The Difficulties of Natural Selection

Mr. Wallace’s “Reply” has disappointed me. From his unrivalled knowledge of the forms of animal life in those countries where nature is the most luxuriant, and from the extraordinary interest with which he invests every subject that he handles, I had expected from him something more conclusive than that he should charge his opponent with errors which he has not committed, and should reply to his arguments by a simple begging of the question.

The first important error with which Mr. Wallace charges me is, that “I lead my readers to understand that there is only one completely mimicking species of Leptalis.” When I have done so, I am unable to discover. I have, it is true, added one particular and striking instance as a sample of the rest, but distinctly say that “in a comparatively small area, several distinct instances of such perfect mimicry occur;” and point out how strongly, in my view, this tells against the theory of Natural Selection. In the next paragraph, “three great oversights” are alleged. Firstly, “that each Leptalis produces not one only, but perhaps twenty or fifty offspring.” Mr. Wallace can hardly have supposed that I imagined each butterfly laid only a single egg, like the rook. The argument, however, is unaffected. In a species the numbers of which do not materially vary from year to year, it is obvious that, whatever the number of eggs laid, only one offspring from each individual, or rather two from each pair, survive to the period at which they themselves produce offspring. The second oversight is “that the right variation has, by the hypothesis, a great chance of being preserved in the individual, and the right variation is the one which natural selection may be considered a prime factor. The third oversight is “that the right variation has, by the hypothesis, a great chance of being preserved in the individual, and the right variation is the one which natural selection may be considered a prime factor.”

I much regret my “inability to grasp the theory,” I hope I have shown that I have not fallen into the error with which Mr. Wallace charges me. I have, in fact, pointed out a modification of my opponent’s premises, which he naively adds, “with these three modifications the weight of the argument is entirely destroyed!” Of course it is. The “new factor of which I take account” in the next paragraph, is again entirely dependent on the admission of the natural selectionist premises.

With regard to the distinction between man and other animals, I much regret if I have unwittingly misrepresented Mr. Wallace’s view; but if I have done so, I think it is owing to that view not having yet been clearly pronounced. Mr. Wallace distinctly states his opinion that “a superior intelligence has guided the development of man in a definite direction.” “Contributions,” p. 359.) I have Mr. Wallace’s own authority for saying that M. Claparede has misinterpreted him in referring this superior intelligence to a “Force supérieure,” a direct action of the Creator; what alternative is there left but to suppose that it was man’s own intelligence that he had in view? Whenever Mr. Wallace more clearly enunciates this portion of his theory, I think there will be no difficulty in showing that the same principle, whatever it may be, is operative in the lower creation as well as in man.

Having disposed, as I think, of Mr. Wallace’s chief points of reply, I may be permitted to point out one or two errors into which he has himself, it seems to me, fallen. The changes of mimicry are, he says, “wholly superficial, and are almost entirely confined to colour.” It was certainly desired to read this, recollecting so many instances to the contrary, not only among tropical insects, but in the close approximation in form of some of our own Diptera to certain genera of Hymenoptera; and recollecting also the numerous illustrations of protective form and habit which Mr. Wallace himself gives, not only describing them but having also drawn them with such exquisite fidelity. (See “Malayan Archipelago.”) In the Kalitna parallela of Sumatra, for instance, he says, “we thus have size, colour, form, markings, and habits, all combining together to produce a disguise which may be said to be absolutely perfect.” (“Contributions,” p. 61.) Another sentence I have noticed that it is the latter which I speak of as “being strongly developed in birds.” I had, on reading the above sentence, to turn again to my “Contributions,” to see whether I was correct in my impression that we find there the statement that “in the desert variety of a species of Heteromera, exceptions is of one uniform isabelle or sand colour;” that “the ptarmigan is a fine example of protective colouring” (“Contributions,” pp. 50, 51), and that two whole chapters are devoted to the wonderful protective instinct of birds in the matter of their nests.

On one point raised in my paper I am disposed somewhat to modify my views, and I do so with the greatest pleasure, in my objection, namely, to the title of Mr. Darwin’s great work. Taking the origin of species as distinct from the origin of mere varieties, there is undoubtedly a sense, as Mr. Wallace points out, in which natural selection may be considered a prime factor. The species, however, is a term which I have also defined as a centripetal force; the one acting by itself would produce a wild chaos, the other a barren uniformity; equilibrium can only be the result of their joint co-operation.

Whatever may be my “inability to grasp the theory,” I hope I have shown that I have not failed into the error with which Mr. Wallace charges me. If I have failed to perceive that I was speaking of a large variety of insects as a sample of the rest, I have unwittingly misrepresented Mr. Wallace’s theory, as authority is always to be deprecated in Science. I may, however, perhaps be permitted to strengthen my position by quoting from a work which I had not read at the time of writing my paper, by one who will be acknowledged to have some knowledge of the ways of Nature (Huxley’s Lay Sermons, p. 323):—

“After much consideration, and with assuredly no bias against Mr. Darwin’s views, it is our clear conviction that, as the evidence stands it is not absolutely proven that a group of animals, having all the characters exhibited by a species in Nature, has ever been originated by selection, whether artificial or natural.”

ALFRED W. BENNETT

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P.S.—Since writing the above, Mr. Jenner Weir has kindly called my attention to two passages read by him before the Entomological Society. “On the Relation between the Colour and the Edibility of Lepidoptera and their Larvae.” In one of these I find the following remarkable statement:—“Insectivorous birds, as a general rule, refuse to eat hairly larve, spiny larve, and all those whose colours are very gay, and which vary, rarely, or only accidentally coincide. On the other hand they eat with great relish all smooth-skinnee larvs of a green or dull brown colour, which are nearly always nocturnal in their habits or mimic the colour or appearance of the plant they frequent.” Here at least it would seem as if imperfect mimicry was anything but beneficial to the individual; how can the principle of natural selection account for its propagation in these instances?