facts. When applied to the animal kingdom as a whole, the theory is worthless; and even within the limits of mammals, birds, and insects—which are the classes to which Mr. Tylor mainly applies it—there are vastly more facts to negative than to support it. This may be at once made apparent by the following brief quotation from Prof. Lloyd Morgan:—

> It can hardly be maintained that the theory affords us any adequate explanation of the *specific* colour-tints of the humming-birds, or the pheasants, or the Papilionidae among butterflies. If, as Mr. Wallace argues, the immense tufts of golden plumage in the bird of paradise owe their origin to the fact that they are attached just above the point where the arteries and nerves for the supply of the pectoral muscles leave the interior of the body—and the physiological rationale is not altogether obvious,—are there no other birds in which similar arteries and nerves are found in a similar position? Why have these no similar tufts? And why, in the birds of paradise themselves, does it require four years ere these nervous and arterial influences take effect upon the plumage? Finally, one would inquire how the colour is determined and held constant in each species. The difficulty of the Tylor-Wallace view, even as a matter of origin, is especially great in those numerous cases in which the colour is determined by delicate lines, thin plates, or thin films of air or fluid. Mr. Poulton, who takes a similar line of argument in his *Colours of Animals* (p. 326), lays special stress on the production of *white* (pp. 201-202).

As regards the latter point, it may be noticed that not in any part of his writings, so far as I can find, does Mr. Wallace allude to the highly important fact of colours in animals being so largely due to these purely physical causes. Everywhere he argues as if colours were universally due to pigments; and in my opinion this unaccountable oversight is the gravest defect in Mr. Wallace's treatment both of the facts and the philosophy of colouration in the animal kingdom. For instance, as regards the particular case of sexual colouration, the oversight has prevented him from perceiving that his theory of "brilliancy" as due to "a surplus of vital energy," is not so much as logically possible in what must constitute at least one good half of the facts to which he applies it—unless he shows that there is some connection between vital energy and the development of striations, imprisonment of air-bubbles, &c. But any such connection