

with no filter. It is therefore difficult to compare the plates quantitatively, but it may at least be maintained that there must be many blue rays, though hardly any red ones, at a depth of 500 metres. Series of experiments with and without filters were also made at a depth of 100 metres; in forty minutes all the plates were over-exposed, those with a red filter only a little, those with a blue one very much, so that there are many rays of all kinds at 100 metres, though fewest of the red. When plates without colour-filters were exposed on the top and on the sides of the cube simultaneously, the plate on the top proved to be more strongly influenced than the others. This fact is not without interest, as it shows that the rays in the clear tropical waters have a distinct direction at 500 metres, not having yet become altogether diffuse; shadows should, then, be thrown even at that depth.

Regnard's
photometer.

Prince of
Monaco's
experiments.

Regnard constructed an apparatus for determining the length of the day at different depths, in which a clockwork arrangement inside a cylinder causes a photographic film to pass before an aperture. At the end of March 1889 the Prince of Monaco made some experiments with Regnard's apparatus in the harbour at Funchal, Madeira; the water was not so clear as in the open sea, so the times recorded may be rather short. At 20 metres the day lasted eleven hours; at 30 metres it began at 8.30 A.M. and ended at 1.30 P.M., the sky becoming overcast; at 40 metres, with the sun shining brightly, the film exhibited only a slight influence of light for a quarter of an hour about 2 P.M. These and a few other experiments show that the day becomes gradually shorter, and the intensity of light decreases, as the depth increases.

Fol's diving-
dress experi-
ments.

The Swiss naturalist, Hermann Fol, has several times gone down in diving dress off Nice to examine the bottom. At a depth of 10 metres the solar light disappeared quite suddenly in the afternoon a long time before sunset. At 30 metres the light was so bad that it was difficult to gather the animals on the bottom; he could see a stone only at a distance of 7 or 8 metres, whereas shining objects in favourable positions could be discerned at a distance of 25 metres. He also noticed that dark red animals (like *Muricea placornus*) looked quite black, while the green and green-blue algæ appeared lighter in colour. This is explained by the fact that the red light disappears much sooner than the blue. A coloured object will always look black when untouched by rays of its own colour. As the white sunlight contains all colours, objects display in it their proper tint,