

## V. THE EYE OF LEPAS.

I believe Leidy was the first who observed in an adult Cirriped an organ of vision.<sup>1</sup> In *Balanus* there are, according to him (and Darwin has confirmed the correctness of his observation), two small eyes which stand apart from each other laterally and, owing to this discovery of the American naturalist, Darwin<sup>2</sup> was led to look for them in Lepadidæ. In *Lepas fascicularis* he found an elongated almost black eye composed of two eyes united together. The eye is innervated by two nerve-cords which extend from the front of the two supracesophageal ganglia, and which before reaching the eye run into two small, perfectly distinct, oval ganglia. From the opposite ends of these two ganglia smaller nerves run, and, bending in at right angles, enter the elongated eye beyond the middle.

I do not think that any description of this organ has been published since Darwin's. I made preparations of it in *Lepas anatifera* and in *Lepas fascicularis*. The place it occupies in the first species may be seen on Plate VI. figs. 7 and 8. On removing the ligament between the two scuta as well as the muscles which are here placed between this ligament and the widened stomach, the surface of the latter with its black (hepatic?) excrescences and the white pancreatic glands appear. At a distance of about 6 mm. from the supracesophageal ganglion in an adult *Lepas anatifera*, a small oval black spot is seen attached by means of connective tissue to the surface of the stomach. This is the eye. Morphologically it represents the small pigment spot which, in the Cypris-larva (Pl. II. fig. 2, e), is attached to the upper surface of the supracesophageal ganglion, and which is the remainder of the simple eye of the Nauplius-larva. In an adult *Lepas anatifera* it measures 0.25 mm. only in length, its breadth being not quite 0.15 mm. I believe its function to be of no consequence, in *Lepas* at least, for I do not understand how a ray of light can ever reach it, but the little organ beautifully illustrates the persistence of an old larval structure.

Most curious, however, is the fact that this rudimentary organ is indeed furnished with a kind of special ganglia (Pl. VI. fig. 9). Between the two broad (antennal) peduncular nerves, four thinner ones separate from the supracesophageal ganglion. Their thickness is not quite the same; the two outer ones are slightly stronger than the other two which lie very close to one another, almost exactly midway between the two other nerves. These four nerves can be traced up to a very short distance (about 0.6 mm.) from the small eye. Here the two stronger nerves of the four bend slightly outwards so as to approach a little more nearly to the peduncular nerves and show a distinct swelling, in the interior of which two elongate ganglionic cells are to be observed. I

<sup>1</sup> Leidy, *Proc. Acad. Nat. Sci. Philad.*, No. 1, vol. iv., January 1848.

<sup>2</sup> Darwin, *Lepadidæ*, 1851, p. 49.