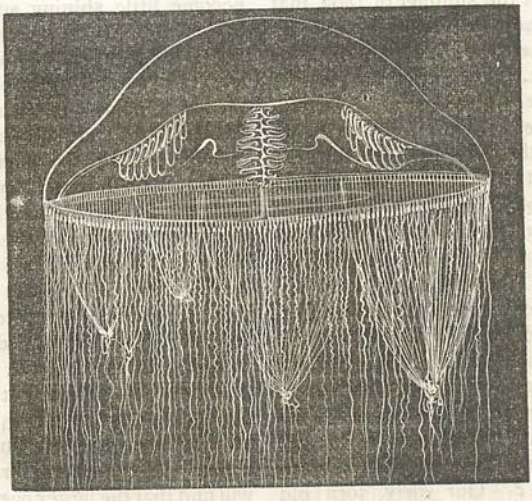
MODE OF CATCHING JELLY-FISHES.

NOT the least attractive feature in the study of these animals is the mode of catching them. We will suppose it to be a warm, still morning at Nahant, in the last week of August, with a breath of autumn in the haze, that softens the outlines of the opposite shore, and makes the horizon line a little dim. It is about eleven o'clock, for few of the Jelly-Fishes are early risers; they like the warm sun, and at an earlier hour they are not to be found very near the surface. The sea is white and glassy, with a slight swell, but no ripple, and seems almost motionless as we put off in a dory from the beach near Saunders's Ledge. We are provided with two buckets: one for the larger Jelly-Fishes, the Zygodactyla, Aurelia, etc.; the other for the smaller fry, such as the various kinds of Ctenophoræ, the Tima, Melicertum, etc. Besides these, we have two nets and glass bowls, in which to take up the more fragile creatures that cannot bear rough handling. A bump or two on the stones before we are fairly launched, a shove of the oar to keep the boat well out from the rocks along which we skirt for a moment, and now we are off. We pull around the point to our left and turn toward the ledge, filling our buckets as we go. Now we are crossing the shallows that make the channel between the inner and outer rocks of Saunders's Ledge. Look down: how clear the water is, and how lovely the sea-weeds above which we are floating! dark brown and purple fronds of the Ulvæ, and the long blades of the Laminaria with mossy green tufts between. As we issue from this narrow passage we must be on the watch, for the tide is rising, and may oome laden with treasures, as it sweeps through it. A sudden cry from the oarsman at the bow, not of rocks or breakers ahead, but of "A new Jelly-Fish astern!" The quick eye of the naturalist of the party pronounces it unknown to zoölogists, undescribed by any scientific pen. Now what excitement! "Out with the net!—we have passed him! he has gone down! no, there he is again! back us a bit." Here he is floating close by us; now he is within the circle of the net, but he is too delicate to be caught safely in that way; while one of us moves the net gently about, to keep him within the space inclosed by it, another slips the glass bowl under him, lifts it quickly, and there is a general exclamation of triumph and delight;—we have him! And now we look more closely. Yes, decidedly he is a novelty as well as a beauty (*Ptychogena lactea*, A. Ag.). Those white mossy tufts for ovaries are unlike anything we have found before, and not represented in any published figures of Jelly-Fishes. We float about here for a while, hoping to find more of the same kind, but no others make their appearance, and we keep on our way to East Point, where there is a capital fishing-ground for Medusæ of all sorts. Here two currents meet, and the Jelly-Fishes are stranded, as it were, along the line of juncture, able to move neither one way nor the other. At this spot the sea actually swarms with life: one cannot dip the net into the water without bringing up Pleurobrachia, Bolina, Idyia, Melicertum, etc., while the larger Zygodactyla and Aurelia float about the boat in numbers. These large Jelly-Fishes produce a singular effect as one sees them at some depth beneath the water; the Aureliæ, especially, with their large disks, look like pale phantoms wandering about far below the surface; but they constantly float upward, and if not too far out of reach, one may bring them up by stirring the water under them with the end of the oar.

When we have passed an hour or so floating about just beyond East Point, and have nearly filled our buckets with Jelly-Fishes of all sizes and descriptions, we turn and row homeward. The



Ptychogena lactea.

buckets look very pretty as they stand in the bottom of the boat with the sunshine lighting up their living contents. The Idyia glitters and sparkles with ever-changing hues; the Pleurobrachiæ dart about, trailing their long, graceful tentacles after them; the golden Melicerta are kept in constant motion by their quick, sudden contractions; and the delicate, transparent Tima floats among them all, not the less beautiful because so colorless. There is an unfortunate Idyia, who, by some mistake, has got into the wrong bucket, with the larger Jelly-Fish, where a Zygodactyla has entangled it among his tentacles and is quietly breakfasting upon it.

During our row the tide has been rising, and as we near the channel of Saunders's Ledge, it is running through more strongly than before, and at the entrance of the shallows a pleasant surprise is prepared for us: no less than half a dozen of our new friends, (the Ptychogena, as he has been baptized,) come to look for their lost companion perhaps, await us there, and are presently added to our spoils. We reach the shore heavily laden with the fruits of our morning's excursion.

The most interesting part of the work for the naturalist is still to come. On our return to the Laboratory, the contents of the buckets are poured into separate glass bowls and jars; holding them up against the light, we can see which are our best and rarest specimens; these we dip out in glass cups and place by themselves. If any small specimens are swimming about at the bottom of the jar, and refuse to come within our reach, there is a very simple mode of catching them. Dip a glass tube into the water, keeping the upper end closed with your finger, and sink it till the lower end is just above the animal you want to entrap; then lift your finger, and as the air rushes out the water rushes in, bringing with it the little creature you are trying to catch. When the specimens are well assorted, the microscope is taken out, and the rest of the day is spent in studying the new Jelly-Fishes, recording the results, making notes, drawings, etc.

Still more attractive than the rows by day are the night expeditions in search of Jelly-Fishes. For this object we must choose a quiet night; for they will not come to the surface if the water is troubled. Nature has her culminating hours, and she brings us now and then a day or night on which she seems to have lavished all her treasures. It was on such a rare evening,

at the close of the summer of 1862, that we rowed over the same course by Saunders's Ledge and East Point described above. The August moon was at her full, the sky was without a cloud, and we floated on a silver sea; pale streamers of the aurora quivered in the north, and notwithstanding the brilliancy of the moon, they, too, cast their faint reflection in the ocean. We rowed quietly along past the Ledge, past Castle Rock, the still surface of the water unbroken, except by the dip of the oars and the ripple of the boat, till we reached the line off East Point, where the Jelly-Fishes are always most abundant, if they are to be found at all. Now dip the net into the water. What genie under the sea has wrought this wonderful change? Our dirty, torn old net is suddenly turned to a web of gold, and as we lift it from the water, heavy rills of molten metal seem to flow down its sides and collect in a glowing mass at the bottom. The truth is, the Jelly-Fishes, so sparkling and brilliant in the sunshine, have a still lovelier light of their own at night; they give out a greenish golden light, as brilliant as that of the brightest glow-worm, and on a calm summer night, at the spawning season, when they come to the surface in swarms, if you do but dip your hand into the water, it breaks into sparkling drops beneath your touch. There are no more beautiful phosphorescent animals in the sea than the Medusæ. It would seem that the expression, "rills of molten metal," could hardly apply to anything so impalpable as a Jelly-Fish, but, although so delicate in structure, their gelatinous disks give them a weight and substance; and at night, when their transparency is not perceived, and their whole mass is aglow with phosphorescent light, they truly have an appearance of solidity which is most striking, when they are lifted out of the water and flow down the sides of the net.

The various kinds present very different aspects. Wherever the larger Aureliæ and Zygodactylæ float to the surface, they bring with them a dim spreading halo of light, the smaller Ctenophoræ become little shining spheres, while a thousand lesser creatures add their tiny lamps to the illumination of the ocean: for this so-called phosphorescence of the sea is by no means due to the Jelly-Fishes alone, but is also produced by many other animals, differing in the color as well as the intensity of their light; and it is a curious fact that they seem to take possession of the field by turns. You may row over the same course which a few nights since glowed with a greenish golden light wherever the surface of the water was disturbed, and though equally brilliant, the phosphorescence has now a pure white light. On such an evening, be quite sure, that, when you empty your buckets on your return and examine their contents, you will find that the larger part of your treasures are small crustacea (little shrimps). Of course there will be other phosphorescent creatures, Jelly-Fishes, etc., among them, but the predominant color is given by these little crustacea. On another evening the light will have a bluish tint, and then the phosphorescence is principally due to the Dysmorphosa.

Notwithstanding the beauty of a moonlight row, if you would see the phosphorescence to greatest advantage, you must choose a dark night, when the motion of your boat sets the sea on fire around you, and a long undulating wave of light rolls off from your oar as you lift it from the water. On a brilliant evening this effect is lost in a great degree, and it is not until you dip your net fairly under the moonlit surface of the sea that you are aware how full of life it is. Occasionally one is tempted out by the brilliancy of the phosphorescence, when the clouds are so thick, that water, sky, and land become one indiscriminate mass of black, and the line of rocks can be discerned only by the vivid flash of greenish golden light, when the breakers dash against them. At such times there is something wild and weird in the whole scene, which at once fascinates and appalls the imagination; one seems to be rocking above a volcano, for the surface around is intensely black, ex-

cept where fitful flashes or broad waves of light break from the water under the motion of the boat or the stroke of the oars. It was on a night like this, when the phosphorescence was unusually brilliant, and the sea as black as ink, the surf breaking heavily and girdling the rocky shore with a wall of fire, that our collector was so fortunate as to find in the rich harvest he brought home the entirely new and exceedingly pretty little floating Hydroid, described under the name of Nanomia. It was in its very infancy, a mere bubble, not yet possessed of the various appendages which eventually make up its complex structure; but it was nevertheless very important to have seen it in this early stage of its existence, since, when a few full-grown specimens were found in the autumn, which lived for some days in confinement and quietly allowed their portraits to be taken, it was easy to connect the adult animal with its younger phase of life, and thus make a complete history.

Marine phosphorescence is no new topic, and we have dwelt too long, perhaps, upon a phenomenon that every voyager has seen, and many have described; but its effect is very different, when seen from the deck of a vessel, from its appearance as one floats through its midst, distinguishing the very creatures that produce it; and any account of the Medusæ which did not include this most characteristic feature would be incomplete.

ADELAIDE ANNE PROCTER.

IN the spring of the year 1853, I observed, as conductor of the weekly journal, "Household Words," a short poem among the proffered contributions, very different, as I thought, from the shoal of verses perpetually setting through the office of such a periodical, and possessing much more merit. Its authoress was quite unknown to me. She was one Miss Mary Berwick, whom I had never heard of; and she was to be addressed by letter, if addressed at all, at a circulating-library in the western district of London. Through this channel, Miss Berwick was informed that her poem was accepted, and was invited to send another. She complied, and became a regular and frequent contributor. Many letters passed between the journal and Miss Berwick, but Miss Berwick herself was never seen.

How we came gradually to establish at the office of "Household Words" that we knew all about Miss Berwick, I have never discovered. But we settled somehow, to our complete satisfaction, that she was governess in a family; that she went to Italy in that capacity, and returned; and that she had long been in the same family. We really knew nothing whatever of her, except that she was remarkably business-like, punctual, self-reliant, and reliable; so I suppose we insensibly invented the rest. For myself, my mother was not a more real personage to me than Miss Berwick the governess became.

This went on until December, 1854, when the Christmas number, entitled "The Seven Poor Travellers," was sent to press. Happening to be going to dine that day with an old and dear friend, distinguished in literature as "Barry Cornwall," I took with me an early proof of that number, and remarked, as I laid it on the drawing-room table, that it contained a very pretty poem, written by a certain Miss Berwick. Next day brought me the disclosure that I had so spoken of the poem to the mother of its writer, in its writer's presence; that I had no such correspondent in