

WALLACE (1872)

PARTIAL DEVELOPMENT OF EGGS WITHOUT FERTILIZATION.—Hensen has observed that the eggs of rabbits, unimpregnated and within closed cysts, developed themselves into polynucleated protoplasmatic masses and fibres. Kupffer also noticed that in Ascidia there arises in the egg before impregnation a peripheral layer of cells which, later on, after impregnation, becomes the external covering of the animal. More recently, as we learn from the "Quarterly Journal of Microscopy", Ellacher has observed the remarkable fact that even in warm blooded vertebrata the first act of embryonic development, namely, segmentation, may take place independently of impregnation.

FLORA AND FAUNA OF THE AZORES.—The most striking fact brought out by Godman's "Natural History of the Azores, or Western Islands," is the wonderful amount of similarity between the productions of these remote islands and those of Europe; from eighty to ninety per cent. of the birds, butterflies, beetles and plants being absolutely identical with common European species, while from one to four per cent. only are American. This is the more remarkable when we turn to physical maps for information and find that both the oceanic and aerial currents are from the westward, so that we should naturally expect the American element of the fauna and flora to be much better represented. The difficulty, however, is to a great extent cleared up by Mr. Godman's observation that the Azores lie in a region of storms from all points of the compass; and that every year these storms bring numbers of birds from Europe, and no doubt also numbers of insects, although these are not so easily observed. We can thus account for the enormous preponderance of European species; and this, taken in conjunction with the entire absence of indigenous Mammalia and Reptiles, causes our author to reject the theory of a common continental extension uniting these islands to Europe as the origin of their fauna and flora. Had this been so, and taking into consideration the vast time implied by the descent of a thousand miles of country to the depth of fifteen thousand feet, we should certainly have found the productions of the Azores to be far more endemic and peculiar than those of Madeira and the Canaries, instead of far less so.

The most curious and difficult problem is presented by the existence of a considerable number of wingless beetles of genera peculiar to the Atlantic islands (Azores, Madeira, Canaries). These

could not possibly, in their present condition, have been transported over the six hundred miles of ocean that now intervene between these groups. Mr. Wollaston has, however, discovered that beetles have a tendency to become apterous in these islands; many which are winged in Europe, or belong to winged genera, being altogether wingless in Madeira and the Canaries. Some of these wingless species differ in no other respect from their European allies, so that we may be sure the change has been effected in a comparatively limited time; and the fact that some European species possess both winged and wingless individuals shows that the character is an unstable one, and therefore easily abolished or retained as one or the other state becomes advantageous to the species. We are thus at liberty to suppose that these wingless Atlantic groups are the descendants of very remote winged ancestors, who were among the earliest immigrants to all these islands; and these being subjected to similar conditions, all became apterous. Another strange phenomenon is presented by the *Elastrus dolosus*, a beetle of the family Elateridæ which belongs to a genus peculiar to Madagascar. A single plant, *Myrsine Africana*, a native of tropical Africa and the Cape of Good Hope, is found in no other group but the Azores where it seems to be common. As another beetle of the same family (Elateridæ) is allied to a Brazilian species and is therefore probably the descendant of an ancestor who came over in a floating log, we are led to speculate on the possibility of this anomalous Madagascar beetle and S. African plant having been introduced by a similar process; since the currents round the southern extremity of Africa partially merge into the great equatorial current of the Atlantic which gives rise to the Gulf Stream, and this undoubtedly reaches the Azores.

Mr. Godman had previously visited the Galapagos Islands, which are only half as far from South America as the Azores are from Europe, yet they contain hardly any identical species of birds, plants or insects. This is well explained by the fact that these islands are situated in a region of calms instead of one of storms; and chance introductions being therefore a far rarer occurrence, the early immigrants have all become modified, and have so stocked the country with their peculiar and well adapted forms that new comers (if any do come) have little chance of establishing themselves.—ALFRED R. WALLACE, in the *Academy*.

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