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ANIMAL COLORATION.

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Many years ago I delivered the opening lecture in a course of scientific addresses in the University of Toronto. I chose as my subject the colors of animals, and the same theme has been dealt with by me on several subsequent occasions. Apart, however, from a short article, entitled "Spots and Stripes," in the London "*National Observer*," and a brief notice in *THE OTTAWA NATURALIST* in 1893, I have not published my views on this subject.

It is a subject of general interest; and many authorities, Poulton, Beddard, Eimer, Garstang, and others, have treated it more or less fully; but as Professor McIntosh, in the "*Annals of Natural History*" last year, pointed out, very many of the theories offered are wholly inapplicable to some of the most familiar and striking cases of animal coloration.

My own conclusion is that pelagic animals, the small colorless creatures abounding at the sea's surface, are primitive. All animal life was originally colorless and possibly transparent, like glass. The first colors appearing in animals were due to vegetable food, or to parasites, especially "plant commensals"; but by-products, resulting from digestive and other processes, also produced animal colors. Colors of a brilliant prismatic character appeared, no doubt, in jelly-fishes and other transparent animals in the seas of the early world. These rainbow tints may be due to "thin plates" as discovered by Sir Isaac Newton in the soap-bubble, and seen also in the wings of the house-fly, elytra of beetles, scales on butterflies' wings, &c., or may be produced by minutely grooved or striated surfaces, producing lustrous tints as in