

THE MALAY ARCHIPELAGO.*

NO persons can write more charming books of travel than naturalists who unite to knowledge of their special subject great general powers of observation, and a fair share of literary skill. Mr. Darwin's voyage in the *Beagle* is a model of what such a book should be; and Mr. Wallace, whose share in supporting Mr. Darwin's theory is well known, has written an account of his journeys in the Malay Archipelago which may be fairly put beside it. One circumstance about it is sufficiently significant. Mr. Wallace's journeys were spread over eight years, and more than six years have elapsed since his return, owing to ill-health and to the difficulties of arranging his large collections, amounting to over 125,000 specimens. Now it is obvious that had Mr. Wallace followed the example of book-making travellers, and tumbled out upon us voluminous masses of undigested diary and scientific disquisition, he might have composed a work from which the boldest reader would have shrunk in undisguised dismay. On the scale which some recent travellers have adopted, he would have filled a good-sized bookshelf. As it is, he has contented himself with two volumes of moderate size, of which he modestly says that they are "far too small for the extent of the subjects" treated. Certainly, if it had been his purpose to give us a handbook to the Archipelago, or an exhaustive disquisition upon its natural products, or even a full account of all his own adventures, the space would have been ridiculously small. But all general readers may congratulate themselves on his having aimed at a different mark, and sifted away the chaff before giving us the fine grain of his observations. The result is a vivid picture of tropical life, which may be read with unflagging interest, and a sufficient account of his scientific conclusions to stimulate our appetite without wearying us by detail. In short, we may safely say that we have seldom read a more agreeable book of its kind than Mr. Wallace's account of the Malay Archipelago.

The country is one which in many ways excites and rewards the curiosity of the naturalist. Strange birds and beasts haunt its forests, and innumerable insects creep and fly and buzz and bite the enthusiastic traveller. There, for example, are butterflies the very sight of which caused Mr. Wallace tortures of delight. When he first saw the *Ornithoptera Cræsus*, his heart began to beat violently, the blood rushed to his head, "and he felt much more like fainting than he has done when in apprehension of immediate death." The excitement produced a headache for the rest of the day. Still more affecting is his

* *The Malay Archipelago*. By A. R. Wallace. 2 vols. London: Macmillan & Co. 1869.

account of his first interview with another species, the great bird-winged butterfly, *Ornithoptera Poseidon*. He speaks with rapture of its golden body, crimson breast, and the velvet black and green of its wings, seven inches across. It is one thing, he says, to see such a beauty in a cabinet, and quite another "to feel it struggling between one's fingers, and to gaze upon its fresh and living beauty, a bright gem shining out amid the silent gloom of a dark and tangled forest. The village of Dobbo held that evening at least one contented man." One half forgets that the *Ornithoptera Poseidon* would not exactly respond to this almost voluptuous expression of delight. The larger animals are perhaps more adapted to astonish the general public, and to star it in the Zoological Gardens. There is, for example, the cuscus, an animal which from its portrait seems to resemble a very large and bloated puppy fitted with a prehensile tail of portentous length. There is, on the other hand, a kangaroo whose tail is of degenerate size, the animal, like some would-be athlete, having taken to climbing trees—a calling for which one would have thought it singularly ill adapted—and having consequently fallen off in point of tail without gaining proportionately in claws. Elsewhere there is a frog of unusual liveliness, which is fitted out with enormous webs to its feet, and, on the strength of them, has taken to what it considers to be flying. There are pigs provided with tusks, which, as Mr. Wallace supposes, were once of some use to them, but, owing to the departure of their owners from that line of life in which Providence originally placed them, have grown into ridiculous spirals at the tops of their heads. Then we have the two great ornaments of animal society in these regions, though each of them is confined to a very narrow district. These are the Mias or Orang-utan, who in Mr. Wallace's pictures looks like a heartless caricature of an Irishman, with a railway rug in place of a skin, and whose legs and arms seem to have changed places; and the beautiful birds of paradise, whom Mr. Wallace alone of all Europeans has seen in their native wilds. Of the eighteen different species known he only succeeded in collecting five; but he can hardly speak without ecstasy of the marvellous beauty of these wonderful birds. The capture of the first, he says, repaid him for months of expectation and delay. "I thought," he says, "of the long ages of the past, during which the successive generations of this little creature had run their course—year by year being born, and living and dying amid these dark and gloomy woods, with no intelligent eye to gaze upon their loveliness; to all appearance such a wanton waste of beauty." And he anticipates with sadness the day when civilized man will disturb the nicely-balanced relations upon which the preservation of the species depends, and so cause "the extinction of those very beings whose wonderful structure and beauty he alone is fitted to enjoy." This alone, he argues, is enough to tell us that all living things were not made exclusively for man.

We confess to feeling a little more sympathy with our poor cousins, the Orang-utans. There is a most pathetic account of the childhood of one of Mr. Wallace's pets, whose mother fell a victim to his scientific zeal. The poor little Mias was still unable to feed itself, and though Mr. Wallace gave it rice-water from a bottle with a quill in the cork, and added sugar and cocoa-nut milk, the diet was scarcely nourishing enough for its needs. He nursed it, however, with never-failing patience. He let it play with his beard. He washed its poor little face, and though it made wry faces, it appeared to be grateful. He made it a ladder to play upon, and even rigged up an artificial mother with a buffalo skin, till it nearly choked itself with hair in trying to suck. He got a little monkey to play with it, to its considerable satisfaction, but at last the poor Mias baby was seized with diarrhoea, and after a temporary cure by means of castor oil, fell into an intermittent fever and died, regretted by all who knew it. Mr. Wallace's acquaintance with the rest of its family was unfortunately confined to qualifying them for *post-mortem* examinations. He obtained nearly twenty specimens—if specimen is not an offensive word to apply to so human a creature—the finest of which was 4 feet 2 inches in height, and 7 feet 8 inches across the extended arms. They seem to be singularly amiable and inoffensive creatures, rather awkward in personal appearance, but quarrelling only with such obnoxious monsters as crocodiles and pythons. According to native accounts, the Mias always gets the best of it on these occasions; and perhaps we may regret that so interesting a creature is likely to be extirpated as soon as the lovely birds of paradise.

In hunting down these and the many other specimens which rewarded his labours, Mr. Wallace was exposed to numerous hardships, and not a little danger. In the island of Aru, the chief home of the birds of paradise, he spent six months. For about six weeks he lived in a remote corner of the island, alone with two or three servants, and a primitive race of good-natured savages. The mosquitoes attacked his feet with peculiar appetite, and he was soon laid up with numerous inflamed ulcers upon those useful members. He was just able to crawl down to the river to bathe. The most gorgeous butterflies looked him in the face with impunity, and fluttered away from his grasp. Birds of paradise held their peculiar "dancing parties" in the trees, elevated their lovely wings, and vibrated their exquisite plumes. His servants shot some specimens for him; but some of these were devoured by the lean and hungry dogs of the natives, which would occasionally make a grab at the gorgeous plumage as soon as the operation of skinning was performed, and tear it to tatters before his eyes. Little marsupial animals, which correspond to

rats and mice, ran about all night nibbling whatever appeared to them to be eatable. Four or five species of ants were ready to attack everything that was not defended by a spot of water, and one of them had the faculty of swimming. Huge spiders lurked in boxes and baskets and in the folds of his mosquito curtains, whilst centipedes and multipedes and scorpions were omnipresent. In short, he was constantly on the defensive to protect his various collections against the depredations of all the pests that swarm in the tropics. The natives gathered every evening and held long discussions about him at the tops of their voices. They easily settled that he was a magician, as he had provided fine weather immediately upon his arrival. But the question who he was and what he was doing was more insoluble. The general opinion was, that he would bring to life again all the animals which he had killed and preserved, as soon as he had returned home. It was well known that this had been done by certain mysterious invaders who had killed and carried off some of their ancestors, who were known to be now living in the land beyond the sea. Mr. Wallace was regarded with some suspicion for not having met them, and the more so as he professed to come from a country with so absurd a name as N-Glung. "My country," said his leading examiner, "is Wanumbai—anybody can say Wanumbai, but N-Glung, who ever heard of such a name?"

The birds of paradise were doubtless an ample reward for the inconveniences of life amongst such primitive people and for the tortures of insects and ulcers. A more serious evil was the real danger of travelling amongst the treacherous currents and reefs of the Archipelago. In one voyage in a native prau his first crew ran away; he lost two more for a month on a desert island; rats ate his sails; his small boat was lost; he was constantly short of food and water, and was several times in danger of being driven out to sea without provisions, owing to the incapacity of his ship to get within less than eight points of the wind; he was thirty-eight days instead of twelve, the ordinary allowance, on his voyage home; and for seventy-eight days he had not a single one of fair wind. Similar troubles to these beset him on various occasions, and he suffered many disappointments from having to discover for himself the best centres for collection, and from frequently reaching them when droughts or bad weather made collection impossible. In spite of these varying troubles, he met on the whole with considerable success, and not the least charm of his book is the general impression which it produces that he was in thoroughly good temper throughout, and always disposed to take the pleasantest view of the men and things with which he was brought in contact.

(To be continued.)

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(Second Notice.)

THE chief interest of Mr. Wallace's book is in the light which it throws upon the theory of natural selection; and we will shortly explain the nature of his argument. Whether it is well or ill founded, it has at least the merit that it brings together certain classes of facts which would otherwise be simply inexplicable. The phenomena of the distribution of species to which he calls attention may of course be due to the fact that the animals were created where we find them; this is as much as to say that we neither know nor ever can know anything more about the matter. The attempt to explain them by means of natural selection may perhaps fail entirely; but meanwhile it gives an interest to the inquiry into what must otherwise remain a detached series of facts. It supplies a thread which, provisionally at least, binds them together for our further consideration.

The principle upon which Mr. Wallace's explanation goes is simply this. If we find that in two neighbouring islands—as, for example, in England and the Isle of Man—the existing species are identical, we may assume that they have been connected within a recent period, that is, within a few million years. If, on the other hand, they are completely distinct, no such connexion can have existed. Finally, if they resemble each other without being identical, we must suppose that the islands have been separated for so long a period as to allow of a certain modification of the species. Thus, if we knew the rate at which species diverged from a common origin, we might obtain a measure of the time which has elapsed since the geographical changes to which their separation was due. Borneo, for example, must have been parted from the mainland long enough for some of its frogs to learn the art of flying; and New Guinea must have been parted from Australia long enough to teach its kangaroos to climb trees very awkwardly. How long a kangaroo requires to fit itself for so new a station in life is of course an insoluble problem.

The Malay Archipelago furnishes all kinds of examples of this supposed process. It consists of a series of islands long enough to stretch from the West of Europe to Central Asia, three of which are as large as Great Britain, three more equal in size to Ireland, eighteen equal to Jamaica, and more than a hundred equal to the Isle of Wight, besides innumerable islets of smaller dimensions. They are divided from each other by straits and arms of the sea of widely varying breadth and depth; and we find that the natural productions are contrasted in the most remarkable way. The most remarkable breach of continuity is between the two islands of Bali and Lombok, which are divided by a strait of only fifteen miles across; yet in Bali the species are distinctly Asiatic, whilst in Lombok we get at once amongst species which are almost as distinctly Australian. A few cockatoos have managed, it seems, to cross the strait to Bali; but they are the only representatives of Australia upon that side. Bali, in short, may be regarded as the furthest outpost to the East of the great continent of Asia, whilst Lombok holds the same position with regard to Australia. Now it is remarkable that this striking division corresponds to no change either in the climate or in the physical characteristics of the country. The great volcanic chain to which the elevation of the islands is apparently due runs through both divisions. Borneo on one side of the dividing line closely resembles New Guinea on the other, in its climate, its geology, and its freedom from volcanoes. In like manner, the Moluccas resemble the Philippines in fertility, in luxuriance of forests, and in volcanic structure; and Bali is as dry and parched as Timor. Yet the groups which resemble each other in every other respect are most strikingly contrasted in their animal productions; whilst the stony desert of Australia, with its dry winds and open plains, produces animals "closely related to those inhabiting the hot, damp, luxuriant forests which everywhere clothe the plains and mountains of New Guinea." These facts, according to Mr. Wallace, are to be explained by supposing that within a recent geological period the Western islands formed part of the Asiatic continent, whilst the Eastern were more or less connected with Australia. They have gradually approached each other towards the islands of Bali and Lombok, whilst they have become separated from the mainland at each end. The varying state of geographical connexion explains the singular resemblances and contrasts between the products of the several islands. These resemblances and contrasts appear to be closely connected with another measure of time. On the principles so ably explained by Sir Charles Lyell, we may naturally infer that the depth of an ocean is a probable indication of the length of time during which depression has been taking place; and, accordingly, it is a general rule that the difference in the fauna of two islands corresponds to the depth of the intervening sea. Thus the islands which resemble Asia in their products are divided from it by a very shallow sea, whilst a comparatively deep sea separates them from the Australian group. Following out the same indication in detail, we find that the distinction between the products of islands within the Archipelago follows the same law; and thus, for example, the range of the birds of paradise is accurately marked out by the hundred-fathom line round New Guinea. Another illustration of the same principles appears when we examine more closely into the degree of resemblance. Thus, for example, in the Timor group of islands, which are on the Australian side of the

boundary, we find a mixture of species, though the proportion of Australian species increases and that of Javan species diminishes as we approach more nearly to Australia. It seems, however, that whilst three-fourths of the Javan species are identical with those existing in Java, one-fourth of the Australian species are identical and the remainder are only closely allied. To account for this, Mr. Wallace supposes that at some former period the strait which divided the Timor group from Australia was very narrow, so as to allow it to be stocked principally from the Australian side. Since that period the division from Australia has been gradually widening, whilst new islands have been rising so as to form a kind of bridge connecting the Timor group with Java. Thus the Australian species have long been divided from their kindred, and have had time to undergo considerable modification, whilst the more recently imported Javanese birds have not only diverged less from their original type, but have been constantly kept up to the mark by fresh arrivals along the chain of communication. By similar arguments Mr. Wallace endeavours to account for the curious divisions and interlacings of species by which the different regions are characterized. Each island presents a new problem, according to its distance from the various regions and the various lines of communication by which we may suppose it to have been connected with the mainland. The pig appears to be the only animal of note which manages to spread itself, to the confusion of philosophers, in spite of geography or geology. A pig, however, is a beast which is singularly well able to take care of itself; and Mr. Wallace, following Sir Charles Lyell, defends it from the unfounded imputation of being unable to swim. Mr. Wallace has himself seen them swimming across the strait which divides Singapore from the peninsula of Malacca, and appears to have unlimited faith in their capacities. Putting aside pigs, Mr. Wallace can generally find a solution for each successive problem, which, if we grant the hypothesis of variation, seems to be plausible and satisfactory as far as it goes.

There are various subsidiary lines of argument which he adduces in favour of the same conclusions. One curious question, for example, concerns the heavy fleshy Nicobar pigeon. This bird is found chiefly on small islands, because it feeds on the ground, and is therefore liable to the attacks of the carnivorous quadrupeds which only inhabit the larger islands. Singularly enough, however, this bird has wings of enormous strength, which is very unusual amongst ground-feeders, and which would, as a rule, be useless to it. The advantage seems to be, that it would occasionally be blown out to sea, and would have to depend on its powers of flight. Now the precisely opposite modification in case of the *apteryx* and other wingless birds has been produced, as it is alleged, by the same causes. Living in an island, they have found flying a dangerous habit. The explanation suggested is the same as that by which Mr. Darwin accounts for the existence in Madeira of two classes of beetles, some wingless, and others with wings of unusual strength. A little flying, it is suggested, is a dangerous thing. You must either stay steadily at home, or be able to take remarkably good care of yourself abroad, and thus obtain the advantage due, on the one hand, to inglorious repose, or, on the other, to special activity. Thus, if London garotters flourished to excess, the population would be ultimately divided into invalids who never left their houses, and athletes who could run 100 yards in ten seconds. A more remarkable set of cases are those of what is called "mimicry," or protective resemblance. Mr. Wallace has already explained, in a remarkable article in the *Westminster Review*, the curious devices by which certain butterflies imitate, not only plants, but other butterflies. They adopt the untradesmanlike practice of passing themselves off as the same concern. Birds, it seems, consider certain butterflies to be nasty to the taste, and other butterflies, which we may presume to be nice, succeed in imitating the nasty ones with marvellous closeness. He mentions a curious case of the same principle in birds, where a feeble-minded and weak-clawed oriole succeeds in exactly mimicking, so far as its appearance at a small distance is concerned, the bold and vigorous honey-sucker, and thus obtains a currency not due to its intrinsic merits, as foreigners imitate the trademarks on Sheffield steel. The most singular of these instances is that of the *Papilio Memnon*. The females of this butterfly are of two distinct forms, one of which resembles the male, whilst the other is a close imitation of a different species. The curious fact is that both forms of the female are the offspring of each form. The case is the same, says Mr. Wallace, as if an Englishman had two wives, an Indian and a negress, and as if the boys were all to resemble their father, whilst the girls should resemble, not only their own mother, but the other wife of their father.

Without following Mr. Wallace's researches into natural history any further, we have said enough to show that his book touches upon many subjects of great interest, and is well worth the attention, not only of men of science, but of general readers. We need only add that the interest of the book is by no means confined to these subjects. There is much that is worth attention in his account of the human inhabitants. He can look upon savages without partaking the ordinary English opinion that they are nuisances to be swept as summarily as may be off the face of the earth. Indeed, his opinion will seem to most people unduly favourable to the savage as compared with the European. "We have progressed vastly beyond the savage state," he says, "in intellectual achievements, but we have not advanced equally in morals." If the best savage is very inferior to the best amongst civilized populations, he is far superior to the worst. We

support a mass of crime and misery absolutely, if not relatively, greater than has ever existed before; we maintain a multitude whose lot is the harder to bear because it is contrasted with the pleasures and comforts of those whom they see everywhere around them, and who are so far worse off than the savage in the midst of his tribe. We cannot enter upon the very wide discussion to which this would lead us; but more practical conclusions may be drawn from his report as to the benefits resulting from Dutch rule. He admits that the Dutch system is despotic and protective, but says that it has, on the whole, been of incalculable benefit to the native population. The ordinary result of civilized intrusion, as exemplified by English and American experience, is to spread drunkenness and demoralization, leading to ultimate extirpation. In the Dutch colonies the people have become industrious, peaceable, and civilized. They are better clothed, housed, fed, and educated than the surrounding tribes, and have made a distinct progress towards a higher social state. Many of them have been converted to Christianity, though it seems that some people consider this a doubtful benefit, and declare that the converts are thievish, lying, drunken, and lazy, as compared with the Mahomedans; but Mr. Wallace says that his experience is different. It is indeed easy to suppose that the worst class of natives may become nominal Christians from selfish and hypocritical motives. However this may be, Mr. Wallace says enough to convince us that much may be learnt from Dutch experience, and that there is still room for any one possessed of the necessary experience to write a very interesting book on the Archipelago, even if he knows nothing of beetles or birds of paradise. Meanwhile we are obliged to Mr. Wallace for what he has told us, and can only hope that his very interesting book may be as popular as it deserves to be.