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MIDWINTER NIGHT'S DREAM.

The snows outside are white and white ;
The gusty flue shouts through the night ;
And by the lonely chimney light,
I sit and dream of summer.

The orchard bough creaks in the blast,
That like a ghost goes shrieking past,
And coals are dying fast and fast,
But still I dream of summer.

'Tis not the voice of falling rain,
Or soft wind blown through tattered pane,
When earth will laugh in green again,
That makes me dream of summer.

But hopes will then have backward flown,
Like fleets of promise long out-blown ;
And Love once more will greet his own.
This is my dream of summer.

WILLIAM WILFRED CAMPBELL.

WALLACE AND DARWINISM.

Early in this century the doctrine was first definitely enunciated by Lamarck that the various forms of plants and animals now living on the earth are the modified descendants of an extinct flora and fauna, the remains of which are only fragmentarily preserved to us in fossiliferous strata. This is the doctrine of Evolution or Transformism. Lamarck endeavored to explain the origin of such new and modified species by suggesting that organs become altered in form according as they are used more or less frequently, in other words, that changed habits involve alteration in structure. This is the theory of Lamarckism ; it involves, as is obvions, the transmissibility to descendants of characteristics acquired during the life of the individual parent. Neither Lamarck's statement of the doctrine of Evolution, nor his explanation thereof, attracted much attention till fifty years later, when Darwin's "Origin of Species" made the notion of Evolution familiar to the whole world, and substituted for the Lamarckian explanation that which now bears his own name—Darwinism.

The completeness of Darwin's argument is one of the most characteristic features of his book ; he seems to have concluded not to publish it till he had rendered it unassailable. How long his desire to consider every aspect of the question might have prevented him from making his conclusions public, it is hard to say, but the appearance of two essays by A. R. Wallace, containing an independent statement of the same theory, at last furnished the necessary stimulus to publication.

The first of the essays referred to summarises the geographical and geological arguments for evolution ; but the second and more important of the two, contains not merely a foreshadow only of the theory of natural selection, but a definite statement of the law that a given tract of the earth's surface can only support a certain number of plants and animals ; that there ensues a struggle for existence between the numerous offspring of the parent forms ; that only those persist which are better adapted to all the conditions of life, and that their survival is due to variation often inconspicuous but always favorable.

This is the Darwinism—the theory of the selection by nature of the fittest ; it involves an inherent tendency on the part of plants and animals to vary from the parent form in ways both more and less adapted to the surrounding conditions, but the theory takes such variation simply as a matter of observation, and does not necessarily involve a discussion of the cause thereof.

Darwin himself, in the later editions of his book, gives due consideration to other processes, such as sexual selection and geographical isolation, which, besides natural selection, have had their part in giving origin to new species. Of other naturalists who have devoted their attention to the subject, some have attributed greater importance to one factor, some to another. Wagner *e. g.* has supposed geographical isolation to be the most important factor, while Haeckel and Nægcli associate with Darwinism a modified Lamarckism, and the latter authority also assumes an inherent tendency to higher organization accompanying the tendency to variation.

Weisman, on the other hand, denies the transmissibility of acquired peculiarities which is necessary to Lamarckism, and accepts natural selection as omnipotent. But there are objections to the omnipotency of natural selection as ordinarily conceived. One of the most recent, as well as vigorous of these, is Mr. Romanes, who argues from the observed sterility of species when crossed, from the inutility of many specific characters, and from the swamping effects of intercrossing on variation, that some other factor has been at work. This he conceives to be a variation affecting the reproductive apparatus such as to render some varieties of a species infertile with other (perhaps outwardly not conspicuously different) varieties, and thus to isolate them physiologically as effectually as if they were geographically isolated.

Wallace, however, does not consider Romanes' hypothesis necessary to account for the origin of new species, and an argument between these two biologists is in progress, which promises to clear the way for further research on this subject.

Should Romanes' hypothesis stand the test of such research, it is nevertheless true that the special kind of variation referred to would still only be considered subsidiary to natural selection in originating new species. This is also true with regard to structural peculiarities which anatomists regard as not capable of explanation by natural selection as ordinarily considered. The bones, for instance, in their architecture answer all the requirements of mechanics, in attaining the greatest possible strength with the least material.

Such functional adaptations could not have been arrived at through natural selection, unless we argue with Roux that the capacity of tissues to adapt themselves to their functions has, itself, been acquired as a general characteristic of organisms in the course of their competition with other organisms not similarly gifted.

In the lectures to be given in the Convocation Hall, on the evenings of next Thursday and Friday, Dr. Wallace will hardly have time to discuss all those aspects of the question as to which the students of the sciences would like to hear his opinion. But he is certain to present such a view of the theory with which his name is so closely connected, as will enable every thoughtful student to understand thoroughly its present position.

Apart from the distinction which Wallace's essays in philosophical biology have procured him, he is said to be celebrated for his public speaking. This ought to be an additional inducement to students in all departments not to lose an opportunity of hearing a man whose name will always be associated with Darwin's, as the co-discoverer of an epoch-making theory.

R. R. W.