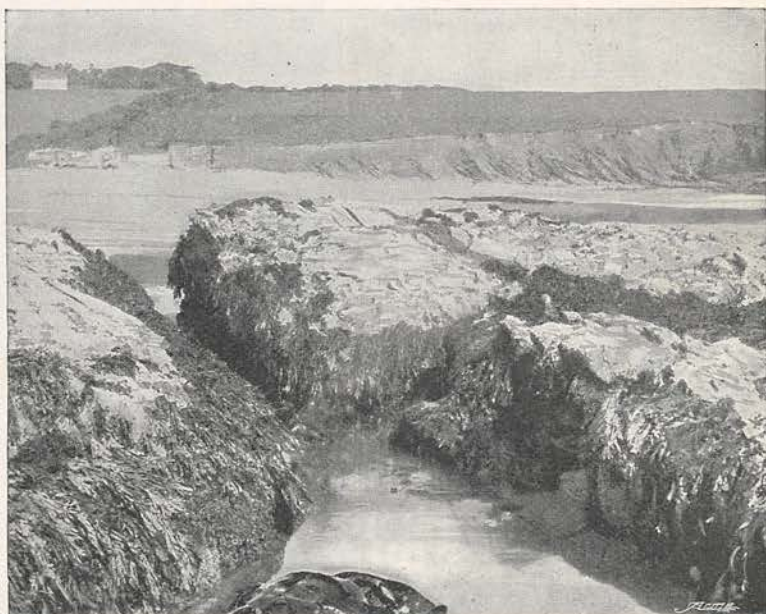


HERE are some forms of life indigenous in these islands that appear to be fated to remain unknown to the multitude. In some cases minuteness of size is quite sufficient to account for their neglect; the general public cannot be expected to take its country

chiefly from specimens preserved in spirit, which takes away their beauty altogether. Even in our National Museum, the student who would make himself acquainted with the forms of the anemones will find no specimens of the Actinozoa exhibited; instead he will be shown some cranky figures in blown glass which are *supposed* to represent them. These ought to have been left in the lumber-room at Bloomsbury when the Natural History collections were removed; they are out of keeping with the general contents of the building, and are gross libels on Nature, as well as a blot on the reputation of the British Museum.

holiday with a compound microscope in its hand. Other creatures continue to be unknown or misunderstood because their forms or habits give rise to feelings of disgust which prevent a closer acquaintance. But neither of these causes operates to keep people in ignorance respecting Sea Anemones, which are readily perceived by the naked eye — some native species being four or five inches in diameter — are of the most beautiful and mobile forms, and are painted with the most exquisite tinting. Black - and - white cannot do justice to them, yet the truthful illustrations to this article do, I think, make good my claim of beauty of form. Few persons have troubled to study or write about these, except from the severely technical point of view, and

Yet there is no great difficulty in the way of studying most of these lowly animals in their natural habitat, provided always that



From a photo by]

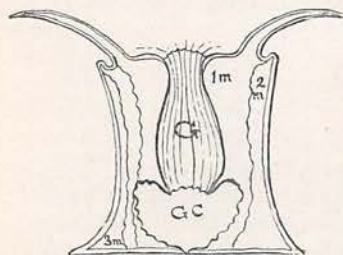
[E. Step.

THE HOME OF ANEMONES.

we have access to a rocky coast; or they may be regarded as quiet pets and maintained in large or small marine aquaria—that is to

say, anything that will hold sea-water, from a twenty-foot tank to a thin glass tumbler or even a soup plate.

Now I propose to make believe that I



DIAGRAMMATIC VERTICAL SECTION OF AN ANEMONE.

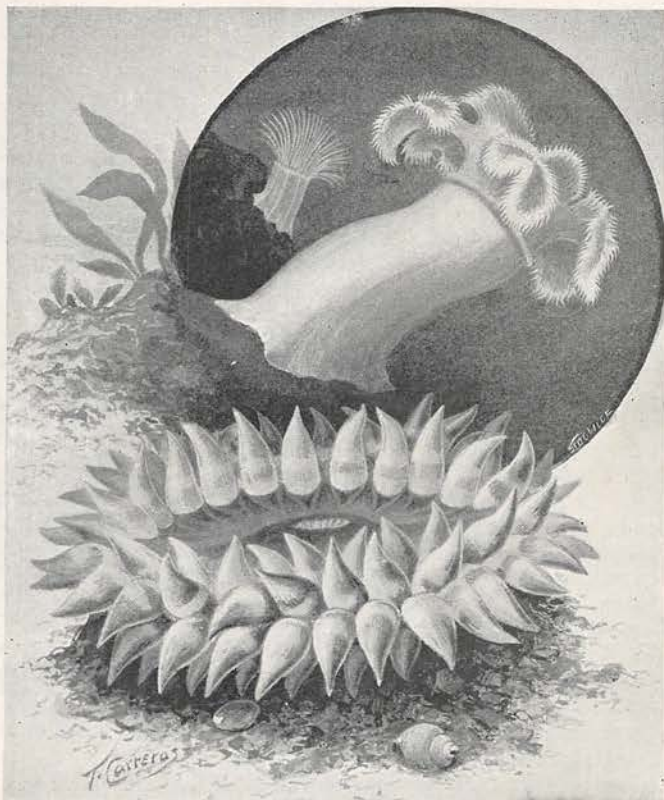
have induced the reader to try the experiment of keeping anemones, and that he has consented to be personally conducted by the writer on a hunting expedition among the rock pools at low water. I am so fortunately situated as to live where I am partially surrounded by rocks, in whose surface the sea has scooped out basins innumerable, which the retreating tide leaves full of water for the comfort of the creatures who have elected to spend their lives therein.

Cf course, there are many other things, both animal and vegetable, in these pools, but we can scarcely notice any of these just now. Before we descend to the rocks it might be well if I indicated simply, by reference to above diagram, what is the general plan upon which anemones are built, because it differs from the ordinary forms of animal life with which we are well acquainted. Roughly speaking, an anemone is a bag of very soft leather, whose upper margin is fringed with several rows of tentacles, and from their bases a membrane stretches across to close the bag, all but a small though extensible slit. From this central opening, which is the mouth, an inner tube or gullet (G) hangs down into the general body cavity (G C), but does not extend to the bottom of it. The body cavity is also divided by a series of muscular plates (*mesenteries*, 1 m), which radiate from the gullet to the outer walls, and between these other similar

plates (2 m, 3 m) stand out from the circumference, but are not broad enough to join the gullet. Now that is all there is to describe. The anemone is not troubled with heart, or lungs, or brain. The general body cavity serves to digest its food, from which the nutritive portion circulates with the water of which the animal is largely composed, and so becomes absorbed by the inner surface as a whole. Of course there are muscles which enable the creature to draw in its tentacles, and there is a nervous system of a primitive type, but there are no special sense organs. So much for the interior. The cylinder is generally spoken of as the column, which is attached to rocks by its base, and the other extremity is known as the disk, bearing the tentacles and pierced by the mouth. With this small amount of structural knowledge we are in a position to understand the varied forms of the species, and to learn their different habits by seeking them among the rocks.

Yesterday was the period of "full moon";

PALLID ANEMONE. PLUMOSE ANEMONE.



DAHLIA ANEMONE.

this morning, in consequence, the tide flowed much higher than usual, and in an hour's time it will have gone down the shore to a greater distance, and left a much broader zone uncovered. This is our opportunity; let us embrace it. We will take with us an assortment of thin glass jam jars and a glazier's putty knife. That is all in the way of impedimenta we need. The long stretch of rocks that bounds Portcurnick

before it as the rising tide drives us back. The lowest rock stands much higher out of the water than the others,

BEADLETS.

CRIMSON PUFFLET.

EYELET.

GAPFLET.

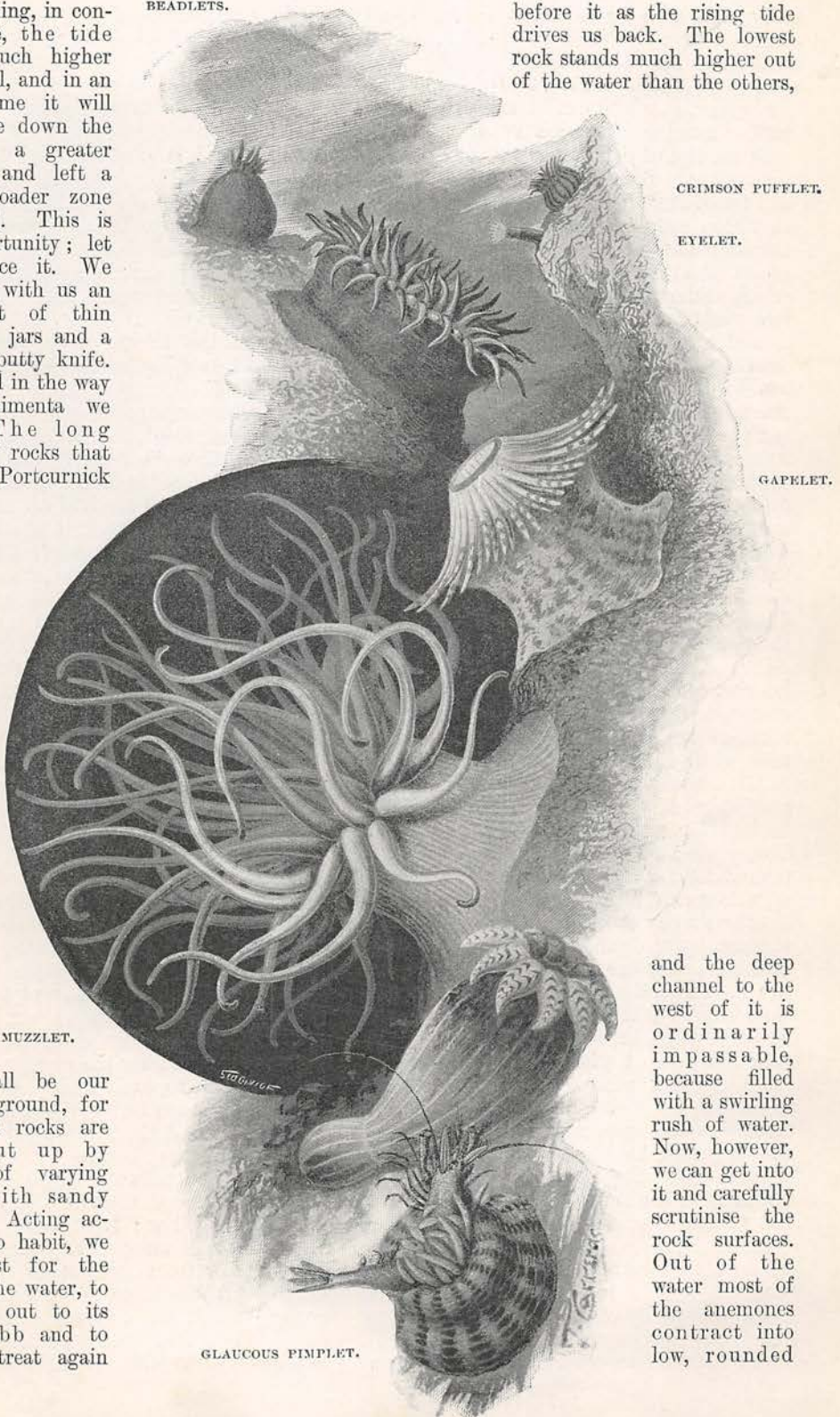
OPELET.

ARROW MUZZLET.

sands shall be our hunting-ground, for there the rocks are much cut up by fissures of varying width, with sandy bottoms. Acting according to habit, we make first for the edge of the water, to follow it out to its lowest ebb and to slowly retreat again

and the deep channel to the west of it is ordinarily impassable, because filled with a swirling rush of water. Now, however, we can get into it and carefully scrutinise the rock surfaces. Out of the water most of the anemones contract into low, rounded

GLAUCOUS PINPLET.



jelly masses, so we must not expect to see them with erect column and expanded tentacles. Now to business.

On the shoreward vertical face of the outer rock, now well out of the water, there hang a number of orange brown anemones, with the tips of their white tentacles slightly protruding. Several of these are secured and transferred to one of our bottles, where they soon open out more widely and reveal themselves as the Snowy Anemone (*Sagartia nivea*), the tentacles and disk being alike white, without any markings whatever. A few yards away on the same rock face are several masses of almost transparent jelly, with a whitish colouration, which we know to be the resting condition of the Plumose Anemone (*Metridium senilis*), and these, after a short immersion in our bottles, increase greatly in height and reveal a projecting collar near the summit of the column, above which the disk expands into several graceful lobes, each fringed with white tentacles. These lack the opacity of the Snowy Anemone, though there is a more distinctly white band across each. When distended by water to its full proportions, as at night-time, this species becomes sufficiently transparent for us to see into its interior. Some varieties are red, pale orange, or flesh-coloured, but those we have obtained are all of the translucent white form which is figured on page 582.

All over this and the adjacent rocks are multitudes of the Beadlet (*Actinia equina*), the most plentiful of the British species. Young specimens appear to like an air bath twice a day, for they are on the rocks at such elevations as are only covered at half-tide; but these rarely exceed an inch in diameter, whereas, lower down, where they are always immersed, they are mostly large specimens, two inches and more across. This is the most variable of the native species, and may be buff, orange brown, liver-colour, crimson, dark red spotted with green, entirely pale green or dark green. The liver-coloured specimens are the typical and commonest form. In this species the column is very smooth, much broader than high, the base still broader, edged with a narrow line of bright blue, the tentacles crimson, and just below them a series of large, blue, bead-like spherules, from which the creature derives its popular name. This typical form is represented by two figures, expanded and closed, at the top of the illustration on page 583. This and several forms are plentiful on the rocks all around us, but the very large

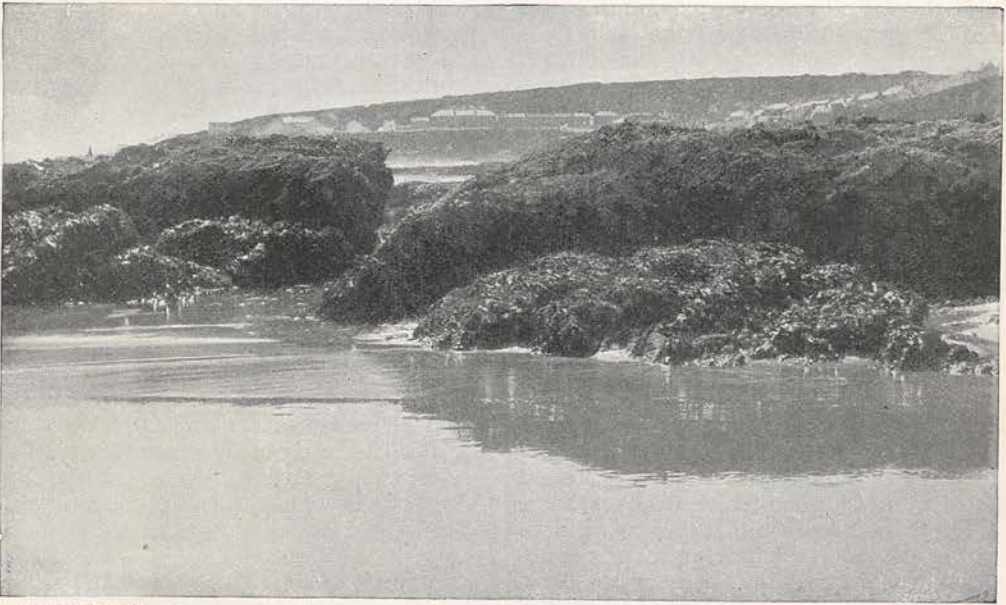
specimens in the water at the base of the high rock are the so-called strawberry variety, with green spots on a crimson ground, and the crown of tentacles expanding to a diameter of about three inches. The now historic anemone ("Granny") of Sir John Dalyell's was a Beadlet taken from the rocks at North Berwick in the year 1828. I do not remember to have heard of the venerable Granny for some years, and cannot say if she be still living; but about seventeen years ago she was well and thriving, continuing to add to her numerous progeny, and outliving her caretakers. Prof. Fleming took charge of Granny on the decease of Sir John Dalyell, and was in turn succeeded as guardian by Dr. McBain. The worthy doctor, when he felt that he was slipping away from life, was very anxious about his charge and desirous of settling the succession to this important trusteeship before his death. But at first he found difficulty and received several refusals from friends who imagined the honour or the responsibility was too great for them. At length the onerous position was accepted by Mr. Sadler, curator of the Royal Botanic Gardens, Edinburgh, in whose care Granny remained when last I heard of her. I have a hazy notion that her death was reported a few years ago, but I do not feel sure that she is not still living.

This Beadlet is, perhaps, one of the best to enable us to get some notions of actinian life. The base of the creature we find is a kind of sucker, although it possesses no special apparatus beyond its softness, mobility and stickiness; these are sufficient to ensure perfect contact with the rock surface and enable it to withstand alike the heavy swell of the sea or the battering of the biggest breakers on the littoral rocks. But, having attached itself in this manner, the Beadlet is no permanent fixture; as a matter of fact, it is a species not much given to wandering, as some are, but it has the power to glide along on its base much after the manner of a slug, and so is able to attain such position on the rocks as best suits its individual taste. The spherules around the summit are popularly set down as eyes, but so far without any authority from science. These are sometimes found almost colourless, and occasionally of a red hue; from many specimens they are absent altogether. When present, they number from eighteen to forty-eight, according to the stage of maturity reached by the Beadlet. In a fully-grown individual with forty-eight of these spherules there will be found, if you have the patience and skill

to count them, about 192 tentacles arranged in six cycles. The difficulty of counting is due to the frequent movement of these organs and the ease with which you can overlook the point from which you started. These tentacles are a most important—the most important—part of the anemone organism: they are its hands. Put a finger-tip in the midst of these, and immediately you will find that most of them have become attached to it. Draw away your finger, and you will be aware that there was something more than mere contact. If you are a particularly sensitive, thin-skinned individual you may complain of a slight sensation of pain in the finger-tips caused by the emission of a

foot, and allowed a *Dahlia* Anemone to pierce it with its stinging threads. Then he placed the shaving of callus under the microscope and examined it with a magnifying power of 600 diameters, finding the barbs of the stinging threads protruding well from one side of the shaving and the threads hanging from the other side.

Such being the penetrating power of the anemone's darts where tough callus is concerned, you may form some idea of the deadly nature of the tentacular embrace when the fry of a fish, an unwary shrimp, a juvenile crab, a sea-snail, or other small creature has the misfortune to come in their way. The barbed stinging threads arrest



From a photo by]

WHERE ANEMONES MAY BE FOUND.

[E. Step.

number of exceedingly minute stinging threads from the surface of the tentacles, and which have penetrated your skin. You may be, like myself, too thick-skinned and insensible to notice anything more than the attachment. Even in that case, I will not recommend you to repeat the experiment of Dr. Waller, who told the Royal Society, years ago, how he had allowed the Beadlet's tentacles to touch the tip of his tongue, and detached them with difficulty, and with acute pain resulting, followed by distressing local symptoms and subsequent minute ulcerations. You may, however, be inclined to follow the safer example of Mr. Gosse, who cut a thin shaving from the thick skin of his own

him, and all the tentacles bend towards him, the disk itself curves its edges over towards the mouth, and soon the captive is safely imprisoned in the anemone's gullet.

Upon that portion of the rock where we found the Plumose Anemone there are numbers of exquisite little forms a quarter of an inch across and of a transparent and vivid emerald green colour, with globular rosy heads to the conical tentacles, which number about a hundred. This living gem, which never fails to evoke enthusiastic notes of exclamation when seen for the first time, is known by the popular name of the Globe-horn, otherwise *Corynactis viridis*. This is a species that is not widely distributed; it

occurs only on our south-western shores, and there in colonies. Some forms have the column red and the tentacles green, but generally it will be noted that there is little if any variation in each colony. It has a great fondness for the vertical sides of rocks, and that side which looks landward. The removal of specimens without injury is not an easy matter, but where they are growing, as in this instance, on a rock covered with acorn shells and tube worms, *these* can be flaked off by a judicious use of the putty-knife, without disturbing the attachment of the Globehorns. Placed on a sloping rough piece of rock in the aquarium they will soon forsake the *débris* of acorn shells for the firmer rock.

Right at the base of the rock, in the angle formed by its contact with the sand, there are numbers of the large and showy Dahlia Anemone (*Urticina felina*). This great fellow, which is shown at the foot of the illustration on page 582, is much broader than its height, though it is capable on occasion of pulling itself together and assuming a spherical shape; but its ordinary open appearance is that shown in the illustration. The upper part of its broad column is studded with warts which are also suckers, and by their aid it covers itself with gravel and fragments of broken shells, so that when its tentacles are withdrawn you have an apparent heap of gravel before you. This disguise is perfect, but, nevertheless, it cannot deceive the practised anemone-hunter. Our friends marvel at our insight when we say, "There is a Dahlia, and there another," and so forth; but when one sees the gravel moving he knows there is something beneath, and the shape of the heap, the position, the particular kind of movement and other indications are sufficient for the trained eye. The Dahlia is very variable in colouration, but the typical form has the column of a greenish ground, upon which are irregular streaks and splashes of dark crimson, whilst the suckers are greyish. The tentacles are more or less pellucid—usually more when they are fully expanded—and marked with transverse bands of opaque white, purple, or crimson. They are conical, very stout at the base, and perforated at the tip, through which they often eject a jet of water. The broad disk is finely decorated, the ground colour olive green, across which there runs from each outer tentacle a pair of dark crimson lines, which pass beside the inner tentacles and run away to nothing on their road to the crimson mouth. The

Dahlia is not easily moved without injuring his base, and when that happens he readily mortifies; but sometimes he may be found upon stones not too large to allow his corner to be chipped off. It must be confessed that, in spite of his handsome appearance, the Dahlia does not make a good subject for aquarian treatment, except where there are large, roomy tanks. He is a gross feeder, and there is consequently a greater probability of fouling the water containing him. As a rule, after he has been in captivity for a few hours he will turn out the remains of his last meal, and so give you a gentle hint as to the scale upon which provision should be made for his comfort. There will probably be the shells of two or three dog-whelks, a small crab or two, a piece of seaweed coated with *Flustra*, the remains of some sea-worms and prawns, and on one occasion I noted a considerable piece of samphire, upon which the Dahlia's digestive fluid had been poured in vain. Such experiences lead me to suggest that if the Dahlia is to be admitted to the aquarium, let him first spend two or three days in quarantine in a small vessel whose water can be changed several times during his brief stay. By this plan some trouble and annoyance will be obviated.

Quite a different character from the Dahlia is the Opelet (*Anemonia sulcata*), offering, in fact, a strong contrast at nearly all points. The Dahlia settles upon a suitable pitch and stays there; the Opelet has no fixed address. He is the most restless of the whole group in an aquarium, and in the free life of the sea he is equally hard to please. When young you may find a dozen Opelets in a row, and almost in contact, filling a crack in a rock pool, unseen by the multitude because their vivid green tentacles pass for seaweeds. But when one's base has attained to about three inches across he takes the opportunity afforded by high water to float out of his pool and start upon his adventures. He accomplishes this by inflating the whole of him with water to such an extent that you may almost see through him, and he becomes as light as the water around him. This accomplished, he loosens his hold upon the rock, and floats base upwards to the surface of the sea, then slightly hollows his base boat-fashion, and allows the movement of the waters to take him to a fresh resting-place. Supposing he has been growing among bright green weeds in the pool, his tentacles will be coloured to match, with lilac tips. In all probability when he floats away he will drift against the floating blade

of one of the great oar-weeds, and will there attach himself again. His lilac-hued or flesh-tinted column is already fairly in harmony with his new surroundings; but this, as well as the tentacles, will soon become



THE GEM PIMPLET
(*Bunodes verrucosa*).

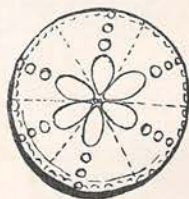
pale brown, when he will be almost indistinguishable. The Opelet's tentacles, of which a full-grown specimen has about 180 in four cycles, are very long, very slender, round and tapering to the tip, never withdrawn, but always in a state of snake-like movement. As we gaze upon it we feel sure that the inventor of the myth of Medusa's head of hair consisting of writhing snakes must have seen the Opelet. The only periods of stillness are when the ebbing tide has left the anemone stranded and looking like an objectionable mass of dead worms, and when it has eaten not wisely but too well, and has a manifest attack of indigestion. Then also the tentacles droop limp and flaccid, twisted and ragged, as though they had suffered indignities at the pincer-claws of crabs. These tentacles, in addition to their power of curling round their prey, also attach themselves by emitting stinging threads, as in the other species. A fish as large as the Opelet can accommodate with difficulty inside may be killed with scarcely a struggle by mere contact with these writhing, snake-like tentacles. The Opelet is the species which Gosse declares forms the principal ingredient in the composition of the dish called Rastegna, beloved in Provence, and of which he was able to speak approvingly from experiment. It is difficult to account

for one's gastronomic prejudices, but though a confirmed eater of toadstools myself, I have never felt drawn to making a meal of Opelets or other anemones. An admirable portrait of the Opelet occupies the centre of the illustration on page 583.

The crannies and pools at our feet are tenanted by other species of anemones, but our space is getting used up, and it is not safe to presume too much on the forbearance even of editors. I will therefore content myself with calling your attention to the remaining figures in our illustrations, of which two or three may still be reckoned among the fauna of the rocks and pools around Portcurnick where we now stand, whilst for some we must search further along the coast, and in some cases must get into deep water.

The striking anemone with the pent-house arrangement of the tentacles, in the illustration on page 583, does not occur in this district, but in the deep waters off our northern coasts. It is the Gapelet (*Stomphia churchie*) whose pellucid yellowish whiteness is boldly and strikingly streaked with rich scarlet on the column and tentacles, whilst the mouth is outlined with the same tint "like the nectary of a narcissus." The disk and tentacles assume various forms, and are as likely to occur bell-shaped as cone-shaped.

Below the Opelet, in the same group, is a pear-shaped anemone known as the Arrow Muzzlet (*Peachia hastata*), a pellucid flesh-tinted creature that bores into the sand with its hinder part, and which was discovered on the shores of Torbay by the Rev. Charles Kingsley little more than forty years ago. The tentacles are marked each with a double row of arrow heads in deep brown, and the mouth has a many-lobed supplement known as a conchula. At the foot of the drawing is a specimen of the Glaucous Pimplet (*Bunodes thallia*) which has a greyish green column regularly studded with dark warts, and olive faced grey tentacles marked with opaque white spots. It is not a widely distributed species, but there is a far more plentiful one of the same genus here at our feet at Portcurnick.



LARVA OF BUNODES
VERRUCOSA, WITH
TENTACLES WITH-
DRAWN.

This is the Gem Pimplet (*Bunodes verrucosa*) with a flesh-tinted column covered with rounded warts of various sizes and colours, but definitely ranged in vertical rows. Its tentacles are

pellucid grey, with large white spots, and the disk exhibits a star-like pattern of red, blue, and yellow on a black ground. It is found in rock pools and shallow water generally, but until pointed out is very easily overlooked, its colours and markings harmonising so well with the sandy bottom. It is a beautiful species, and one of the most easily removed without injury.

In the background of the illustration on page 582 is a figure of the Pallid Anemone (*Sagartia pallida*), a local species discovered at Dartmouth more than forty years ago, but of which little is known. Our final illustration, to which I have not yet referred at all, includes two species that may easily be confounded until they are carefully examined and compared. The larger upper figure is the badly-named Daisy Anemone (*Cereus pedunculatus*), which is abundant in all the pools hereabout, though one who is only just scraping acquaintance with the anemones may search in fifty pools before he can see one Daisy Anemone. It grows among weeds, with the tentacles all directed up to the light, so that on looking down into the pool only the tips of these are seen, and they look

so like the clustered branches of seaweeds that the anemone escapes notice. It is shaped like a graceful epergne with a footed stalk, the column gradually swelling upward into the exceedingly broad disk, which, though perfectly circular, is in large specimens so folded that it appears to have four large lobes. The general colour is a warm dark brown with a few variable light spots upon the tentacles and on the lips, whilst very fine lines of red from the base of the tentacles half cross the disk. The upper part of the column is studded with suckers,

to which gravel becomes attached, so that when the anemone withdraws its tentacles, and folds up its disk, a little heap of gravel is seen, as in the case of the Dahlia. The other species is the Cave-dweller (*Cylista undata*), of which, however, a variety is shown—not the normal form. Its general appearance, as already indicated, is superficially like the last-named, but examination will reveal a more or less distinct B in black at the foot of each tentacle. This is an exasperating species to obtain, for, though its disk is near the bottom or side of the pool,

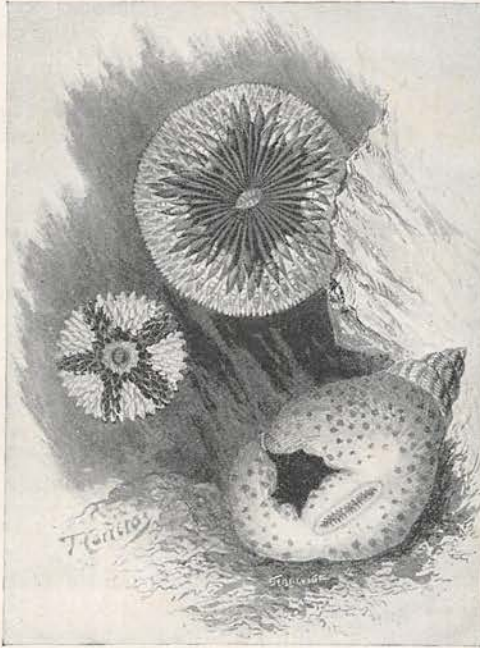
you find that the column is wedged in a narrow hole or chink, and the base attached at a depth of three or four inches. It is more easy to destroy it in getting it out of its hole than to hurt it.

Our remaining figure is of a species called the Cloaklet Anemone (*Adamsia palliata*), from its habit of wrapping its column—which is all base—around the mouth of a mollusk's discarded shell in which Prideaux's Hermit Crab has taken up its abode. There is a partnership between these two—one of several such arrangements between crabs and anemones to which I have referred in another place. This

species spreads out into two ample lobes of white, spotted with purple. The tentacles are small and white; it gradually dissolves the mineral matter in the molluscan shell and renders it soft. It only occurs in deep water.

Here, then, my sketch of the sea anemones must end, not because the material is exhausted, but the space in which it may be set before you; slight as it is, I trust there is sufficient to show that a holiday-maker endowed with eyes may spend an hour pleasantly and profitably by loafing on the rocks hunting for anemones.

DAISY ANEMONE.



CAVE-DWELLER. THE CLOAKLET ANEMONE.