

Tropical Nature, and other Essays. By ALFRED R. WALLACE,
Author of 'The Malay Archipelago,' &c. Macmillan
and Co.

'The luxuriance and beauty of Tropical Nature is a well-worn theme, and there is little now to say about it.' Thus the author commences his Preface; and he goes on to explain that a 'general view of the phenomena which are *essentially* tropical,' or of their causes and conditions, has not been attempted. This work is the result of 'twelve years' experience of the eastern and western tropics of the equatorial zone.' A mere glance at the Index, without turning over many of the leaves, will give some idea of the immense variety of objects, animal and vegetable, which form the contents of this interesting and important contribution to Natural History.

The author, it is well known, does not on some points accept Mr. Darwin's views on Natural Selection. In this work, while he speaks with the greatest respect of 'The Descent of Man,' he combats the opinions of that distinguished writer in regard to the brilliant colours of certain male birds and insects. He contends that colour is not merely induced and attractive, but normal; not accidental or capricious, but (with exceptions) constant; not a characteristic of tropical life, but, in plants at least, in proportion to the whole number of species more prevalent in the temperate zones than between the tropics. He gives many interesting examples of the change of colour in some kinds of chrysalis, according to that of the object to which it is affixed. The white hare, the white grouse, the striped tiger, the leaf-insects, green caterpillars, and other cases, which seem due to some law of natural protection, may thus possibly be the results of certain conditions of light which chemically affect them. It has been said that the dark stripes on the tiger exactly imitate the shadows of the reeds and grasses among which it lurks. The creatures, to use Mr. Wallace's words, 'acquire a different tint according to their surroundings.' In the chameleon, indeed, the change of colour is voluntary, and is caused by certain depressions or distensions of the skin. As a rule, 'there is no direct connection between the colours of organisms and the kind of light to which they are usually exposed.' The gor-

geously-coloured butterflies that inhabit tropical forests have no relation, he contends, to the lights which they get from green trees or blue sky. In animals, Mr. Wallace classes natural colours as protective, warning, sexual, and typical; and in plants, as attractive only, viz., of insects, for fertilizing them. The 'warning colours' are those which give timely notice to other animals not to approach, as some butterflies are seen and avoided by moth-eating creatures, which have a peculiar aversion to their taste.

The cause of some females being less brilliantly coloured than the males, Mr. Wallace attributes to the deterioration or absorption of normal colour in the female for the purpose of protection. The brighter colour of the male, he thinks, is also due to its higher vitality; just as in illness or weakness colour and complexion are found to deteriorate, and a horse or dog in high health has a more glossy coat than one in poor condition.

Mr. Wallace reprints, in Chapter vii., his Address delivered to the Biological Section of the British Association at Glasgow, in 1876. He is a strong upholder of the immense antiquity of man. 'Not only,' he says 'is the belief in man's vast and still unknown antiquity universal among men of science, but it is hardly disputed by any well-informed theologian.' Even the development of man from some lower animal form is, in Mr. Wallace's opinion, a growing conviction, and he thinks that the controversy as to the fact of such development is now almost at an end. The publication of Mr. Darwin's great works on 'The Origin of Species,' and 'The Descent of Man,' has effected in twelve years 'the greatest revolution in thought and opinion in the whole history of science and philosophy.' These words, indeed, from such an authority as Mr. Wallace, deserve our gravest attention: 'Hardly any one capable of judging of the evidence now doubts the derivative nature of man's bodily structure as a whole,' even though his mental faculties may be due to the action of some other forces.