NOTES AND MEMORANDA.

Aphia pellucida, Day (Latrunculus pellucidus, Collett).—An adult male of this species, $2\frac{1}{4}$ inches long, was taken in the tow-net at the surface south of the Mewstone on June 12th last. When alive it was very transparent, with a few scattered black chromatophores along the back and the ventral edge.

Specialised Organs seen in Action.—As we often can only conjecture the exact function of special organs in marine animals, and opportunity seldom occurs to see them in actual operation, the following observations are perhaps worth recording.

It is well known that the decapod Cephalopoda have, in addition to eight short arms, two others which are long, provided with suckers only on the enlarged terminal portions, and usually retracted into sockets. A specimen of Sepia has for some months past been living in a healthy and vigorous condition in one of the aquarium tanks. At first it injured the posterior end of its body by knocking against the sides of the tank, but having got accustomed to confinement it ceased to do this and the abrasion began to heal up. It was found to catch and devour small crabs with eagerness. In catching this kind of prey it threw itself upon the crab with its short arms spread out, and although the tentacular arms were seen to be protruded this was done so rapidly that the movement could scarcely be followed. When a prawn was offered to the creature much more use was made of the tentacular arms. The prawn moves very slowly and deliberately until alarmed, and then darts away with great rapidity by flapping its tail. It also has the habit of retreating into crevices between the rocks when an attempt is made to catch it. The cuttle-fish accordingly stalks a prawn carefully, to avoid alarming it, becoming at the same time evidently keenly excited, its colour deepening in places and constantly changing, blushing as it were all colours at once. When it gets within a few inches of the prawn it raises its two upper arms and looks like an elephant with uplifted trunk, and then suddenly darts out its two tentacular arms together, seizes the prawn between the clubbed ends, and immediately draws it back within reach of the short arms which close over it and hold it firmly while it is devoured. The stroke of

the tentacular arms is extremely rapid and certain in aim. The prawn is seldom missed, and is frequently extracted from a hole or crevice. The cuttle, however, evidently objects to the prawn's rostrum, and always strikes at it from the side, not from the front.

The other case which has recently attracted attention in the aquarium is that of the red mullet, six of which have been living in good condition since August 28th. The mullet is provided with a pair of stiff barbels, about 1½ inches long, attached beneath the apex of the lower jaw. When the fish is swimming above the bottom these feelers are folded backwards and lie in a ventral groove between the edges of the opercula, and in this position are not visible. But the fish does not swim for long, at brief intervals it settles on the bottom, and immediately turns the barbels downwards and forwards, and rakes in the gravel of the bottom with them, keeping them in rapid motion. The barbels are so stiff and strong that they rake into the gravel with considerable force, and in this way the mullet finds worms or shrimps on which it feeds. Even when food is given to the fish on the surface of the gravel, so that there is no need to search for it, the barbels are always used to feel every morsel before the jaws seize it.—J. T. C.

Growth of Fishes in Aquarium.—In the number of this Journal published in November, 1892, particulars were given concerning some dabs and flounders reared in the aquarium. These fish were examined again in the spring of this year, with the following results. Of the dabs twenty-three were taken from the tank and examined on March 3rd, these being apparently all that survived. Fourteen were females ranging in length from 4¼ inches to 8¼ inches, and nine were males from 4⅜ inches to 7¼ inches. To give the lengths in centimetres in order to compare with the measurements of the preceding year they were:

14 females	10·7 cm. to 20·8 cm.
9 males	11·0 „ 18·3 „

With the exception of two females 7¼ and 8¼ inches long, which appeared to be ripening, no signs of spawning were seen in any of these fish, and none were afterwards found to become ripe. This evidence indicates that in the dab as in the flounder few specimens become ripe at two years of age.

The flounders in the small tank, three years old, were examined on the same date. There were only nine of them examined, those which were ripe the preceding year having been removed, and several killed in the interval. There were found—

3 females	8¾ inches to 12⅞ inches.
6 males	7⅝ „ 10½ „

Three of the males were ripe, and the other three probably became ripe later in the season. Two of the females were nearly ripe, and the smallest was killed and found to be still immature.

The flounders in the large tank mentioned in the previous paper were examined on May 13th. There were fifty altogether surviving out of sixty-five counted in the spring of 1892. Thirty-two of the fish were measured and examined; the sizes ranged from 5 inches to 11½ inches. As it was late in the season many of these fish may have finished spawning, only two females showed reproductive activity, one was ripe, and another nearly so. Owing to pressure of other work it was not possible to give more attention to these experiments, but I have thought it worth while to record the sizes and the indications as to the relation between age and breeding.—J. T. C.

Rearing of Fish-larvæ.—From the ripe flounders among the number reared in the aquarium and then three years old last spring I took a number of healthy eggs, and fertilised them. The first lot were hatched on April 20th. They were kept in one of the boxes belonging to the Dannevig apparatus, placed in one of the laboratory tanks. On the 22nd I turned the larvæ out of the box into the tank, protecting the overflow pipe by means of a bolting cloth screen, and keeping a slight but constant inflow of water into the tank. On the 24th the yolk was almost entirely absorbed, and I put in as food some of the minute suspended particles obtained by stirring up finely minced worm in a jar of sea-water. The little fish took this food readily, and could be seen deliberately pecking at the particles in the water. They lived and seemed healthy until April 28th, but then began to diminish in numbers, and on May 1st few were to be seen.

Another lot of eggs procured from the same source were hatched on April 29th, and turned into a tank arranged in the same way two days afterwards. They began to feed on May 4th, and lived well until May 9th, when the numbers began to diminish. I found the dead ones sticking to the screen which protected the outflow. On May 13th two were seen still alive, fourteen days old, and after this date none were left.—J. T. C.