



Celebes, 1856

ALFRED RUSSEL WALLACE
Borneo, Celebes, Aru



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The Malay Archipelago by Alfred Russel Wallace (1823–1913) is one of the great works of nineteenth-century literature: a discursive, mesmerizing, beautifully descriptive, occasionally offensive work of art by a great biologist and writer. Having worked with Walter Henry Bates in the Amazon (and lost all his collections in a catastrophic fire at sea), Wallace spent 1854 to 1862 wandering across the East Indies (now Malaysia and Indonesia) from Sumatra in the west to New Guinea in the east, earning his living as a bird-skin collector. It was while he was in the Aru Islands, off the coast of New Guinea, that (quite independently of Darwin) Wallace realized the true ‘origin of species’.

It has proved nightmarishly hard to extract sections from *The Malay Archipelago* as each island on which Wallace lived has its own remarkable atmosphere. This selection begins with his account of the ‘Wallace Line’, which he was the first to identify (his analysis predates any conception of the role of continental drift). This is followed by his famous and horrifying description of his orang-utan hunting expeditions and then by incidents in the Sarawak interior, Celebes (now Sulawesi) and the Aru Islands.

The Theory of the 'Wallace Line'

[...]

It is now generally admitted that the present distribution of living things on the surface of the earth is mainly the result of the last series of changes that it has undergone. Geology teaches us that the surface of the land, and the distribution of land and water, is everywhere slowly changing. It further teaches us that the forms of life which inhabit that surface have, during every period of which we possess any record, been also slowly changing.

It is not now necessary to say anything about how either of those changes took place; as to that, opinions may differ; but as to the fact that the changes themselves have occurred, from the earliest geological ages down to the present day, and are still going on, there is no difference of opinion. Every successive stratum of sedimentary rock, sand, or gravel, is a proof that changes of level have taken place; and the different species of animals and plants, whose remains are found in these deposits, prove that corresponding changes did occur in the organic world. Taking, therefore, these two series of changes for granted, most of the present peculiarities and anomalies in the distribution of species may be directly traced to them. In our own islands, with a very few trifling exceptions, every quadruped, bird, reptile, insect, and plant, is found also on the adjacent continent. In the small islands of Sardinia and Corsica, there are some quadrupeds and insects, and many plants, quite peculiar. In Ceylon, more closely connected to India than Britain is to Europe, many animals and plants are different from those found in India, and peculiar to the island. In the Galapagos Islands, almost every indigenous living thing is peculiar to them, though closely resembling other kinds found in the nearest parts of the American continent.

Most naturalists now admit that these facts can only be explained by the greater or less lapse of time since the islands were upraised from beneath the ocean, or were separated from the nearest land; and this will be generally (though not always) indicated by the depth of the intervening sea. The enormous thickness of many marine deposits through wide areas shows that subsidence has often continued (with intermitting periods of repose) during epochs of immense duration. The depth of sea produced by such subsidence will therefore generally be a measure of time; and in like manner, the change which organic forms have undergone is a measure of time. When we make proper allowance for the continued introduction of new animals and plants from surrounding countries by those natural means of dispersal which have been so well explained by Sir Charles Lyell and Mr Darwin, it is remarkable how closely these two measures correspond. Britain is separated from the continent by a very shallow sea, and only in a very few cases have our animals or plants begun to show a difference from the corresponding

continental species. Corsica and Sardinia, divided from Italy by a much deeper sea, present a much greater difference in their organic forms. Cuba, separated from Yucatan by a wider and deeper strait, differs more markedly, so that most of its productions are of distinct and peculiar species; while Madagascar, divided from Africa by a deep channel three hundred miles wide, possesses so many peculiar features as to indicate separation at a very remote antiquity, or even to render it doubtful whether the two countries have ever been absolutely united.

Returning now to the Malay Archipelago, we find that all the wide expanse of sea which divides Java, Sumatra, and Borneo from each other, and from Malacca and Siam, is so shallow that ships can anchor in any part of it, since it rarely exceeds forty fathoms in depth; and if we go as far as the line of a hundred fathoms, we shall include the Philippine Islands and Bali, east of Java. If, therefore, these islands have been separated from each other and the continent by subsidence of the intervening tracts of land, we should conclude that the separation has been comparatively recent, since the depth to which the land has subsided is so small. It is also to be remarked that the great chain of active volcanoes in Sumatra and Java furnishes us with a sufficient cause for such subsidence, since the enormous masses of matter they have thrown out would take away the foundations of the surrounding district; and this may be the true explanation of the often-noticed fact that volcanoes and volcanic chains are always near the sea. The subsidence they produce around them will, in time, make a sea, if one does not already exist.

But, it is when we examine the zoology of these countries that we find what we most require – evidence of a very striking character that these great islands must have once formed a part of the continent, and could only have been separated at a very recent geological epoch. The elephant and tapir of Sumatra and Borneo, the rhinoceros of Sumatra and the allied species of Java, the wild cattle of Borneo and the kind long supposed to be peculiar to Java, are now all known to inhabit some part or other of Southern Asia. None of these large animals could possibly have passed over the arms of the sea which now separate these countries, and their presence plainly indicates that a land communication must have existed since the origin of the species. Among the smaller mammals, a considerable portion are common to each island and the continent; but the vast physical changes that must have occurred during the breaking up and subsidence of such extensive regions have led to the extinction of some in one or more of the islands, and in some cases there seems also to have been time for a change of species to have taken place. Birds and insects illustrate the same view, for every family and almost every genus of these groups found in any of the islands occurs also on the Asiatic continent, and in a great number of cases the species are exactly identical. Birds offer us one of the best means of determining the law of distribution; for though at first sight it would appear that the watery boundaries which keep out the land quadrupeds could be easily passed over by birds, yet practically it is not so; for if we leave out the aquatic tribes which are pre-eminently

wanderers, it is found that the others (and especially the Passeres, or true perching-birds, which form the vast majority) are generally as strictly limited by straits and arms of the sea as are quadrupeds themselves. As an instance, among the islands of which I am now speaking, it is a remarkable fact that Java possesses numerous birds which never pass over to Sumatra, though they are separated by a strait only fifteen miles wide, and with islands in mid-channel. Java, in fact, possesses more birds and insects peculiar to itself than either Sumatra or Borneo, and this would indicate that it was earliest separated from the continent; next in organic individuality is Borneo, while Sumatra is so nearly identical in all its animal forms with the peninsula of Malacca, that we may safely conclude it to have been the most recently dismembered island.

The general result therefore, at which we arrive, is that the 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; and this close resemblance, joined with the fact of the wide extent of sea which separates them being so uniformly and remarkably shallow, and lastly, the existence of the extensive range of volcanoes in Sumatra and Java, which have poured out vast quantities of subterranean matter and have built up extensive plateaux and lofty mountain ranges, thus furnishing a vera causa for a parallel line of subsidence – all lead irresistibly to the conclusion that at a very recent geological epoch, the continent of Asia extended far beyond its present limits in a south-easterly direction, including the islands of Java, Sumatra, and Borneo, and probably reaching as far as the present 100-fathom line of soundings.

The Philippine Islands agree in many respects with Asia and the other islands, but present some anomalies, which seem to indicate that they were separated at an earlier period, and have since been subject to many revolutions in their physical geography.

Turning our attention now to the remaining portion of the Archipelago, we shall find that all the islands from Celebes and Lombok eastward exhibit almost as close a resemblance to Australia and New Guinea as the Western Islands do to Asia. It is well known that the natural productions of Australia differ from those of Asia more than those of any of the four ancient quarters of the world differ from each other. Australia, in fact, stands alone: it possesses no apes or monkeys, no cats or tigers, wolves, bears, or hyenas; no deer or antelopes, sheep or oxen; no elephant, horse, squirrel, or rabbit; none, in short, 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 duckbilled 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 honeysuckers, 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 on 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 Lombok these are seen no more, but we have abundance of cockatoos, honeysuckers, and brush-turkeys, which are equally unknown in Bali, or any island further west. [I was informed, however, that there were a few cockatoos at one spot on the west of Bali, showing that the intermingling of the productions of these islands is now going on.] 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, honeysuckers 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.

The inference that we must draw from these facts is, undoubtedly, that the whole of the islands eastwards beyond Java and Borneo do essentially form a part of a former Australian or Pacific continent, although some of them may never have been actually joined to it. This continent must have been broken up not only before the Western Islands were separated from Asia, but probably before the extreme southeastern portion of Asia was raised above the waters of the ocean; for a great part of the land of Borneo and Java is known to be geologically of quite recent formation, while the very great difference of species, and in many cases of genera also, between the productions of the Eastern Malay Islands and Australia, as well as the great depth of the sea now separating them, all point to a comparatively long period of isolation.

It is interesting to observe among the islands themselves how a shallow sea always intimates a recent land connection. The Aru Islands, Mysol, and Waigiou, as well as Jobie, agree with New Guinea in their species of mammalia and birds much more closely than they do with the Moluccas, and we find that they are all united to New Guinea by a shallow sea. In fact, the 100-fathom line round New Guinea marks out accurately the range of the true Paradise birds.

It is further to be noted – and this is a very interesting point in connection with theories of the dependence of special forms of life on external conditions – that this division of the Archipelago into two regions characterized by a striking diversity in their natural productions does not in any way correspond to the main physical or climatal divisions of the surface. The great volcanic chain runs through both parts, and appears to produce no effect in assimilating their productions. Borneo closely resembles New Guinea not only in its vast size and its freedom from volcanoes, but in its variety of geological structure, its uniformity of climate, and the general aspect of the forest vegetation that clothes its surface. The Moluccas are the counterpart of the Philippines in their volcanic structure, their extreme fertility, their luxuriant forests, and their frequent earthquakes; and Bali with the east end of Java has a climate almost as dry and a soil almost as arid as that of Timor. 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. Nowhere does the ancient doctrine – that differences or similarities in the various forms of life that inhabit different countries are due to corresponding physical differences or similarities in the countries themselves – meet with so direct and palpable a contradiction. Borneo and New Guinea, as alike physically as two distinct countries can be, are zoologically wide as the poles asunder; while Australia, with its dry winds, its open plains, its stony deserts, and its temperate climate, yet produces birds and quadrupeds which are closely related to those inhabiting the hot damp luxuriant forests, which everywhere clothe the plains and mountains of New Guinea.

[...]

One of the chief objects of my travels was to obtain evidence of this nature; and my search after such evidence has been rewarded by great success, so that I have been able to trace out with some probability the past changes which one of the most interesting parts of the earth has undergone. It may be thought that the facts and generalizations here given would have been more appropriately placed at the end rather than at the beginning of a narrative of the travels which supplied the facts. In some cases this might be so, but I have found it impossible to give such an account as I desire of the natural history of the numerous islands and groups of islands in the Archipelago, without constant reference to these generalizations which add so much to their interest. Having given this general sketch of the subject, I shall be able to show how the same principles can be applied to the individual islands of a group, as to the whole Archipelago; and thereby make my account of the many new and curious animals which inhabit them both, more interesting and more instructive than if treated as mere isolated facts.

[...]

Borneo: Orangutan Hunting

[...]

One of my chief objects in coming to stay at Simunjon was to see the Orangutan (or great man-like ape of Borneo) in his native haunts, to study his habits, and obtain good specimens of the different varieties and species of both sexes, and of the adult and young animals. In all these objects I succeeded beyond my expectations, and will now give some account of my experience in hunting the Orangutan, or 'Mias,' as it is called by the natives; and as this name is short, and easily pronounced, I shall generally use it in preference to *Simia satyrus*, or Orangutan.

Just a week after my arrival at the mines, I first saw a Mias. I was out collecting insects, not more than a quarter of a mile from the house, when I heard a rustling in a tree near, and, looking up, saw a large red-haired animal moving slowly along, hanging from the branches by its arms. It passed on from tree to tree until it was lost in the jungle, which was so swampy that I could not follow it. This mode of progression was, however, very unusual, and is more characteristic of the *Hylobates* than of the *Orang*. I suppose there was some individual peculiarity in this animal, or the nature of the trees just in this place rendered it the most easy mode of progression.

About a fortnight afterwards I heard that one was feeding in a tree in the swamp just below the house, and, taking my gun, was fortunate enough to find it in the same place. As soon as I approached, it tried to conceal itself among the foliage; but, I got a shot at it, and the second barrel caused it to fall down almost dead, the two balls having entered the body. This was a male, about half-grown, being scarcely three feet high. On April 26th, I was out shooting with two Dyaks, when we found another about the same size. It fell at the first shot, but did not seem much hurt, and immediately climbed up the nearest tree, when I fired, and it again fell, with a broken arm and a wound in the body. The two Dyaks now ran up to it, and each seized hold of a hand, telling me to cut a pole, and they would secure it. But although one arm was broken and it was only a half-grown animal, it was too strong for these young savages, drawing them up towards its mouth notwithstanding all their efforts, so that they were again obliged to leave go, or they would have been seriously bitten. It now began climbing up the tree again; and, to avoid trouble, I shot it through the heart.

On May 2nd, I again found one on a very high tree, when I had only a small 80-bore gun with me. However, I fired at it, and on seeing me it began howling in a strange voice like a cough, and seemed in a great rage, breaking off branches with its hands and throwing them down, and then soon made off over the tree-tops. I did not care to follow it, as it was swampy, and in parts dangerous, and I might easily have lost myself in the eagerness of pursuit.

On the 12th of May I found another, which behaved in a very similar manner, howling and hooting with rage, and throwing down branches. I shot at it five times, and it remained dead on the top of the tree, supported in a fork in such a manner that it would evidently not fall. I therefore returned home, and luckily found some Dyaks, who came back with me, and climbed up the tree for the animal. This was the first full-grown specimen I had obtained; but it was a female, and not nearly so large or remarkable as the full-grown males. It was, however, 3 ft. 6 in. high, and its arms stretched out to a width of 6 ft. 6 in. I preserved the skin of this specimen in a cask of arrack, and prepared a perfect skeleton, which was afterwards purchased for the Derby Museum.

Only four days afterwards some Dyaks saw another Mias near the same place, and came to tell me. We found it to be a rather large one, very high up on a tall tree. At the second shot it fell rolling over, but almost immediately got up again and began to climb. At a third shot it fell dead. This was also a full-grown female, and while preparing to carry it home, we found a young one face downwards in the bog. This little creature was only about a foot long, and had evidently been hanging to its mother when she first fell. Luckily it did not appear to have been wounded, and after we had cleaned the mud out of its mouth it began to cry out, and seemed quite strong and active. While carrying it home it got its hands in my beard, and grasped so tightly that I had great difficulty in getting free, for the fingers are habitually bent inwards at the last joint so as to form complete hooks. At this time it had not a single tooth, but a few days afterwards it cut its two lower front teeth. Unfortunately, I had no milk to give it, as neither Malays, Chinese nor Dyaks ever use the article, and I in vain inquired for any female animal that could suckle my little infant. I was therefore obliged to give it rice-water from a bottle with a quill in the cork, which after a few trials it learned to suck very well. This was very meagre diet, and the little creature did not thrive well on it, although I added sugar and cocoa-nut milk occasionally, to make it more nourishing. When I put my finger in its mouth it sucked with great vigour, drawing in its cheeks with all its might in the vain effort to extract some milk, and only after persevering a long time would it give up in disgust, and set up a scream very like that of a baby in similar circumstances.

When handled or nursed, it was very quiet and contented, but when laid down by itself would invariably cry; and for the first few nights was very restless and noisy. I fitted up a little box for a cradle, with a soft mat for it to lie upon, which was changed and washed everyday; and I soon found it necessary to wash the little Mias as well. After I had done so a few times, it came to like the operation, and as soon as it was dirty would begin crying and not leave off until I took it out and carried it to the spout, when it immediately became quiet, although it would wince a little at the first rush of the cold water and make ridiculously wry faces while the stream was running over its head. It enjoyed the wiping and rubbing dry amazingly, and when I brushed its hair seemed to be perfectly happy, lying quite still with its arms

and legs stretched out while I thoroughly brushed the long hair of its back and arms. For the first few days it clung desperately with all four hands to whatever it could lay hold of, and I had to be careful to keep my beard out of its way, as its fingers clutched hold of hair more tenaciously than anything else, and it was impossible to free myself without assistance. When restless, it would struggle about with its hands up in the air trying to find something to take hold of, and, when it had got a bit of stick or rag in two or three of its hands, seemed quite happy. For want of something else, it would often seize its own feet, and after a time it would constantly cross its arms and grasp with each hand the long hair that grew just below the opposite shoulder. The great tenacity of its grasp soon diminished, and I was obliged to invent some means to give it exercise and strengthen its limbs. For this purpose I made a short ladder of three or four rounds, on which I put it to hang for a quarter of an hour at a time. At first it seemed much pleased, but it could not get all four hands in a comfortable position, and, after changing about several times, would leave hold of one hand after the other, and drop onto the floor. Sometimes when hanging only by two hands, it would loose one, and cross it to the opposite shoulder, grasping its own hair; and, as this seemed much more agreeable than the stick, it would then loose the other and tumble down, when it would cross both and lie on its back quite contentedly, never seeming to be hurt by its numerous tumbles. Finding it so fond of hair, I endeavoured to make an artificial mother, by wrapping up a piece of buffalo-skin into a bundle, and suspending it about a foot from the floor. At first this seemed to suit it admirably, as it could sprawl its legs about and always find some hair, which it grasped with the greatest tenacity. I was now in hopes that I had made the little orphan quite happy; and so it seemed for some time, until it began to remember its lost parent, and try to suck. It would pull itself up close to the skin, and try about everywhere for a likely place; but, as it only succeeded in getting mouthfuls of hair and wool, it would be greatly disgusted, and scream violently, and, after two or three attempts, let go altogether. One day it got some wool into its throat, and I thought it would have choked, but after much gasping it recovered, and I was obliged to take the imitation mother to pieces again, and give up this last attempt to exercise the little creature.

After the first week I found I could feed it better with a spoon, and give it a little more varied and more solid food. Well-soaked biscuit mixed with a little egg and sugar, and sometimes sweet potatoes, were readily eaten; and it was a never-failing amusement to observe the curious changes of countenance by which it would express its approval or dislike of what was given to it. The poor little thing would lick its lips, draw in its cheeks, and turn up its eyes with an expression of the most supreme satisfaction when it had a mouthful particularly to its taste. On the other hand, when its food was not sufficiently sweet or palatable, it would turn the mouthful about with its tongue for a moment as if trying to extract what flavour there was, and then push it all out between its lips. If the same food was continued, it would set up a scream and

kick about violently, exactly like a baby in a passion.

After I had had the little Mias about three weeks, I fortunately obtained a young hare-lip monkey (*Macacus cynomolgus*), which, though small, was very active, and could feed itself. I placed it in the same box with the Mias, and they immediately became excellent friends, neither exhibiting the least fear of the other. The little monkey would sit upon the other's stomach, or even on its face, without the least regard to its feelings. While I was feeding the Mias, the monkey would sit by, picking up all that was spilt, and occasionally putting out its hands to intercept the spoon; and as soon as I had finished would pick off what was left sticking to the Mias' lips, and then pull open its mouth and see if any still remained inside; afterwards lying down on the poor creature's stomach as on a comfortable cushion. The little helpless Mias would submit to all these insults with the most exemplary patience, only too glad to have something warm near it, which it could clasp affectionately in its arms. It sometimes, however, had its revenge; for when the monkey wanted to go away, the Mias would hold on as long as it could by the loose skin of its back or head, or by its tail, and it was only after many vigorous jumps that the monkey could make his escape.

It was curious to observe the different actions of these two animals, which could not have differed much in age. The Mias, like a very young baby, lying on its back quite helpless, rolling lazily from side to side, stretching out all four hands into the air, wishing to grasp something, but hardly able to guide its fingers to any definite object; and when dissatisfied, opening wide its almost toothless mouth, and expressing its wants by a most infantine scream. The little monkey, on the other hand, in constant motion, running and jumping about wherever it pleased, examining everything around it, seizing hold of the smallest object with the greatest precision, balancing itself on the edge of the box or running up a post, and helping itself to anything eatable that came in its way. There could hardly be a greater contrast, and the baby Mias looked more baby-like by the comparison.

When I had had it about a month, it began to exhibit some signs of learning to run alone. When laid upon the floor it would push itself along by its legs, or roll itself over, and thus make an unwieldy progression. When lying in the box it would lift itself up to the edge into almost an erect position, and once or twice succeeded in tumbling out. When left dirty, or hungry, or otherwise neglected, it would scream violently until attended to, varied by a kind of coughing or pumping noise very similar to that which is made by the adult animal. If no one was in the house, or its cries were not attended to, it would be quiet after a little while, but the moment it heard a footstep would begin again harder than ever.

After five weeks it cut its two upper front teeth, but in all this time it had not grown the least bit, remaining both in size and weight the same as when I first procured it. This was no doubt owing to the want of milk or other equally nourishing food. Rice-water, rice, and biscuits were but a poor substitute, and the expressed milk of the cocoa-nut which I sometimes gave it

did not quite agree with its stomach. To this I imputed an attack of diarrhoea from which the poor little creature suffered greatly, but a small dose of castor-oil operated well, and cured it. A week or two afterwards it was again taken ill, and this time more seriously. The symptoms were exactly those of intermittent fever, accompanied by watery swellings on the feet and head. It lost all appetite for its food, and, after lingering for a week a most pitiable object, died, after being in my possession nearly three months. I much regretted the loss of my little pet, which I had at one time looked forward to bringing up to years of maturity, and taking home to England. For several months it had afforded me daily amusement by its curious ways and the inimitably ludicrous expression of its little countenance. Its weight was three pounds nine ounces, its height fourteen inches, and the spread of its arms twenty-three inches. I preserved its skin and skeleton, and in doing so found that when it fell from the tree it must have broken an arm and a leg, which had, however, united so rapidly that I had only noticed the hard swellings on the limbs where the irregular junction of the bones had taken place.

Exactly a week after I had caught this interesting little animal, I succeeded in shooting a full-grown male Orangutan. I had just come home from an entomologising excursion when Charles [Charles Allen, an English lad of sixteen, accompanied me as an assistant] rushed in out of breath with running and excitement, and exclaimed, interrupted by gasps, 'Get the gun, sir, – be quick, – such a large Mias!' 'Where is it?' I asked, taking hold of my gun as I spoke, which happened luckily to have one barrel loaded with ball. 'Close by, sir – on the path to the mines – he can't get away.' Two Dyaks chanced to be in the house at the time, so I called them to accompany me, and started off, telling Charley to bring all the ammunition after me as soon as possible. The path from our clearing to the mines led along the side of the hill a little way up its slope, and parallel with it at the foot a wide opening had been made for a road, in which several Chinamen were working, so that the animal could not escape into the swampy forest below without descending to cross the road or ascending to get round the clearings. We walked cautiously along, not making the least noise, and listening attentively for any sound which might betray the presence of the Mias, stopping at intervals to gaze upwards. Charley soon joined us at the place where he had seen the creature, and having taken the ammunition and put a bullet in the other barrel, we dispersed a little, feeling sure that it must be somewhere near, as it had probably descended the hill, and would not be likely to return again.

After a short time I heard a very slight rustling sound overhead, but on gazing up could see nothing. I moved about in every direction to get a full view into every part of the tree under which I had been standing, when I again heard the same noise but louder, and saw the leaves shaking as if caused by the motion of some heavy animal which moved off to an adjoining tree. I immediately shouted for all of them to come up and try and get a view, so as to allow me to have a shot. This was not an easy matter, as the Mias had a knack of selecting places with dense foliage beneath. Very soon, however,

one of the Dyaks called me and pointed upwards, and on looking I saw a great red hairy body and a huge black face gazing down from a great height, as if wanting to know what was making such a disturbance below. I instantly fired, and he made off at once, so that I could not then tell whether I had hit him.

He now moved very rapidly and very noiselessly for so large an animal, so I told the Dyaks to follow and keep him in sight while I loaded. The jungle was here full of large angular fragments of rock from the mountain above, and thick with hanging and twisted creepers. Running, climbing, and creeping among these, we came up with the creature on the top of a high tree near the road, where the Chinamen had discovered him, and were shouting their astonishment with open mouths: 'Ya Ya, Tuan; Orangutan, Tuan.' Seeing that he could not pass here without descending, he turned up again towards the hill, and I got two shots, and following quickly, had two more by the time he had again reached the path, but he was always more or less concealed by foliage, and protected by the large branch on which he was walking. Once while loading I had a splendid view of him, moving along a large limb of a tree in a semi-erect posture, and showing it to be an animal of the largest size. At the path he got on to one of the loftiest trees in the forest, and we could see one leg hanging down useless, having been broken by a ball. He now fixed himself in a fork, where he was hidden by thick foliage, and seemed disinclined to move. I was afraid he would remain and die in this position, and as it was nearly evening. I could not have got the tree cut down that day. I therefore fired again, and he then moved off, and going up the hill was obliged to get on to some lower trees, on the branches of one of which he fixed himself in such a position that he could not fall, and lay all in a heap as if dead, or dying.

I now wanted the Dyaks to go up and cut off the branch he was resting on, but they were afraid, saying he was not dead, and would come and attack them. We then shook the adjoining tree, pulled the hanging creepers, and did all we could to disturb him, but without effect, so I thought it best to send for two Chinamen with axes to cut down the tree. While the messenger was gone, however, one of the Dyaks took courage and climbed towards him, but the Mias did not wait for him to get near, moving off to another tree, where he got on to a dense mass of branches and creepers which almost completely hid him from our view. The tree was luckily a small one, so when the axes came we soon had it cut through; but it was so held up by jungle ropes and climbers to adjoining trees that it only fell into a sloping position. The Mias did not move, and I began to fear that after all we should not get him, as it was near evening, and half a dozen more trees would have to be cut down before the one he was on would fall. As a last resource we all began pulling at the creepers, which shook the tree very much, and, after a few minutes, when we had almost given up all hope, down he came with a crash and a thud like the fall of a giant. And he was a giant, his head and body being fully as large as a man's. He was of the kind called by the Dyaks 'Mias Chappan,' or 'Mias Pappan,' which has the skin of the face broadened out to a ridge or fold at

each side. His outstretched arms measured seven feet three inches across, and his height, measuring fairly from the top of the head to the heel was four feet two inches. The body just below the arms was three feet two inches round, and was quite as long as a man's, the legs being exceedingly short in proportion. On examination we found he had been dreadfully wounded. Both legs were broken, one hip-joint and the root of the spine completely shattered, and two bullets were found flattened in his neck and jaws. Yet he was still alive when he fell. The two Chinamen carried him home tied to a pole, and I was occupied with Charley the whole of the next day preparing the skin and boiling the bones to make a perfect skeleton, which are now preserved in the Museum at Derby.

About ten days after this, on June 4th, some Dyaks came to tell us that the day before a Mias had nearly killed one of their companions. A few miles down the river there is a Dyak house, and the inhabitants saw a large Orang feeding on the young shoots of a palm by the riverside. On being alarmed he retreated towards the jungle which was close by, and a number of the men, armed with spears and choppers, ran out to intercept him. The man who was in front tried to run his spear through the animal's body, but the Mias seized it in his hands, and in an instant got hold of the man's arm, which he seized in his mouth, making his teeth meet in the flesh above the elbow, which he tore and lacerated in a dreadful manner. Had not the others been close behind, the man would have been more seriously injured, if not killed, as he was quite powerless; but they soon destroyed the creature with their spears and choppers. The man remained ill for a long time, and never fully recovered the use of his arm.

They told me the dead Mias was still lying where it had been killed, so I offered them a reward to bring it up to our landing-place immediately, which they promised to do. They did not come, however, until the next day, and then decomposition had commenced, and great patches of the hair came off, so that it was useless to skin it. This I regretted much, as it was a very fine full-grown male. I cut off the head and took it home to clean, while I got my men to make a closed fence about five feet high around the rest of the body, which would soon be devoured by maggots, small lizards, and ants, leaving me the skeleton. There was a great gash in his face, which had cut deep into the bone, but the skull was a very fine one, and the teeth were remarkably large and perfect.

On June 18th I had another great success, and obtained a fine adult male. A Chinaman told me he had seen him feeding by the side of the path to the river, and I found him at the same place as the first individual I had shot. He was feeding on an oval green fruit having a fine red arillus, like the mace which surrounds the nutmeg, and which alone he seemed to eat, biting off the thick outer rind and dropping it in a continual shower. I had found the same fruit in the stomach of some others which I had killed. Two shots caused this animal to loose his hold, but he hung for a considerable time by one hand, and then fell flat on his face and was half buried in the swamp. For several

minutes he lay groaning and panting, while we stood close around, expecting every breath to be his last. Suddenly, however, by a violent effort he raised himself up, causing us all to step back a yard or two, when, standing nearly erect, he caught hold of a small tree, and began to ascend it. Another shot through the back caused him to fall down dead. A flattened bullet was found in his tongue, having entered the lower part of the abdomen and completely traversed the body, fracturing the first cervical vertebra. Yet it was after this fearful wound that he had risen, and begun climbing with considerable facility. This also was a full-grown male of almost exactly the same dimensions as the other two I had measured.

On June 21st I shot another adult female, which was eating fruit in a low tree, and was the only one which I ever killed by a single ball.

On June 24th I was called by a Chinaman to shoot a Mias, which, he said, was on a tree close by his house, at the coal-mines. Arriving at the place, we had some difficulty in finding the animal, as he had gone off into the jungle, which was very rocky and difficult to traverse. At last we found him up a very high tree, and could see that he was a male of the largest size. As soon as I had fired, he moved higher up the tree, and while he was doing so I fired again; and we then saw that one arm was broken. He had now reached the very highest part of an immense tree, and immediately began breaking off boughs all around, and laying them across and across to make a nest. It was very interesting to see how well he had chosen his place, and how rapidly he stretched out his unwounded arm in every direction, breaking off good-sized boughs with the greatest ease, and laying them back across each other, so that in a few minutes he had formed a compact mass of foliage, which entirely concealed him from our sight. He was evidently going to pass the night here, and would probably get away early the next morning, if not wounded too severely. I therefore fired again several times, in hopes of making him leave his nest; but, though I felt sure I had hit him, as at each shot he moved a little, he would not go away. At length he raised himself up, so that half his body was visible, and then gradually sank down, his head alone remaining on the edge of the nest. I now felt sure he was dead, and tried to persuade the Chinaman and his companion to cut down the tree; but it was a very large one, and they had been at work all day, and nothing would induce them to attempt it. The next morning, at daybreak, I came to the place, and found that the Mias was evidently dead, as his head was visible in exactly the same position as before. I now offered four Chinamen a day's wages each to cut the tree down at once, as a few hours of sunshine would cause decomposition on the surface of the skin; but, after looking at it and trying it, they determined that it was very big and very hard, and would not attempt it. Had I doubled my offer, they would probably have accepted it, as it would not have been more than two or three hours' work; and had I been on a short visit only, I would have done so; but as I was a resident, and intended remaining several months longer, it would not have answered to begin paying too exorbitantly, or I should have got nothing done in the future at a lower rate.

For some weeks after, a cloud of flies could be seen all day, hovering over the body of the dead Mias; but in about a month all was quiet, and the body was evidently drying up under the influence of a vertical sun alternating with tropical rains. Two or three months later two Malays, on the offer of a dollar, climbed the tree and let down the dried remains. The skin was almost entirely enclosing the skeleton, and inside were millions of the pupa-cases of flies and other insects, with thousands of two or three species of small necrophagous beetles. The skull had been much shattered by balls, but the skeleton was perfect, except one small wristbone, which had probably dropped out and been carried away by a lizard.

Three days after I had shot this one and lost it, Charles found three small Orangs feeding together. We had a long chase after them, and had a good opportunity of seeing how they make their way from tree to tree by always choosing those limbs whose branches are intermingled with those of some other tree, and then grasping several of the small twigs together before they venture to swing themselves across. Yet they do this so quickly and certainly, that they make way among the trees at the rate of full five or six miles an hour, as we had continually to run to keep up with them. One of these we shot and killed, but it remained high up in the fork of a tree; and, as young animals are of comparatively little interest, I did not have the tree cut down to get it.

At this time I had the misfortune to slip among some fallen trees, and hurt my ankle; and, not being careful enough at first, it became a severe inflamed ulcer, which would not heal, and kept me a prisoner in the house the whole of July and part of August. When I could get out again, I determined to take a trip up a branch of the Simunjon River to Semabang, where there was said to be a large Dyak house, a mountain with abundance of fruit, and plenty of Orangs and fine birds. As the river was very narrow, and I was obliged to go in a very small boat with little luggage, I only took with me a Chinese boy as a servant. I carried a cask of medicated arrack to put Mias skins in, and stores and ammunition for a fortnight. After a few miles, the stream became very narrow and winding, and the whole country on each side was flooded. On the banks were an abundance of monkeys – the common *Macacus cynomolgus*, a black *Semnopithecus*, and the extraordinary long-nosed monkey (*Nasalis larvatus*), which is as large as a three-year old child, has a very long tail, and a fleshy nose longer than that of the biggest-nosed man. The further we went on the narrower and more winding the stream became; fallen trees sometimes blocked up our passage, and sometimes tangled branches and creepers met completely across it, and had to be cut away before we could get on. It took us two days to reach Semabang, and we hardly saw a bit of dry land all the way. In the latter part of the journey I could touch the bushes on each side for miles; and we were often delayed by the screw-pines (*Pandanus*), which grow abundantly in the water, falling across the stream. In other places dense rafts of floating grass completely filled up the channel, making our journey a constant succession of difficulties.