

Transcription, January 2015:

*Examiner* (London) No. 3668 (18 May 1878): 625-627 (anon.).

[p. 625]

‘Tropical Nature and Other Essays.’

*Tropical Nature and Other Essays*. By Alfred R. Wallace. Author of the Malay Archipelago, &c. London: Macmillan and Co.

The tropical world has long ceased to be the terra incognita that it was to our forefathers. Indeed, since the time when Humboldt inaugurated a new era of descriptive narrative, and showed travellers and explorers how to delineate what they had seen, from a scientific, as well as a picturesque point of view, the scenery and products of the tropics have been so often, and so minutely described, that the reading public might be pardoned for assuming that there could be nothing left to say on so well worn a theme. Any such assumption will, however, be set at naught before the reader has mastered the opening chapter of the present work;

[p. 626]

where the author, with his usual clearness of style, discusses the nature of the phenomena which are essentially tropical in contradistinction to those which are general or accidental, and considers how far the causes and conditions of these phenomena admit of being determined. This is an important point of view from which writers have not yet treated the subject, and accordingly we find that, in following Mr. Wallace in his analysis of the climate, vegetation, and animal life of the equatorial zone, we are being carried along hitherto untrodden lines of inquiry, from which we are led to see the tropical world under wholly novel aspects.

In comparing the climate and characteristic features of the equatorial zone with those of our own temperate lands, it has been generally assumed that the exuberance of life in the tropics, the brilliant tints of flowers, birds and insects, and the local beauty of colouring over earth and sky, are due to the influence of light and heat only. This popular, and apparently incontrovertible view Mr. Wallace, by a mass of carefully tested evidence, shows to be wholly insufficient to account for the extreme diversities of tropical and temperate nature. This, for instance, after giving in a few graphic touches a picture of the stormless, unchanging summer that makes up an equatorial year, he points out that this perpetual round of heat and light cannot be due to the greater *intensity* of either; for hourly observations carried on for three years at Batavia (in 6 deg. to 7 deg. S. latitude) show that the maximum heat during that period never exceeded, and seldom reached 95 deg. Fahr., while the mean temperature of each day did not exceed 90 deg. or 91 deg. Fahr. In Java, moreover, the sun's elevation in June is not more than from 58 deg. to 60 deg., when the length of the day is about 11 ½ hours. Now London, lying in 51 deg. 30 min. N. latitude, sometimes exhibits a maximum heat of 90 deg., while in June, in England, the sun's noontide elevation is 62 deg., and the length of the day is sixteen hours. Yet, while in the tropics a European cannot be exposed for even a few minutes to a noonday sun (at only an elevation of 40 deg. or 50 deg.) without having his skin scorched or even blistered, we in London are rarely inconvenienced by a much longer period of mid-day sunning in June. It is obvious, therefore, that it is not merely the greater altitude—or heating power—of

the mid-day sun, as popularly supposed, which will explain the uniform high temperature, the extreme richness and exuberance of vegetation, and the abundance and variety of animal life in the tropics.

The causes of essentially tropical features should rather, Mr. Wallace thinks, be traced back to that early age in the history of our globe, when the equatorial zone remained undisturbed by those great cataclysms which buried for countless ages the temperate regions under ice, destroying, during those glacial periods, many of the larger and more specialized forms of animal and vegetable life which had been developed during more favourable epochs. In the temperate and frigid zones there has been a long-continued struggle against the vicissitudes and recurring severities of climate, and a consequent check to development; while, in the equatorial regions, we see a more ancient world, which has remained thronged with life, and where the laws which govern the progressive development of living forms have operated with comparatively little check, the result being an infinite variety and harmony, which we seek in vain in less favoured portions of the earth's surface. Thus it is rather to the *uniformity* and permanence with which *all* terrestrial conditions have acted than to any exceptional local manifestation of the influence of light and heat, that we must refer the phenomena of tropical nature.

In his opening chapters, in which he considers the various causes, such as heat of the soil, saturation of the atmosphere, condensation of atmospheric vapour, direction of winds, &c., which combine to maintain the uniformity of climate observable in all parts of the equatorial zone, Mr. Wallace imparts a highly practical value to his treatment of the subject by showing how largely this all-important characteristic of tropical nature is dependent upon man's agency.

With but few, and those unimportant exceptions, a great forest-band, from a thousand to fifteen hundred miles in width, girdles the earth at the equator, clothing hill, plain, and mountain with an evergreen mantle. Occasionally, a lofty peak or precipitous ridge stands out bare from the surrounding verdure, but often the woody covering is continued to a height of from eight to ten thousand feet, as in Java and in parts of the Andes. Wherever this forest-clothing has been left, perpetual summer reigns; wherever it has been ruthlessly destroyed, a complete departure from the typical equatorial climate is observable, and the seasons either exhibit violent alternations of rain and drought, or are almost rainless. Mr. Wallace believes, therefore, that we can only look for a radical cure of the present scanty and intermittent rainfall in Central India, with its fearful accompaniment of famine, to a systematic planting of all the hill tops, elevated ridges and higher slopes. A similar process would seem to be the only rational method of counteracting the aridity of a great part of equatorial Brazil, which consists of extensive tracts of sandy and bare hills. These barren heights, being perpetually heated by a tropical sun, produce ascending currents of hot air, and prevent all condensation of the aqueous vapour of the atmosphere, thus bringing about the very opposite conditions to those effected by forests, one of the most important and certain actions of which is to check evaporation from the soil, and to cause perennial springs to flow.

Setting aside these vastly important considerations, man, both civilized and savage, has the strongest possible interest in preserving forests in the tropics, since there is scarcely a material want that they are unable to supply. After reading Mr. Wallace's eloquent description of the beauty and endless variety of their products, and the uses to which they are put, we feel that the marvels seen by those cherished friends of our childhood, Robinson Crusoe and the Family Robinson, sink into insignificance; while the various adaptations of the plants around them to the uses of domestic life, which we then thought miracles of ingenuity, look contemptible when compared with the results of ordinary native industry. We need no

longer doubt that a palm tree suffices to make the wealth of a family when we learn that it supplies materials for the building of a house, including everything, from the walls to the pins and pegs that serve the purpose of iron nails and screws. It provides bed and cradle, rug and hangings, saucepan and water-carrier, strong posts and slender needles, besides oil for lighting purposes, salt, sugar, bread, vegetables, and fruit that serve for food; while the numerous preparations of its sap, which are sufficiently good imitations of beer, wine, and spirit, include one beverage more grateful than our chocolate, and another which rivals opium or tobacco in its effects. The bamboo is scarcely less protean in its uses. If it can provide the entire plant of some of the best and cheapest bridges in the world, it can equally well be made subservient to inexpensive high art; since a matting of cane strips can supply at the cost of a few shillings the most elegant of parquet-floorings or the most luxurious of spring-beds, while sixpence will suffice for the purchase of a chair that would not be out of place in a London drawing room.

The present volume consists, as the title shows, of various essays in addition to those chapters which treat of the climate and products of the tropics specially. Considered generally, the whole work bears upon one and the same subject, but there is one chapter, the fifth in the series, for which Mr. Wallace demands the particular attention of the reader, since it is here that he has enounced, with great care and minuteness, his own views in opposition to Mr. Darwin's well-known theory of colour in relation to sexual selection. As Mr. Wallace is of opinion that his theory cannot be properly understood without reading the whole of this chapter, we must content ourselves with giving a few only of the most salient points of his argument. In the first place, he attempts to show that light and heat are not the sole causes of colour, and that, in spite of the actually larger number of brightly coloured objects in the tropics, the *proportion* of coloured to obscure species is probably not larger than in more temperate zones, to whose floras we are indebted for some of the most brilliantly coloured of flowers, as rhododendrons, azaleas, camellias, calceolarias, pelargoniums, &c. He shows that changes in colour may be induced in plants by change of soil, and in animals by the substances on which they feed; caterpillars, for instance, producing pupæ the precise colour of the objects

[p. 627]

to which they had been attached; and, further, that colour may be modified among higher animals by fear, anger, or other emotion, as in the chameleon, which can change from dull white to a variety of tints. According to his view, colour may be regarded as protective, warning, sexual, and typical, in the case of animals; and as simply attractive in plants, which, needing the aid of insects for their fertilization, must make themselves perceptible from a distance. Hence the glowing tints of Alpine flowers, and the strong perfume which distinguishes so many white flowering plants. In opposition to the Darwinian theory, Mr. Wallace believes that the frequent superiority in brightness of colour of male birds or insects is due to their greater vigour and vitality, colour fading in debility and disease; and that to this greater vitality, and not to colour, which is only one of its manifestations, these favoured creatures owe their greater attractiveness.

Colour would seem in many instances to serve the purposes of warning and of repelling rather than those of alluring. Thus, there are two large families of gorgeously coloured tropical butterflies, the Danaidæ and Acræidæ, which never try to conceal themselves, yet are never touched by birds, spiders, lizards, or monkeys, all of which prey upon other butterflies. The immunity of these beauties is due to the fact that they are not fit to eat, on account of having a disgusting odour and flavour. Similarly, Mr. Belt tells us of a gaudily coloured red and blue frog, which he saw in Nicaragua that hopped about by day and

fed in broad daylight. As it is the nature of other frogs to be dull of colour, timid, and nocturnal of habit to evade their common destiny of being devoured by snakes and birds, Mr. Belt, who has strong faith in the theory of colour-warning, suspected there was something amiss with this gay, frolicsome frog, and he accordingly threw one among his ducks, all of which refused to touch it, with the exception of a young duckling, whose consequent discomfort verified the naturalist's superior knowledge. From these and innumerable other facts of a similar character, it is evident that any exceptional display of colour in the lower animals may quite as often be interpreted to mean "don't devour me!" as "come adore me!"

To Mr. Belt's practical application of the warning theory we owe the demolition of a much cherished romance of natural history. Henceforth let no poet write of the glowworm hanging forth her lamp, Hero like, to show the path her Leander should follow. She only carries a light, like a danger signal, to proclaim that she is uneatable, while her mate having wings has other ways of eluding the voracity of insectivorous nocturnal animals. In the tropics, where the latter are very numerous, the true fire flies (*Lampyridæ*) are all winged, lest, as we are told, they might be mistaken for more savoury insects in the turmoil of the winged crowd, intent upon securing a meal. In this general scramble for existence, nature sometimes comes to the rescue of the feeble by the bestowal of a happy gift of mimicry. Thus, some mock luminous flies (*Elateridæ*) have mimicked the true fire flies so well that they often escape the rapacious jaws of their enemies; and while craven cuckoos in some parts of Europe put on the colours of the hawk, in the Malays some of these deceivers resemble the Drongo-Skrike, a local bird-tyrant of great rapacity.

Before we leave Mr. Wallace's book, the scientific value of which is made doubly acceptable by the charm of the narrative, and the endless variety of the information it conveys, we ought to record that, if the author destroys some of the fictions of our youth, he rehabilitates the waning credit of several of the older marvels of natural history. Thus, we find that in the future we may have the morbid gratification of believing the worst we have ever heard of the blood-sucking propensities of the vampire bat, which we are here assured enters dwellings by night, and by the motion of its wings fans the sleeper into a deeper slumber, rendering him insensible to the wound made by its tongue or teeth, which form a minute hole from which the blood is sucked by the hovering carnivore. The author was twice bitten by one of these night-ghouls, and awoke to find his face streaming with blood, the flow of which was not easily stopped. Some persons, indeed, have such a fatal attractiveness for the vampire, that it is only by a process of mummy-like muffling up that they escape a nightly vivisuction, which may cost them their lives. The fascination of tropical nature can never cease for us northerners, but yet we must own that, while this paradise has to be shared with fellow-lodgers of the vampire order, we, who dwell in climes less favoured by the exuberant vitality of its animal forms, have still something for which to be thankful.

[\[Return\]](#)

*The Alfred Russel Wallace Page*, Charles H. Smith, 2015.