phosphorescence, clouds of light pass over the body. This may be compared to the changing of the colour in *Sepia*, where the different hues travel over the body like shadows of clouds.

e. Development.

Remarkable structures, like those represented in Pl. LXXII. fig. 35, are occasionally met with, which seem to indicate that these organs multiply by division. As the fish grows in size, and the area to be occupied by these organs extends, it appears that they multiply, and that they are not formed spontaneously in the skin of the adult fish at all. No indications of a spontaneous formation of these organs have been observed.

From which organs in the skin these phosphorescent apparatus were originally developed phylogenetically it is difficult to say. It appears most probable that they were developed from small slime-glands of the skin, such as are found in all fish. The slime of some Batrachians is luminous, and so the slime produced by the small glands in the skin of some fishes may have *by chance* become slightly phosphorescent. This may at a certain time, particularly when the fish in question took up its abode in great depths, have become advantageous to them, and with the demand for a luminous slime the glands would naturally have been modified in the course of time, so as to produce slime more and more luminous, and afterwards, the duct leading from the gland outwards may have been closed and the luminous slime retained. The slender cells forming the upper stratum of these organs are newly formed coenogenetic structures, and indicate that these organs are already very highly differentiated.

These regular, ocellar, simple phosphorescent organs without a pigment coat are of particular interest, as from them all the other forms may be supposed to have developed. There is no doubt that these organs are by far the simplest of their kind hitherto observed, and they appear to have retained the original character, which has been much changed and further modified in the cases of the other kinds of regular ocellar phosphorescent organs.

Their phylogenetic position is elucidated in the following table :—

Regular ocellar phosphorescent organs.

- Composite, with reflector.
- Composite, without reflector.
- Simple, with pigment coat.
- Simple, without pigment.
- Small slime-glands of the skin.