

THE MALAYAN ARCHIPELAGO.¹

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IN this work Mr. Wallace gives us a most interesting account of his long residence in the Eastern Archipelago. Here it was that he independently conceived the idea of natural selection, or the survival of the fittest, which has given so profound an impulse to the study of biology, and has explained so many difficulties; here he also carefully studied the habits and geographical distribution of the native fauna, and made large collections, which have supplied him and others with materials for many important memoirs.

He visited Sumatra, Java, Bali, Lombok, Timor, Borneo, Celebes, Gilolo, New Guinea, and many of the smaller islands. The Dutch and their colonial system pleased him very much; of the Portuguese he speaks less favourably; but after all he produces on the mind of the reader an impression that some of the islands where the native civilization has been least affected by European influence enjoy the highest amount of prosperity. There is not, indeed, now any native ruler who, like the Sultan of Achin in 1615, could collect a fleet of 500 vessels, and an army of 60,000 men; still in some of the Malayan islands the state of agriculture is remarkably advanced, and the people marvellously numerous and well off. In Bali, for instance, the whole surface of the country is divided into small patches, so arranged as to permit an admirable system of irrigation, and all in the highest state of cultivation. We talk of England being overpopulated, though we have only 280 people to a square mile, whereas Bali is said to have a population of 700,000, or 480 to a square mile.

Still, though Mr. Wallace's work

gives us much interesting information on the character and social condition of the natives, and some personal adventures by no means deficient in interest, the value of it mainly depends on the numerous zoological facts which it contains, especially with reference to the geographical distribution and habits of the various remarkable animals which inhabit this area,—the orang-utan, the babirusa, the curious ox-antelope of Celebes, the beautiful and mysterious Birds of Paradise, and the rich insect fauna.

The Malayan Archipelago occupies a triangular area, the apex of which, formed by the Philippine Islands, points northwards; the centre is occupied by Borneo on the west, Celebes in the middle, and the Moluccas on the east; the southern boundary consists of a chain of islands, pointing to and almost joining the Malayan peninsula on the west, and terminating on the east between New Guinea and Australia. This chain of islands begins with Sumatra, which is followed successively by Java, Bali, Lombok, Sumbawa, Flores, and Timor.

The whole Archipelago has on the map a peculiar appearance. Java and Sumatra look very much as if they had been budded off from the Malayan peninsula, which itself seems on the eve of separation from the mainland; and, in fact, from this similarity, Sumatra was at one time known as Lesser Java, although in reality much the larger of the two; Borneo looks much like the box that Celebes came in; while Gilolo so exactly repeats on a small scale the very curious shape of its neighbour, that it looks for all the world like a young Celebes; and, lastly, New Guinea has a curious resemblance to a bird.

From the great number of small islands which are scattered between these larger ones, and from the alterations

¹ "The Malay Archipelago: the Land of the Orang-Utan, and the Bird of Paradise. A Narrative of Travel, with Studies of Man and Nature." By Alfred Russel Wallace.

of level which are known to have taken place, we should, *a priori*, have expected that the fauna of the whole Archipelago to possess one uniform character; or even if Borneo and Celebes had presented peculiarities, we should have expected to find one uniform list of species in the long chain of islands which stretches from Sumatra to New Guinea.

It was, however, previously known that Borneo and Celebes differed extremely in their zoology, and Mr. Wallace has now shown that the line separating the faunas of these two islands is continued southwards, and passes between Bali and Lombok. There is perhaps no single fact in geographical distribution more remarkable than the contrast between these two islands, the distance between which is only fifteen miles.

Yet there is nothing either in the soil or the climate to account for such a difference; the volcanic area extends throughout the chain of islands, and exercises no apparent effect upon their productions. It is true that Timor is dry and arid, but so is the east end of Java; the Philippines and the Moluccas closely resemble one another in their volcanic soil and consequent fertility, in their luxuriant forests and numerous earthquakes; while Borneo and New Guinea agree in the absence of volcanoes, in their climate, and in the general aspect of their vegetation; "yet between these corresponding groups of islands, constructed as it were after the same pattern, subjected to the same climate, and bathed by the same oceans, there exists the greatest possible contrast when we compare their animal productions." On the other hand, there cannot be a greater physical contrast than that between the hot, damp forests of New Guinea and the dry, stony deserts of Australia, which however, from a zoological point of view, are so closely connected together.

Sumatra contains the Indian elephant, the tapir, and a rhinoceros, belonging to species which are also found in Asia; Borneo has the same elephant and tapir; the Javan rhinoceros is of a different species, but one that also

occurs in Asia; and the smaller mammalia are generally the same in these three islands, and belong to species which also occur on the mainland. On the whole, "the three great islands of Java, Sumatra, and Borneo resemble in their natural productions the adjacent parts of the continent, almost as much as such widely separated districts could be expected to do even if they still formed a part of Asia."

The large species of mammalia, however, never can have crossed the sea; and if we bear in mind that these islands are connected with Asia by a submarine platform which rarely exceeds forty fathoms in depth, while an elevation of 100 fathoms would convert the whole into land as far as the Philippines in the north and Bali to the east, there can be little doubt that these islands have been connected with Asia by dry land within the lifetime of existing species.

On the other hand, the eastern portion of the Archipelago, including Celebes and Lombok, is almost as closely connected, zoologically, with Australia and New Guinea as the western portion is with Asia. Every one knows that Australia differs far more from all the four great continents than they do from one another. "It possesses none of those familiar types of quadruped which are met with in every other part of the world. Instead of these, it has marsupials only, kangaroos and opossums, wombats and the duck-billed platypus. In birds it is almost as peculiar. It has no woodpeckers and no pheasants, families which exist in every other part of the world; but instead of them it has the mound-making brush-turkeys, the honey-suckers, the cockatoos and the brush-tongued lorries, which are found nowhere else upon the globe. All these striking peculiarities are found also in those islands which form the Austro-Malayan division of the Archipelago. The great contrast between the two divisions of the Archipelago is nowhere so abruptly exhibited as in passing from the island of Bali to that of Lombok, where the two regions

are in closest proximity. In Bali we have barbets, fruit-thrushes, and woodpeckers; on passing over to Lombock, these are seen no more, but we have abundance of cockatoos, honey-suckers, and brush-turkeys, which are equally unknown in Bali, or any island further west. The strait is here fifteen miles wide, so that we may pass in two hours from one great division of the earth to another, differing as essentially in their animal life as Europe does from America. If we travel from Java or Borneo to Celebes or the Moluccas, the difference is still more striking. In the first, the forests abound in monkeys of many kinds, wild cats, deer, civets, and otters, and numerous varieties of squirrels are constantly met with. In the latter, none of these occur; but the prehensile-tailed cuscus is almost the only terrestrial mammal seen, except wild pigs, which are found in all the islands, and deer (which have probably been recently introduced) in Celebes and the Moluccas. The birds which are most abundant in the Western Islands are woodpeckers, barbets, trogons, fruit-thrushes, and leaf-thrushes; they are seen daily, and form the great ornithological features of the country. In the Eastern Islands these are absolutely unknown, honey-suckers and small lorries being the most common birds; so that the naturalist feels himself in a new world, and can hardly realize that he has passed from the one region to the other in a few days, without ever being out of sight of land."

Thus, then, the eastern and western portions of the Eastern Archipelago are tenanted by essentially different faunas, that of the west being Asiatic, that of the east, on the contrary, being evidently derived from New Guinea and Australia. Thus we find that fifteen miles of deep sea causes a greater difference than one hundred miles of shallow water. Why is this? Not certainly because the one is more difficult to cross than the other—both are alike practically impassable to land mammalia; but the

difference is that deep sea is generally old sea; while shallow sea, on the contrary, is often of recent origin.

The human inhabitants of the Malayan Archipelago also fall into two great and well-marked divisions—the Malay, or yellow, and the Papuan, or black race. The line of division, however, runs eastward of that which divides the other mammalia, which is natural enough, because man can cross straits which are impassable to other mammalia, and the Malays have long been encroaching on the Papuans. The Malays are unquestionably of Asiatic origin, like the mammals with which they are associated. Mr. Wallace connects the Papuans with the Polynesians, an opinion in which he is not, I think, likely to be followed by many ethnologists.

Putting on one side the Polynesians, who do not come strictly within the scope of the present article, it is my belief that, as the Malaysians came from Asia, so the Papuans are connected, though somewhat more remotely, with Africa; while the Australians have probably occupied their present area much longer than either of the two other races. The size, the colour, the hair of the Papuan all remind one of Africa, and the moral characteristics point in the same direction: "He is impulsive and demonstrative in speech and action. His emotions and passions express themselves in shouts and laughter, in yells and frantic leapings."

Nor must this resemblance be looked on as an isolated or exceptional fact. The Orang-utan of Borneo and Java is clearly related to the anthropoid apes of Africa; *Anoa depressicornis*, the curious ox-antelope of Celebes, finds its nearest allies in Africa, and the same is the case with the babirusa or pig-deer. The character of the Madagascar fauna also points, as is well known, to an ancient connexion with India.

On the whole, then, we have in the Malayan Archipelago and Australia three principal races of men. First, the Australian; secondly, the Papuan race, which belongs to the same great human

family as the negro ; and thirdly, the Malayan, which is of Asiatic character, and is gradually encroaching on the Papuan, as the Papuans perhaps did long ago on the still lower Australians.

Many of the islands are very poor in mammalia. Thus Timor, though three hundred miles long and sixty wide, contains only seven species of land mammalia : the common monkey ; the *Paradoxurus fasciatus*, a civet cat ; *Felis megalotis*, a tiger cat, said to be peculiar to the island ; a deer, *Cervus timoriensis* ; a wild pig, *Sus timoriensis* ; a shrew-mouse, *Sorex tenuis* ; and lastly an opossum, *Cuscus orientalis* : even of these seven one or two may have been introduced by man. Such facts as these can only be explained in one way ; namely, that the island has never formed part of Australia on the one hand, nor been connected by continuous land with Java and Sumatra on the other. The case of Celebes is very similar—that island, though nearly twice as large as Java, containing only fourteen terrestrial mammalia, no less than eleven of which occur nowhere else.

As illustrating Mr. Wallace's powers of observation, I may take his account of those curious cases in which a species is represented, not by a male and a female, but by a male and two very distinct females. Thus, in a beautiful Sumatra butterfly, *Papilio memnon*, there are two very dissimilar females, so unlike indeed that they were at one time supposed to form distinct species. The one kind resembles the male both in form and colour. In the second the hind wings are produced into long tails, no rudiment of which ever occurs either in the male or in the first kind of female. These tailed females thus come closely to resemble the *Papilio coön*, thus affording a case of mimicry resembling those so well described by Mr. Bates. Nor can it be said that the resemblance is accidental, since in India, where *P. coön* is represented by *P. doubledayi*, with red spots instead of yellow, and *P. memnon* by *P. androgeus*, the latter species has tailed females with red spots, thus again mimicking *P. doubledayi*.

P. coön belongs to a section of the genus which is not attacked by birds, and no doubt many a female of *P. memnon* has owed its safety to being mistaken for the other species. It is very remarkable that females of each form can produce both.

Mr. Wallace appears to have generally left the pursuit of large game to his assistants, and wisely occupied himself by collecting the smaller but not less interesting species. It must not be supposed, however, that he is deficient in hunting enthusiasm. Far from it : he enjoyed his entomological hunts with a keen zest ; and though those who can only appreciate sport in connexion with large game may smile at his enthusiasm, many an English entomologist would gladly have shared the penalty to have joined in the capture of the butterfly which has been since named *Ornithoptera cræsus*. Mr. Wallace first got a glimpse of this beautiful species in the forest at Batchian ; in two months he only saw one other specimen, till, he says, " One day, about the beginning of " January, I found a beautiful shrub, " with large white leafy bracts and " yellow flowers, a species of Mus- " sœnda, and saw one of these noble " insects hovering over it, but it was " too quick for me and flew away. " The next day I went again to the " same shrub and succeeded in catching " a female, and the day after a fine " male. I found it to be as I had ex- " pected, a perfectly new and most mag- " nificent species, and one of the most " gorgeously coloured butterflies in the " world. Fine specimens of the male " are more than seven inches across the " wings, which are velvety black and " fiery orange, the latter colour replac- " ing the green of the allied species. " The beauty and brilliancy of this in- " sect are indescribable, and none but a " naturalist can understand the intense " excitement I experienced when I at " length captured it. On taking it out " of my net and opening the glorious " wings, my heart began to beat vio- " lently, the blood rushed to my head, " and I felt much more like fainting

"than I have done when in apprehension of immediate death. I had a headache the rest of the day, so great was my excitement, produced by what will appear to most people a very inadequate cause."

But although the Malayan Archipelago produces many beautiful species, Mr. Wallace maintains that it is quite a mistake to suppose that the animals and plants of the tropics are more brilliantly coloured than those of temperate regions. The idea has naturally arisen from the collection of beautiful flowers in our hothouses,—gorgeous insects and splendid birds in our museums,—but such assemblages do not naturally occur in the tropics, nor are there any such masses of brilliant colouring as are produced in our country by cowslips and primroses, buttercups and clover, bluebells and poppies, heath and furze.

In the regions of the equator, on the contrary, he says, "whether it be forest or savannah, a sombre green clothes universal nature. You may journey for hours, and even for days, and meet with nothing to break the monotony. Flowers are everywhere rare, and anything at all striking is only to be met with at very distant intervals."

The flowers of the sea are, in fact, more brilliant than those of the land. In the harbour of Amboyna the clearness of the water, he says, "afforded me one of the most astonishing and beautiful sights I have ever beheld. The bottom was absolutely hidden by a continuous series of corals, sponges, actinæ, and other marine productions, of magnificent dimensions, varied forms, and brilliant colours. The depth varied from about twenty to fifty feet, and the bottom was very uneven, rocks and chasms, and little hills and valleys, offering a variety of stations for the growth of these animal forests. In and out among them moved numbers of blue and red and yellow fishes, spotted and banded and striped in the most striking manner; while great orange or rosy transparent medusæ floated along near the surface. It was a sight to gaze at for hours,

and no description can do justice to its surpassing beauty and interest. For once, the reality exceeded the most glowing accounts I had ever read of the wonders of a coral sea."

He was also much struck with the beauty of the natives in the Aru Islands, though the women, except in extreme youth, are by no means so pleasant to look at as the men. Their strongly marked features are very unfeminine, and hard work, privations, and very early marriages soon destroy whatever of beauty or grace they may for a short time possess."

Mr. Wallace seems to have been specially pleased with Celebes. At Máros, near Macassar, M. Mesman built for him "a nice little house, consisting of a good-sized enclosed verandah, or open room, and a small inner sleeping-room, with a little cook-house outside. The forest which surrounded me was open, and free from underwood, consisting of large trees, widely scattered. The ground was as thickly covered with dry leaves as it is in an English wood in November, the little rocky streams were all dry, and scarcely a drop of water, or even a damp place, was anywhere to be seen. About fifty yards below my house, at the foot of the hill, was a deep hole in a watercourse, where good water was to be had, and where I went daily to bathe, by having a bucket of water taken out, and pouring it over my body. In fact," he continues, "I have rarely enjoyed myself more than during my residence here. As I sat taking my coffee at six in the morning, rare birds would often be seen on some tree close by, when I would hastily sally out in my slippers, and perhaps secure a prize I had been seeking after for weeks. A few minutes' search on the fallen trees around my house at sunrise and sunset would often produce me more beetles than I would meet with in a day's collecting, and odd moments could be made valuable, which, when living in villages, or at a distance from the forest, are inevitably wasted. Where the sugar-palms were dripping

“with sap, flies congregated in immense numbers, and it was by spending half an hour at these when I had the time to spare that I obtained the finest and most remarkable collection of this group of insects that I have ever made.”

To a naturalist such a life must indeed have been full of enjoyment. Yet it was not without serious drawbacks. Mr. Wallace, however, keeps these very much in the background. He writes in the spirit of old Hearne, who, when robbed by Indians of almost everything he had, simply remarked that, his load being thereby so much “lightened, this part of his journey was the easiest and most pleasant of any he had experienced since leaving the fort.” In the same spirit, Mr. Wallace makes light of his difficulties and sufferings. Even when he alludes to them, it is merely to express his regret at the loss of valuable time; as, for instance, at Dorey, where he was laid up for some weeks by an internal inflammation of the foot, following a severe ulcer: he only remarks, however, that he was “tantalised by seeing grand butterflies flying past my door, and thinking of the twenty or thirty new species of insects that I ought to be getting every day.”

As a matter of course, he refers to the abundance of troublesome insects; great spiders lurking in boxes, or hiding in the folds of his mosquito curtains; centipedes and millepedes everywhere, to say nothing of flies, scorpions, and especially ants, which crawled continually over his hands and face, got into his bed and among his hair, and roamed at will all over his body, especially in New Guinea, where he believes that during his whole residence of three months and a half he was never a moment without ants among his clothes.

Mr. Wallace seems to have got on with the natives as well as with the insects. Being alone, he had no incautious companions to get him into trouble, and his experience in South America no doubt stood him in good stead. Still it is remarkable that in all his wanderings he never had any

serious dispute with the natives, even though he was for some time the only European in New Guinea, among a peculiarly ferocious people. His preference for manly to female beauty, as already mentioned, may have had something to do with it. Probably, also, his peculiar occupations and property caused him to be regarded as a semi-supernatural being. “I have no doubt,” he says, “that to the next generation, or even before, I myself shall be transformed into a magician or a demigod, a worker of miracles, and a being of supernatural knowledge. They already believe that all the animals I preserve will come to life again; and to their children it will be related that they actually did so.” Many superstitious myths in various parts of the world have doubtless arisen in this manner.

In the Aru Islands he was certainly regarded as a magician: “‘You must know,’ say they; ‘you know everything; you make the fine weather for your men to shoot; and you know all about our birds and our animals as well as we do; and you go alone into the forest and are not afraid.’”

It would be very unfair, however, both to Mr. Wallace and to the natives, thus to explain away a circumstance so creditable to both. One little trait, for instance, well deserves mention: at Waigiou, as elsewhere, Mr. Wallace was in the habit of paying for birds of paradise in advance; some took goods for one bird, some for two, and so on; when Mr. Wallace was quitting Waigiou one poor fellow who had not been able to get a single bird brought the axe he had received in advance; another who had agreed for six had only brought five. He was absent, and Mr. Wallace could wait no longer, so the boat was prepared, and he was just on the point of starting, when the honest native ran down to the shore in triumph, produced his last bird, and said, with great satisfaction, “Now I owe you nothing.”

Some writers still maintain that there is no race of men without religion; Mr. Wallace, however, adds his testimony to that of most travellers, whether sailors

or philosophers, merchants or missionaries, that this is a mistake: he lived some time at Wanumbai, and saw no signs of any religion. Still he liked the people, and enjoyed his visit to them very much. He even adds, "that among people in a very low stage of civilization we find some approach to such a perfect social state. I have lived with communities of savages in South America and in the East who have no laws or law courts but the public opinion of the village freely expressed. Each man scrupulously respects the rights of his fellow, and any infractions of those rights rarely or never take place. In such a community all are nearly equal. All incitements to great crimes are wanting, and petty ones are repressed, partly by the influence of public opinion, but chiefly by that natural sense of justice and of his neighbour's rights, which seems to be, in some degree, inherent in every race of man. Now, although we have progressed vastly beyond the savage state in intellectual achievements, we have not advanced equally in morals. It is true that among those classes who have no wants that cannot be easily supplied, and among whom public opinion has great influence, the rights of others are fully respected. It is true, also, that we have vastly extended the sphere of those rights, and include within them all the brotherhood of man. But it is not too much to say, that the mass of our populations have not at all advanced beyond the savage code of morals, and have in many cases sunk below it.

"During the last century, and especially in the last thirty years, our intellectual and material advancement has been too quickly achieved for us to reap the full benefit of it. Our mastery over the forces of nature has led to a rapid growth of population and a vast accumulation of wealth;

"but these have brought with them such an amount of poverty and crime, and have fostered the growth of so much sordid feeling and so many fierce passions, that it may well be questioned whether the mental and moral status of our population has not, on the average, been lowered, and whether the evil has not overbalanced the good. Compared with our wondrous progress in physical science and its practical applications, our system of government, of administering justice, of national education, and our whole social and moral organization, remains in a state of barbarism. And if we continue to devote our chief energies to the utilizing of our knowledge of the laws of nature with the view of still further extending our commerce and our wealth, the evils which necessarily accompany these, when too eagerly pursued, may increase to such gigantic dimensions as to be beyond our power to alleviate."

In this passage Mr. Wallace gives a description of the savage very different from that of almost all previous observers. The picture he draws of our own condition is surely somewhat too dark. That our present social state is eminently unsatisfactory cannot be denied, but that we have sunk below the savage code of morality seems to me incredible. Nor can I altogether accept Mr. Wallace's remedy. Our error has been, I think, not that we have accepted the material advantages, and eagerly profited by the miracles, of science; but that in our system of education we ignore, and even oppose its teachings, like the foolish multitude of old, who freely partook of the loaves and fishes, but would not listen to the lessons which accompanied them. The question, however, is too large for discussion here; and I will only say, in conclusion, that Mr. Wallace's work will, I think, justly rank among the best books of travels ever published.