

magnifier, without any further preparation. In spirit specimens, somewhat greater difficulty attends the research, since the transparency of the integuments, as also that of the organ itself, is considerably diminished by the action of the alcohol.

The organs, when isolated (see Pl. XII. fig. 26), are found to consist of perfectly globular bodies, with a very complicated structure, bearing, in some particulars, great resemblance to that of the eyes in vertebrates. A rather thick and elastic cuticle forms the outer envelope of the organ, which, moreover, in fresh specimens is coated with a beautiful red pigment in its posterior half, whereas the front portion remains quite pellucid. On closer examination, these two portions are found to fit as it were into each other, without being actually connate, and on dissecting alcoholic specimens, the two hemispheres will even readily separate from each other. At the junction, a glistening ring may be seen internally, encompassing in the middle a highly refractive lenticular corpuscle. The posterior hemisphere is filled up with cellular matter, in the midst of which lies embedded a flabelliform bunch of exceedingly delicate fibres, exhibiting in fresh specimens a most beautiful iridescent lustre. To the equatorial zone of the organ, moreover, two or three thin muscles are attached, admitting, to a certain extent, of its being rolled to and fro.

The above described parts are, it is true, of such a nature as might readily lead one to assume that these organs are highly developed eyes. The lenticular corpuscle in particular presents, both as regards its structure and its position, a striking resemblance to a true eye-lens. The glistening ring too that surrounds it might easily be taken for a kind of iris. The diaphanous front of the organ likewise and the red pigment coating of the hinder part, as also the arrangement of the muscles for moving the whole organ, would seem to favour such an assumption.

Notwithstanding this great resemblance to visual organs, researches conducted with the living animal have convinced me that none of these organs are coadjutory to sight, but that they all together constitute a very complicated and peculiarly developed luminous or phosphorescent apparatus.

It has already been stated by W. Thompson that these Crustacea are highly luminous at night, and for this reason he suggested for them the generic name "*Noctiluca*." I myself have several times had opportunities of testing the accuracy of this statement as regards the Norwegian species of the family, and have convinced myself that the animal is able, by varying the movements of the organs, to increase or diminish the light at will. The chief light-producing matter I have found to be the fibrous fascicle lying in the centre of the globular corpuscle. Even if the organ be crushed, and this fascicle extracted, it still continues to give forth a comparatively strong phosphorescent light when seen in the dark. The lenticular corpuscle placed just in front of this fibrous matter may, I conceive, act as a condenser, producing a bright flash of light, the direction of which admits of being changed at the will of the animal, by simply rolling the organ by means of its muscular apparatus. The pigment-coating of the hinder portion, and