

The
EASTERN ARCHIPELAGO
Described and Illustrated



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NATIVES OF OMBAY

THE
EASTERN ARCHIPELAGO.

A DESCRIPTION OF THE SCENERY, ANIMAL AND VEGETABLE
LIFE, PEOPLE, AND PHYSICAL WONDERS OF THE
ISLANDS IN THE EASTERN SEAS.

By the Author of

"THE ARCTIC WORLD," "RECENT POLAR VOYAGES,"
"THE BIRD WORLD," ETC.

WITH SIXTY ILLUSTRATIONS AND A MAP.


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P r e f a c e .



HE attractions which the Eastern Archipelago presents for the naturalist, the artist, and the geologist are of an exceptional character, and yet few regions of the world have been less minutely examined by English travellers. Our information respecting the great islands which compose it was comparatively scanty until the recent researches of Spenser St. John, Crawfurd, Bickmore, and Wallace. The Germans have treated them with their usual elaborateness,—witness Dr. Junghuhn's valuable book upon Java,—but English monographs of special value and importance have been, and still are, too few. This may be owing, perhaps, to the fact that the English flag waves but at a few points along that chain of romantic isles which connects Asia with Australia, and testifies to the violence of the convulsion that in the pre-historic age disrupted the Asiatic and Australian continents. Something also may be due to the jealousy of the Dutch Government, which offers no facilities to the enterprise of the traveller, and surrounds its dependencies with an atmosphere of seclusion.

In the following pages we have endeavoured to

supply the reader with a comprehensive and accurate description of the islands of the Eastern Archipelago. We do not profess that it is exhaustive, but we claim for it that it omits no particular of interest to the general public. That it is largely indebted to the labours of Wallace and Bickmore we are glad to acknowledge; and the conclusions of the former, on all questions of a physical character, we have generally adopted. But we have carefully gleaned from a variety of sources such facts as seemed necessary to the completeness and usefulness of our unpretending sketch, so that we may be allowed to speak of it as being more comprehensive and compact than any similar description which has been put before the public. The glowing tropical scenery, the vast natural resources, the curiosities of the vegetable and animal worlds, the mountains and forests and rivers, the native populations,—all these we have sought to glance at, and they afford a succession of striking pictures which even the most inefficient artist could not wholly spoil. If the reader should feel, as we have felt, the charm of the virgin forests of Borneo, of the rich vegetation of the “Land of Fire,” of the valleys and woods of Sumatra, of the beautiful landscapes of Celebes and Gilolo, of the island-haunts of the birds of paradise, or of the romantic coast of New Guinea, he will not turn from our pages dissatisfied.

W. H. DAVENPORT ADAMS.

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THE EASTERN ARCHIPELAGO.

INTRODUCTION.

A GENERAL VIEW OF THE ARCHIPELAGO.

ITS POSITION—PRINCIPAL DIVISIONS—INHABITANTS—FLORA—FAUNA—ITS VOLCANIC CHAIN—ASIA AND AUSTRALIA—THE ISLANDS OF WHICH IT IS COMPOSED—BRIEF SURVEY OF THEIR CHARACTERISTICS—THE INDO-MALAY DIVISION—THE TIMOR GROUP—CELEBES—THE MOLUCCAS—NEW GUINEA.

DIVISIONS OF THE ARCHIPELAGO.



THE prudent traveller, before undertaking a journey into a new country with which he has no previous acquaintance, is careful to provide himself with all the information he can procure from trustworthy books and maps in reference to its prominent features, that, when he enters it, he may not feel altogether a stranger, but know enough of its situation and divisions, its relation to other countries, and its distinctive characters, to form some idea of the nature of his journey. His interest in what he sees is necessarily increased by this knowledge. If he ascend a range of hills, he remembers that this range forms the watershed, it may be, of a considerable area, and contributes to its productiveness; if he

descend into a valley, he remembers that it opens, perhaps, on a wide and beautiful plain, to which it affords the only access. At every step of his way he finds the usefulness and value of the data he has been careful to acquire.

In like manner, when the reader comes to the study of a particular region, it is desirable that he should be furnished at the outset with so much information as will facilitate that study, and add to its attractiveness; that he should be shown the principal characteristics of the "new world" into which he is to be introduced; that he should understand its leading divisions, the peculiarities of its scenery, and its exact position with respect to the districts adjacent to or surrounding it; that, in short, such bold and general outlines of the picture should be presented as will enable him hereafter to appreciate its details at their proper value.

Before entering, then, upon a minute description of that part of the world which geographers variously term the Malayan, or Indian, or Eastern Archipelago, we would wish to bring before the reader a few leading facts which may serve as the landmarks of his future progress. Where lies this great world of islands? What are its salient features? How is it connected with neighbouring continents? What is there remarkable about its vegetable and animal life? What races of men inhabit it? These are questions which the reader may reasonably expect us to answer before we begin a close and careful examination of each several island, or group together a mass of details in which, without some such clue, he would assuredly lose his way.

A glance at a map of the Eastern hemisphere will show that from the south-eastern extremity of Asia to the north-western extremity of Australia stretches a double, in some places a treble, chain of islands—many of considerable dimensions—occupying a considerable extent of sea, but comprised, roughly speaking, within twenty degrees of latitude (10° S. to 10° N. of the Equator) and forty-five meridians of longitude (95° to 140° E.). In other words, it overspreads an area measuring upwards of 4000 miles from east to west, and about 1300 miles from north to south, and lying entirely within the Tropics.

The Eastern Archipelago, therefore, if it could be transferred to Europe, would cover the entire continent, and extend also into Central Asia; or it would occupy the widest parts of South America, and project beyond the present boundaries of that continent into both the Atlantic and the Pacific Oceans. It includes three islands which are larger than Great Britain,—namely, Borneo, Sumatra, and New Guinea. In Borneo the whole of the British Isles might be set down, says Mr. Wallace, and they would be surrounded by a sea of forests. Three other islands, Java, Luzon, and Celebes, are each about the size of Ireland. Eighteen more may be compared to Jamaica; upwards of a hundred are as large as the Isle of Wight; while the number of smaller isles and islets is legion.

It is impossible to look at this array of islands without feeling that they represent so many stepping-stones between Asia and Australia—a kind of extended Giant's Causeway, or natural bridge, by means of which a mythological Titan might have crossed from one continent to another. Then comes the idea that per-

haps such a connection at one time existed, and that these islands may be the remains of a prolongation of the Asiatic mainland on the one hand, and of the Australian mainland on the other. Recent research has proved the *partial* correctness of such a theory. There can be little doubt that the Asiatic continent once included the three great islands of Java, Sumatra, and Borneo; probably also, at an earlier period, the Philippine Islands. There can be as little doubt that the Australian continent once included the Timor group, the Celebes, the Moluccas, and the Papuan Islands. The line of division is represented by the Straits of Macassar and Lombok.

It will be seen, then, that the Eastern Archipelago may be divided into two principal sections:—

1. The *Asiatic*: including Java, Sumatra, Borneo, and the Philippines;
2. The *Australian*: including the Timor group, the Celebes, the Moluccas, the Ké and Aru Islands, and New Guinea.

To justify such a division, it is necessary that we should submit a few indisputable facts.*

1. In the first place, it has been found that a shallow sea connects the three great islands of Sumatra, Java, and Borneo with the Asiatic continent,—a sea with an average depth of only fifty fathoms; while a similarly shallow sea connects New Guinea and some of the adjacent islands with Australia. Between the

* This division was first proposed by Mr. G. W. Earl (see "Journal of the Royal Geographical Society," 1846, and "The Physical Geography of South-Eastern Asia and Australia," 1855), but in the text we follow the more definite hypothesis of Mr. Wallace ("The Malay Archipelago," 2 vols., 1869; vol. i., b. i., pp. 9-20).

two intervenes a *deep* sea, of more than one hundred fathoms, the exact boundaries of which, both on the east and the west, can be marked on the map as exactly as the mountain-boundary of the Pyrenees between France and Spain.

2. It has also been found that a wide difference exists between the natural productions of the Asiatic islands and those of the Australian. Let us glance at their zoology. The elephant and tapir of Sumatra and Borneo, the rhinoceros of Sumatra and Java, the wild cattle of Java and Borneo, belong to the same genera which inhabit part of Southern Asia. That these large animals could have swam across the broad ocean-ways which now separate the islands from one another and from the continent, is impossible; and hence their presence is a proof that since the origin of the species a land communication must have been practicable—that the great islands we speak of must once have formed a part of the continent, and can have been disjoined only at a very recent geological epoch. The same lesson is taught by the birds and insects; for every family, and almost every genus, found in any of the islands, occurs also on the Asiatic mainland, and in a great number of cases, says Wallace, the species are exactly identical. He adds:—Birds offer us one of the best means of determining the law of distribution; for though at first sight it would appear that the water-boundaries which exclude the land quadrupeds could be easily overpassed by birds, yet practically it is not so, for if we omit those aquatic tribes which are pre-eminently wanderers, we find 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 illustration, it may be stated that Java possesses numerous birds which never cross over to Sumatra, though the intervening strait is only fifteen miles wide, with islands in mid-channel. Java, in fact, possesses more birds and insects peculiar to itself than either Sumatra or Borneo; a fact which shows that it was earliest separated from the continent. Next in organic individuality is Borneo; while the animal life of Sumatra is so nearly identical with that of the Malayan Peninsula, as to induce the conclusion that it was the "most recently dismembered island."

3. There is a further consideration to be borne in upon the reader's mind; namely, the volcanic or non-volcanic character of the islands comprised in the Archipelago. Which are volcanic? Which are non-volcanic? Are the Asiatic islands included in the former or latter category? We reply, that what Michelet calls "a belt of fire,"—a belt composed of numerous active and many more extinct volcanoes; a belt marked by lava-blackened peaks crowned with yawning craters, and occasionally waving abroad fierce signals of flame and smoke and vapour,—may be traced through the whole extent of Sumatra and Java, and by the islands of Bali, Lombok, and Sumbawa to Flores and the Suwatty Islands, and thence by Banda, Amboyna, Tidore, and Ternate, to Morty Island. Here occurs a break, and after an interval of about two hundred miles the volcanic chain is resumed in North Celebes, from whence it proceeds by Siau and Sanguir to the Philippine Islands. Returning to Banda, we traverse a non-volcanic district for one thousand miles, until we come to the north-eastern coast of New Guinea, where

begins a chain of fire which is carried through New Britain, New Ireland, and the Solomon Islands, to the eastern border of the Archipelago.

Java contains a larger number of active and extinct volcanoes than any other district in the world of equal extent. It is traversed by two magnificent mountain-chains, from 10,000 to 12,000 feet in height, which are thickly sown with volcanoes—not fewer than forty-five in number.

“It is now well ascertained,” says Mr. Wallace, “that almost all volcanoes have been built up by the accumulation of matter—mud, ashes, and lava—ejected by themselves. The openings, or craters, however, frequently shift their position, so that a country may be covered with a more or less irregular series of hills in chains and masses, only here and there rising into lofty cones, and yet the whole may be produced by true volcanic action. In this manner the greater part of Java has been formed. There has been some elevation, especially on the south coast, where extensive cliffs of coral limestone are found; and there may be a substratum of older stratified rocks; but still essentially Java is volcanic, and that noble and fertile island,—the very garden of the East, and perhaps, upon the whole, the richest, the best cultivated, and the best governed tropical island in the world—owes its very existence to the same intense volcanic activity which still occasionally devastates its surface.” *

In Sumatra we find about fifteen volcanoes, four of which—Dempo (10,440 feet), Indrapura (12,140 feet), Talang (8480 feet), and Merapi (9700 feet)—are of

* Wallace, “The Malay Archipelago,” I. 6.

considerable importance; the others do not exceed 6000 or 7000 feet in elevation.

Proceeding eastward, the whole chain of islands from Java to Banda is volcanic; and the same is true of Amboyna, a part of Bouru and Ceram, the north part of Gilolo, the northern extremity of Celebes, and the islands of Siau and Sanguir. All along the chain we find frequent evidences of elevation and depression of land. The island-range south of Sumatra, a part of the south coast of Java and the islands east of it, the west and east end of Timor, portions of all the Moluccas, the Ké and Aru Islands, Waigiou, and the whole south and east of Gilolo, are fringed with coral reefs, and belong to the coral formation.*

The total length of these two volcanic chains is about ninety degrees, or 6000 miles; that is, one-fourth of the entire circumference of the globe. Their breadth is about fifty miles; but for two hundred miles on either side the signs of subterranean action may be seen in coral reefs and masses of recently elevated coral rock. In the centre of one chain rests the great island of Borneo, where no volcanic phenomena have ever been detected; and in the centre of the other, the great island of New Guinea, which is and has been equally free from disturbance. Celebes, also, is almost entirely non-volcanic.

But if we divide the Archipelago into volcanic and non-volcanic divisions, it is found that these divisions do not correspond, or correspond only in a limited degree, to the differences which we have traced in the character of its natural productions and forms of animal life. Hence we are led to the conclusion that

* Darwin, "On Coral Reefs," pp. 171-174.

the phenomena of volcanic action just described have been all of comparatively recent occurrence, and have not wholly obliterated the traces of the ancient distribution of land and water. The islands of the Asiatic division on the one hand, and of the Australian on the other, have been disrupted from their original continents by the violence of their respective volcanoes.

4. Hitherto we have chiefly directed our attention to the Asiatic island-group. Upon turning to those which we have included in the Australian section, we are immediately impressed by the close resemblance of these islands in their natural products to the mainland with which at one time they were more or less closely connected. Australia, for example, has neither ape nor monkey, cat nor tiger; no wolves, no hyenas, no bears, no elephants, horses, sheep, deer, or oxen. No more have the Australo-Malay Islands. But Australia has the kangaroo, the opossum, and the wombat; so have the Australo-Malay Islands. The Asiatic division, in the great family of Birds, has woodpeckers, pheasants, barbets, fruit-thrushes; but no honeysuckers, cockatoos, or brush-tongued lories. Australia and the Australo-Malay Islands have none of the former, but are the natural home of the latter.

5. Lastly, in the human inhabitants of the islands a marked distinction of race exists. To the east we find the Malays; to the west the Papuans; with some cross-breeds intervening between them. Their respective characters will hereafter occupy our attention; and we shall now conclude this portion of our subject by subdividing the two great divisions, whose existence we have demonstrated, into certain distinct

groups, according to their ethnological, geological, and geographical features :—

GENERAL VIEW OF THE EASTERN ARCHIPELAGO.

I. THE ASIATIC-MALAY ISLANDS.

GROUP 1.—*The Indo-Malay Islands* :—Sumatra (*M.**); Java (*M.*); Borneo (*M.*).

II. THE AUSTRALO-MALAY ISLANDS.

GROUP 2.—*The Timor Islands* :—Lombok (*M.-P.*); Sumbawa (*M.-P.*); Flores (*M.-P.*); Timor (*M.-P.*); and several smaller islands.

GROUP 3.—*Celebes* (*M.*), with the Sulu Islands and Bouton (*M.*).

GROUP 4.—*The Moluccas* :—Bouru (*M.-M.*); Ceram (*M.-M.*); Batchian (*M.-M.*); Gilolo (*M.-M.*); Morty (*M.-M.*); with the smaller islands of Ternate, Tidore, Makian, Kaióa, Amboyna, Banda, Goram, and Matabello (*M.-M.*).

GROUP 5.—*The Papuan Islands* :—New Guinea or Papua (*P.*); Aru Islands (*P.*); Ké Islands (*P.*); with Mysol, Salwatty, Waigiou, and others (*P.*).

6. We have spoken of the Eastern Archipelago as lying within the Tropics, a statement which necessarily implies that it enjoys a tropical climate, and is dowered with the luxuriance and fulness of beauty characteristic of tropical vegetation. But both climate and vegetation are subject to modification in the various islands by local conditions. Timor and the adjacent islands, for example, lie exposed to the unchecked influence of the south-east monsoon, and, consequently, the soil is dry and barren, and their most important trees are eucalypti, acacias, and sandal-wood. But in Sumatra, Borneo, Java, New Guinea, and the Moluccas, the very summits of the loftiest heights, owing to the abundance of moisture brought by the sea-breezes, are clothed with extensive forests. When the winds have traversed a wide sweep of ocean they

* *M.* signifies that the inhabitants are Malays; *M.-M.*, Moluccan-Malays; *P.*, Papuans; and *M.-P.*, Malayo-Papuans.

induce heavy and incessant rains, and these rains cherish exuberant verdure and a magnificent growth of beautiful and succulent plants. In the southern half of Sumatra the mountain-ranges arrest the vapours, and rain is almost continuous. From a similar cause, New Guinea is covered with dense and various forests; while across the narrow arm of Torres Strait prevails a hot and dreary desert, with only a palm-tree here and there to break its dull monotony.


Book First.

THE ASIATIC-MALAY ISLANDS.

CHAPTER I.

SUMATRA.

EXTENT AND GENERAL CHARACTER.

UMATRA is situated immediately under the Equator, extending in either direction to nearly six degrees from it. A glance at the map will show that it runs in an oblique direction, from north-west to south-east, fully fifteen degrees, or about one thousand miles. Its greatest breadth is in the middle, nearly opposite the British settlement of Singapore, where it measures about one hundred and forty miles. Its superficial area, therefore, may be computed at one hundred and forty thousand square miles; and consequently it is the second in rank of the Asiatic islands, being inferior only to Borneo.

Its position is easily remembered. Its northern portion is separated from the Malayan Peninsula on the east by the Strait of Malacca; on the west it is bounded by the Indian Ocean; on the south it is

divided from Java by the narrow arm of the sea called the Strait of Sunda. A straight line drawn from the mouth of the river Iudagari, on its east coast, if projected in an easterly direction, would strike the west coast of Borneo at the mouth of the river Mejak.

The eastern portion of the island is remarkable for its continuous levels, which are freely watered by several large but sluggish rivers,—the Rawas, the Jambi, the Iudagari,—that form extensive deltas at their mouths, and have for ages been contributing to fill up the shallow sea into which they fall. Very different in character the western portion. Here, from north-west to south-east, stretch range upon range of mountains, all running parallel to the coast, and increasing in elevation from two thousand to five thousand feet. These are broken up by short lateral valleys, and again by extensive longitudinal valleys, clothed with the fig and the myrtle, the areca and nibon palms. The littoral belt, or shore-land, varies greatly in breadth. On the south-west side of the island the mountains seem to start up directly from the ocean, and for nearly four hundred miles the distance between the beach and the wooded base of the hills is two miles, though towards the north it widens on the average to six miles, and, at a few points, to twelve miles.*

* The principal mountain-summits are these:—

Indrapura ¹	12,140 feet.....	1° 36' S. lat.
Loesa.....	11,150.....	3° 48' N. lat.
Dempo ¹	10,440.....	3° 52' S. lat.
Abong-Abong.....	10,350.....	4° 17' N. lat.
Singallong.....	10,150.....	0° 28' S. lat.
Merapi ¹	9,700.....	0° 24' S. lat.
Ophir (Gunong-Pasaman)....	9,500.....	0° 12' N. lat.
Talang ¹	8,500.....	1° 0' S. lat.

¹ These are volcanoes, with their craters considerably below the summit, except in the case of Talang.

ANIMAL AND VEGETABLE LIFE.

The reader will easily understand that the scenery in the western division of the island presents many romantic features. The mountain-peaks, rising so abruptly from the shore, and clothed with hanging woods, are necessarily objects of much grandeur; and the intersecting valleys, enriched with a tropical vegetation, the forms and colours of which have a rare attraction for the eye of the European traveller, are characterized by numerous landscapes of great splendour. The interior of the island is imperfectly known; but one of these valleys, stretching up to the foot of Mount Merapi, is fully one hundred miles in length, and is regarded by some authorities as the original home of the Malayan race. Birds of bright-tinted plumage dart in and out of the thick boughs of the wide-spreading woodland, and blend their voices, often harsh and shrill, with the murmur of falling streams. Here, in the virgin forest, the agile monkey leaps from branch to branch; or the siamang, with his immense long arms, five feet six inches across in an adult about three feet high, swings himself with wonderful rapidity from tree to tree. Here, in the remote recesses, the orang-utan lives its melancholy life, the rhinoceros wades in the shallow rivers, and the elephant crashes through the jungle with colossal bulk. Or the flying lemur (*Galeopithecus*) may be seen, in the hot noon, clinging to the trunk of a tree for rest after its jerking flights, and scarcely distinguishable, with its mottled brown fur, from the mottled bark. That curious insectivorous animal, the *Gymnura Rafflesii*, which bears some resemblance to the Australian didelphys, is also found in Sumatra. It was first made



MALAYAN TAPIR.

known to European zoologists by Sir Stamford Raffles; has a long muzzle, small bright eyes, small rounded ears, and a long scaly tail. Its head and body are covered with fur, a fur pierced by numerous bristling hairs of great length, which project for a considerable distance from the body, and envelop the neck and shoulders with a kind of ruff. The greater part of the body, the upper part of the legs, and the root of the tail are black; head, neck, flanks, and remainder of the tail, white. Altogether, the bulau, or tikus, as it is called, with its parti-coloured coat, is one of the most curious members of the Sumatran fauna.

The kuda-ayer, or Malayan tapir, its body belted with a broad band of white that strangely contrasts with its general funereal hue, frequents the woods in the neighbourhood of the shallow streams. There, too, we find the napu, a species of musk-deer, not less graceful than the antelope; and two species of common deer,—the *Cervus russa* and *Cervus hippelaphus*, of which the latter is peculiar to the island. The only species of antelope is the kambing-utan, or wild buck. The natives are fond of telling stories of a wild dog of great size, with a tufted tail, which haunts the forest-depths; and of another carnivorous animal with a mane, of which our zoologists afford us no particulars. The royal tiger is an inhabitant of the jungle, and the crocodile (*Crocodilus biporcatus*) of the rivers. Among the domesticated animals are the zebu, or hunched cow, the buffalo, the horse, the goat, pigs, and oxen.

Turning to the vegetable wealth of this great island, we meet with most of the valuable productions of the tropical world. In the forest the huge trees, colossal in girth and of noble height, are linked together and

surrounded by innumerable parasites and creeping plants, often of great beauty, which interlace with one another so as to form an almost impervious labyrinth. On the shore we meet with the spreading mangrove, its pendulous arching roots, closely matted and intertwined, forming an incomparable breakwater, and stemming the aggressive tide. Retaining the particles of earth that sink to the bottom between them, they gradually but surely elevate the level of the soil; and as the new formation rises and broadens a thousand seeds are sown upon it, a thousand fresh roots descend to strengthen and consolidate it: and in this way the mangrove repels the wave, and asserts the supremacy of the land over the baffled sea. Among the mangrove jungle which lines the coast with a bulwark almost as impregnable as "towers along the steep," rises the stately *Avicennia tomentosa*, to a height of seventy feet, supported, like the mangrove, on overarching roots.

As we advance inland we meet with the hibiscus, calophyllum, crotalaria, and many other species, blooming with gorgeous flowers, which lend to the landscape an indescribable character of brightness. Next we come to the palms, with their straight stems, like pillars, supporting a far-extended roof of verdure; while in and about them twine a legion of creeping plants, many of them armed with thorns, which catch and clasp the unwary traveller as he presses forward, and tear and pierce his flesh. Look upward, and a green cloud or mist seems to hover above your head, which by-and-by resolves itself into a network of branches; and from these branches, that cross one another like the lines of a spider's web, descend innumerable lianes, dangling in the wind at every



MANGROVE JUNGLE.

height. The infinite variety of the scene fairly confuses you: arborescent ferns, and wonderful blossoming orchids, and strange creepers, with tall trees growing in the shade of taller trees, and these underneath the arms of trees still taller; palms of numerous species; large fig-trees, and fragrant myrtles; air-roots waving wildly to and fro, as if in quest of a resting-place; intertangled wires and cables, through which you can cut your way only with a strong arm and a keen axe; and then all kinds of stems, round, fluted, rough, smooth, prickly, jointed, gnarled, branched, brown, gray, copper, pink, mottled with silvery-white lichens, furred with mosses and exquisite filmy ferns. Who shall describe the boundless prodigality of life, and the inexhaustible richness of form and colouring, of the forests of Sumatra?

On the mountain-slopes, from an altitude of five hundred to that of six thousand feet, the forest is largely composed of oaks of several species. They are noble trees, and of much value; but, in a commercial sense, a higher value attaches to the *Dryanobalops*, which yields the all-important camphor. About one degree below the Equator its place is occupied by the *Dipterocarpus*, a tree of gigantic proportions, which produces the resin called "dammar." This resin accumulates sometimes in large masses of ten or twenty pounds weight, either attached to the trunk, or found buried in the ground at the foot of the trees. The most remarkable growth of the forest, however, is a kind of fig, the aerial roots of which combine in a pyramid nearly one hundred feet high, terminating at the point where the branches begin to project, so that there is no real trunk. This cone, or pyramid,

consists of roots of all dimensions, mostly descending in straight lines, but more or less obliquely; and so interlacing and intercrossing as to form a dense, complicated, and impervious network.

On the rough bark of many of the forest-trees grows that extraordinary parasite, the *Rafflesia*,—the largest known flower, measuring fully three feet in diameter, and expanding á calyx which is capable of holding six quarts of water.

The principal exports of Sumatra are capsicums, ginger, betel, tobacco, indigo; cotton, camphor; benzoin, cassia or common cinnamon, rottang (ratans), ebony, sandal-wood, teak, and aloes; ivory, rice, wax, and edible birds' nests. To the list of the island-products must be added rice, maize, sweet potatoes, taro or talus (*Caladium esculentum*), banana, mango, durian, papaw, and citron. But even this enumeration gives but a faint idea of the variety and extent of its natural treasures.

Its climate is well adapted to the growth of so luxuriant a vegetation. Lying directly under the Equator, the island enjoys great equability of temperature; the thermometer seldom falling below 76°, or rising above 93°. The constant rains brought up by the south-east monsoons counteract or mitigate the prevailing heat. In the highlands and mountain-districts the climate is healthy, and the natives attain a considerable longevity; but in the low ground along the coast, and in the neighbourhood of the mangrove-swamps, Europeans, at least, drag on a sickly existence, and malaria exercises its deadly ravages.

DUTCH POSSESSIONS.

The Dutch possessions in Sumatra are chiefly situated on the west coast, where they are divided into four



THE RAFFLESIA, AND OTHER PLANTS.

provinces—namely, the country of the Battaka, Ayer-bangis, the hill-districts in the interior of Padang, and Bangkahulu (Bencoolen), with the capital at Padang. The country of the Lampongs, in the south, forms a residency; and so does Palembang, as far north as Cape Tonkal-Cabu, lat. $0^{\circ} 52' S$. The most important native states are the kingdoms of Siak, on the east coast, and of Acheen on the north-west. With the Sultan of Acheen the Dutch were recently engaged in an unprofitable warfare.

A GLANCE AT PALEMBANG.

Palembang is a large city, extending for three or four miles along the curving bank of the river Rawas; the channel of which, however, is considerably narrowed by the houses projecting into it upon piles,—while within these is a row of houses built upon great bamboo rafts, which are moored by ratan cables to the shore or to piles, and rise and fall with the tides. Mr. Wallace tells us that the whole river-front on both sides is chiefly formed of such houses, and they are mostly shops, open to the water, and raised only a foot above it; so that at Palembang, as at Venice, the easiest mode of locomotion is by water. At Rome, says the proverb, do as the Romans do; and at Palembang as the Malays, who never set foot upon land if they can possibly avoid it.

The trade of the town is in the hands of the Chinese and Arabs; the only Europeans are the Dutch officials and Dutch soldiers.

Palembang is situated at the head of the riverine delta, and to the north the ground rises, until it reaches the summit of a little hill, held sacred by the

natives, and pleasantly overshadowed by some lofty trees. Here a colony of squirrels, half tame, has found an abiding-place. "On holding out a few crumbs of bread, or any fruit," says Wallace, "they come running down the trunk, take the morsel out of your fingers, and dart away instantly. Their tails are carried erect; and the hair, which is ringed with gray, yellow, and brown, radiates uniformly around them, and looks exceedingly pretty. They have somewhat of the motions of mice, coming on with little starts, and gazing intently with their large black eyes before venturing to advance further." Mr. Wallace remarks that the manner in which Malays frequently obtain the confidence of wild animals is a pleasant trait in their character, and he ascribes it to the great deliberation of their habits and movements, and their love of repose. The young are obedient to the wishes of their elders, and exhibit none of that mischievous propensity so common in European boys. How long, he asks, would tame squirrels continue to inhabit trees in the neighbourhood of an English village, even though they were close to the church?

THE MALAY VILLAGES.

The Malay villages in the interior are picturesque and peculiar. A space of ground having been enclosed by a high fence, the huts are built upon it without any attempt at regularity; tall cocoa-nut trees springing up in every corner. The houses are raised about six feet on posts; the more pretentious being built of planks, the others of bamboo. The former are always ornamented more or less richly with quaint carving, with high-pitched roofs, and overhanging eaves. The floor

is made of split bamboo, and vibrates beneath the tread of the inmates. Benches, chairs, stools, tables, are regarded as superfluities; and their purposes are supposed to be sufficiently answered by the mats which cover the level floor.

BENCŒOLEN.

Before quitting Sumatra we must pay a brief visit to *Bencœolen*, or *Banghalulu*, which is situated on the west coast, at the mouth of a small river. Its aspect is not prepossessing, and it is being superseded in commercial importance by Padang. The governor's residence forms an oasis in the desert, being surrounded by a pleasant green expanse, planted with cocoa-nut and nutmeg trees. Formerly, the town lay several miles north, where the British formed a settlement in 1685, and built Fort York. They removed to the present site, as more healthy, in 1714, and erected Fort Marlborough to protect the river-approach. It was ceded to the Dutch, with other possessions, in 1825, in exchange for their possessions on the coast of Asia.

INHABITANTS OF SUMATRA.

The impression one forms of Sumatra is that of an island of great size, upwards of double the length of Great Britain, divided into highlands and lowlands, and clothed everywhere with all the luxuriance of a tropical vegetation. Huge mountain-ranges are broken up by deep shadowy valleys, and in these strange birds take their flight, and the large mammals roam uncontrolled, and fantastic forms of plants and flowers diversify the leafy recesses of the forests. It is an island of immense resources, which as yet have been only partially de-

veloped, but must eventually feed an extensive commerce.

The inhabitants are mostly of the great Malayan family, but in the north they seem to have intercrossed with the Hindus, and are distinguished by their strength, their stature, and their fierce courage. The Chinese are numerous on the east coast. North of Menangkabu, where the pure Malays reside, live the Battahs or Batakhs, whose exact relation to the Malay it seems impossible to determine. They approximate in many respects to the Caucasian type, with fair complexion, brown or auburn hair, well-shaped lips, and an ample forehead. All the natives of Sumatra, with the exception of some inland tribes, profess a modified Mohammedanism.

CHAPTER II.

GENERAL DESCRIPTION OF JAVA.

BOUNDARIES AND EXTENT.



THE principal Dutch possession in the East, and the largest island in the Sunda group, next to Sumatra and Borneo, is the island of JAVA, which has been styled, on account of its natural beauty and its fertility, "the Queen of the Eastern Archipelago." It forms a leading link in the great chain of islands extending from the Andamans in the Bay of Bengal to the shores of New Guinea. In this crescent Java occupies the middle place, between Sumatra, to which it is a pendant, and the small island of Bali on the east. In shape it may be likened to a parallelogram, of which the major axis runs east and west, with a slight northerly inclination at the west end. It is bounded north by the Java Sea, and south by the Indian Ocean; on the west it is separated from Sumatra by the Strait of Sunda; and on the east from Bali by that of Bali. Both straits are so narrow that it is impossible to avoid the conjecture that Sumatra, Bali, and Java at one time formed a continuous mass. The island is almost equally bisected by the 110th meridian. It measures 630 miles in length, and varies from 35 to 126 miles

in breadth. Its total area is 49,730 square miles, or nearly two-thirds of the area of Great Britain.

SCENERY OF JAVA.

Bearing these facts in mind, we may proceed to consider its characteristic physical aspect. We have spoken of it as bounded on the south by the Indian Ocean. Here the coast is steep and rocky, and forms a sufficient rampart against the incessant roll of the billows; but on the opposite side, where only a shallow channel separates it from Borneo, the land terminates in a low, flat, alluvial plain, bordered by extensive mangrove swamps. The coast-line is irregular and broken, especially on the north. The principal capes are those of Java Head, at the southern entrance to the Strait of Sunda; Cape St. Nicholas, at the other entrance; Cape Panka at the west, and Cape Sarlano at the east entrance of the Strait of Madura; and Capes East and South at the eastern extremity of the island. Bays, creeks, coves, and inlets are numerous: on the north coast, observe the harbours of Batavia and Soerabaya; on the south, Penanjong, Pachitan, Pangol, Sambreng, Segara-Wedi, Dampar, and Grad-iagan Bays; and on the west, Wyncoops, Welcome, and Pepper.

Throughout its entire length Java is traversed by two chains of mountains, which occasionally unite, but more frequently run at some distance from one another, and send spurs and branches of the most various outline down to the shore. These chains are lofty and imposing; grand in outline, and surrounded by mighty forests. Occasionally their towering peaks soar to an elevation of twelve thousand feet; they seldom descend

below seven thousand ; and the average height of the volcanoes with which each chain is thickly studded, may be taken at nine thousand feet. Many of the volcanoes are still active ; so that along the axis of the island a series of fire-towers seem to be planted, like burning beacons, to throw their warning light far over the Indian seas. This volcanic character of the mountains, while accounting for the fertility of the island, also explains the peculiar aspect of its scenery. They have nothing of that austere, that almost terrible grandeur which distinguishes the heights of Wales or Scotland. They are remarkable for beauty rather than sublimity. Volcanic cones, as Mr. Jukes observes,* are so regular in their shapes, and stand out so definitely as objects of perfect form and symmetrical outline, that they give "an almost architectural tone" to the scenery. Mr. Jukes compares them to "noble columns or pyramids," which are perfectly beautiful, no doubt, but do not possess the mysterious and awe-inspiring influence of a great chain of "many-folded mountains," in the recesses of which the imagination loves to wander, and at times to lose itself. The volcanic peaks of Java, moreover, are clothed even to their topmost ridges with wood and green waving grass, except one or two summit cones of cinders and ashes fresh from the crater ; but these too, from the effect of distance, look as smooth as if built up of sand.

Mr. Jukes enables us to realize the general features of a Javanese landscape from one of his descriptions. He sketches the picture which unfolds before the spectator from the north-west corner of the broad,

* J. B. Jukes, "Voyage of H.M.S. *Fly*," iii. 30 ii. 107, 108.

green, undulating valley-plain of Malang. On the right hand, towards the west, rises the picturesque group of the Kawi, from which a verdurous but broken and serrated ridge strikes northward to the grand mountain-mass of the Ardjoonoo, immediately in our rear, with its peaked summit and shaggy sides, occupying all the north-western quarter of the horizon. A low gap in the north has been seized upon by man, and cultivated, while a road running through it opens up access to the northern coast and its towns and harbours. Towards the east, with many a bristling peak and ridge, towers the massive Teng'ger range, reaching its greatest elevation in the large crags and buttresses of the Bromo and the Ider-Ider. Thence it curves towards the south-east, to crown itself with the shapely and symmetrical cone of the Semiru.

The chord of this magnificent amphitheatre, or the distance between Semiru and the Kawi, is nearly forty miles, and is formed by low undulating ridges which close the prospect on the south.

The aspect of this great valley is joyous and exultant with luxuriant beauty; everywhere it is fresh, and fertile, and radiant; bright in tint and varied in outline; while even the wildest and ruggedest of the mountains are profusely clothed with virgin forests, except the two cones of the Semiru and Ardjoonoo, where still reigns the demon of the volcanic fires, though harmless, and with his destructive powers exhausted.

THE LAND OF FIRE.

Java has been appropriately called the Land of Fire. It possesses thirty-eight (some authorities say

forty-five) volcanic mountains,* which, taken together, display all the phenomena of igneous action, except lava-streams, which never occur in Java. The active craters are remarkable for the quantity of sulphur and sulphureous vapours which they discharge. The crater of Taschem contains a lake, about a quarter of a mile in length, from which issues a stream so strongly impregnated with sulphuric acid, that no forms of life can exist in it, and even fish cannot live in the sea near its mouth. Near Butar, an extinct volcano, about half a mile in circuit, is known as the "Vale of Poison," or *Guevo Upas*. No living creature can enter it with safety; and it is said that the soil is strewn with the carcasses of birds, deer, and other

* We append the names of the principal volcanoes:—

TABLE OF VOLCANOES.

Name of Volcano.	Height in Feet.	In what Province Situated.
Poeloe Saive.....	3,930	Rantam
Pangerango.....	9,868	Buitenzorg.
Salak.....	6,970	Buitenzorg and the Preanger Regenus.
Gedeh.....	9,860	Preanger Regenus.
Wayang.....	6,225	Preanger Regenus.
Papandayang.....	7,865	Preanger Regenus.
Goentoor or Guntur..	6,689	Preanger Regenus.
Tjokorei.....	8,720	Preanger Regenus.
Tankooban Praauw..	6,450	Preanger Regenus and Krawang.
Tjermel.....	9,180	Cheribon.
Slamat.....	12,300	Tagal.
Praauw.....	9,175	Pekalongan.
Merapi.....	9,170	Kador.
Sindoro.....	10,155	Kador and Bagelen.
Soombing.....	10,565	Kador and Bagelen.
Lawoo.....	10,640	Soerakarta and Madisen.
Kawi.....	6,760	Passoeroean.
Semiroo.....	11,950	Passoeroean.
Bromo Dasar.....	7,200	Passoeroean.
Ardjoonoo.....	11,800	Passoeroean and Soerabaya.
Lemmongen.....	6,561	Bezocki.
Wido-darew.....	7,956	Bezocki.
Idjeng.....	10,170	Bezocki.

animals killed by the fatal carbonic acid gas which accumulates in the hollow of the deadly valley.

Owing to its mountainous character, Java has no great navigable rivers; but it is watered by many shallow streams, which carry brightness and fertility along with them in their rapid course. These may be ascended to some distance in the light proas and canoes of the natives; but only the Solo, Kediri, Tjemanoeck, and Tjetaroun are open to vessels of any considerable burden.

Much of the charm of the Javanese landscape lies in the extraordinary richness of its vegetation, which clothes every valley-side and every mountain-height with masses of diversified foliage. This richness is not to be wondered at, when we remember that the soil consists of decomposed volcanic rock, limestone and sandstone; that it is abundantly watered, either by nature or by art; and that the climate exhibits a remarkable range of temperature. At an elevation of 6000 feet the thermometer does not rise above 60° ; in the plains, during the day, it ascends from 85° to 94° , and during the night from 73° to 80° . The character of the natural products of the island is necessarily affected by this variation of temperature; and the traveller, beginning with the flora of the Tropics in the plains and warm moist valleys, ends with that of the Temperate Zone on the breezy mountain-heights. The coast, which in some places is fringed with coral reefs, is generally lined with feathery groves of cocoa-nut trees. Inland spread vast fields of rice, extending up the sides of the hills, and irrigated by a multitude of artificial water-courses. They yield two and three crops a year. Hedges and



GUARDIAN OF THE RICE-FIELDS

fences of fruit-trees here and there enclose the Javanese villages, in which the huts are built of bamboo, and with their high-pitched roofs and quaint construction seem to have been modelled after the well-known architectural designs of the willow-plate. The white buildings and tall chimney of a sugar-mill occasionally diversify the prospect; the open fields are skirted by rows of bamboos; and the straight and well-kept roads run through monotonous avenues of dusty tamarind-trees. At each mile, in a queer little wooden guard-house, a policeman is stationed, who communicates with his comrades by means of a gong; and the din of that discordant instrument frequently alarms the echoes of the quiet country. If we penetrate further inland, we come upon the remains of deserted cities, now given over to the wild bull and the tiger; or in the recesses of the forest we pause before some colossal statue of a god, or one of the ancient temples, such as that of Borobodo. Here a central dome, fifty feet in diameter, and surrounded by a triple circle of seventy-two towers, covers, with its terraced walls, the entire slope of the hill. Such magnificent specimens of human industry and of ancient science are seldom found crowded together in so small a compass! The building is 620 feet square, and about 100 feet high. The terrace-walls are adorned with four hundred niches, each containing a cross-legged figure larger than life, and with a succession of bas-reliefs, carved in stone,—occupying, in all, an extent of nearly three miles.

Still continuing our progress, we are attracted by a curious system of terrace-cultivation; the slopes of the valley, and of its branches, being everywhere cut in

terraces up to a considerable height, which, as they wind round the flanks of the hills, produce all the effect of stately amphitheatres. Hundreds of square miles of country are thus terraced, and, as a recent writer remarks, convey a striking idea of the industry of the people and the antiquity of their civilization. These platforms are annually extended as the population increases, the inhabitants of each village working in concert under the direction of their chiefs; and it is by this system of village culture alone that such immense areas of terraces and irrigating canals have been rendered possible.

The bases of the mountains, whither we must now carry our survey, are clothed with vast forests of different species of the fig-tree tribe; some of which seem allied to the Indian banyan: all are interlaced and bound together by creepers and trailing parasites, and are remarkable for their immense height,—so that their overarching foliage glimmers like a green mist,—their milky sap, their fruit, and their far-spreading branches. At about the same height above the sea grow noble trees of different families, with names which will sound harshly in the ears of the young botanist: meliaceæ, aglalias, epicarises, artocarpuses, sapinduses, sterculias,—their boughs embellished with fantastic orchids, and their trunks covered with such parasites as pepper, mistletoe, loroanthus, nepenthes, pothos,—while in among the low undergrowth rise grand arborescent ferns of surpassing beauty. Here we meet with the vaquois-tree, a species of pandanus, or screw-pine, but in stature and character resembling the palms. Higher up we come to the plane-like liquid-ambar, their tall and shapely stems clasped round by



THE VAQUOIS-TREE.

tenacious parasites; also ratans, and rubiaceæ, some of the latter offending the air with a noxious fetid odour. From a height of about 5000 feet we pass through what is truly a virgin forest, the trees being tall as some "great admiral's mast," and surrounded by a dense growth of herbaceous plants, tree-ferns, and shrubby vegetation. Of the ferns the variety seems inexhaustible, and as many as three hundred species have been found on one mountain.

Continuing our imaginary ascent, we come to chestnuts and oaks; rhododendrons, the dammar pine, numerous species of glossy-leaved laurels, sweet-scented myrtles, gorgeous magnolias, melastomas, and eugenias; while through the verdurous gloom flashes the silver of a leaping and tumbling brook, and brightness is given to the scene by the splendid foliage of the broad-leaved musaceæ and zingiberaceæ, with their curious and resplendent flowers. The eye is almost fatigued by the multitude of new forms which everywhere greet it; is scarcely able to distinguish all their attractive peculiarities; and, at last, is content with a general sense of the infinite diversity and splendour of the vegetation that flourishes so thickly and generously all around.

At 6000 feet raspberries abound; and thence to the summit of the lofty mountains three species of edible rubus may be distinguished. At 7000 feet cypresses appear, the forest-trees lose their stateliness of character, and mosses and lichens take the place of ferns and lycopods. From this point upwards, they increase rapidly, so that the blocks of rock and scoria that compose the mountain slope are completely hidden by the mossy vegetation. The pretty heaths, espe-

cially the white-berried vacciniæ, are also abundant. At about 8000 feet we find ourselves transported into an European landscape, and gaze with pleasure on the well-remembered forms of honeysuckle, St. John's-wort, and Guelder-rose. At 9000 feet we meet with the rare and lovely royal cowslip (*Primula imperialis*), which is peculiar to Java, and to the mountain (Pang-erango) we are now ascending. Yes; this beautiful flower blooms only on this lonely mountain-top, for the winds and the sunbeams to caress it, and occasionally to delight the eye of some adventurous stranger. It has a tall, stout stem, sometimes more than three feet in height; its root leaves are eighteen inches long; and it bears several whorls of cowslip-like flowers, instead of a terminal cluster, like our English favourites.

The forest-trees, gnarled and dwarfed to the size of mere bushes, creep up to the very rim of the summit-crater; while thickets of shrubby artemisias and gnaphaliums, like our familiar southernwood and cudweed, but six or eight feet high, are very numerous. Buttercups are sown as thickly as in an English meadow; there are violets as sweet as poet ever found "half-hidden 'neath a mossy stone" in our woodland valleys; and with these mingle whortle-berries, sow-thistles, chickweed, white and yellow cruciferæ, plantain, and annual grasses.*

MOUNTAIN VEGETATION.

Mr. Wallace furnishes the following explanation of

* The following list of genera characteristic of distant and more temperate regions is given by Mr. Motley:—Violet, two species; ranunculus, three species; rubus, eight or ten species. Also species of primula (primrose); lobelia; hypericum; oxalis (wood-sorrel); swertia; quercus (oak); convallaria (lily of the valley); taxus (yew); vaccinium cranberry; rhododendron; gnaphalium (cudweed); polygonum; digitalis (foxglove); lonicera (honeysuckle); plantago (rib-grass); artemisia (wormwood).

the extraordinary fact, as it will appear to many of our readers, that on lonely mountain-peaks, in an island close to the Equator, should bloom a vegetation so closely similar to that of Europe, while in the plains below, and in all the lowlands for thousands of miles around, thrives a flora of a totally different character! The violet and the wood-sorrel of our English woods adorn the lofty volcanic cone, at the base of which flourishes the Indian fig-tree or the cocoa-nut palm! Thus, in the course of a few thousand feet the traveller seems to pass, as it were, from the latitudes of the rich tropical islands to those of the soberer European vales and pastures. Observe, the Peak of Teneriffe, though it rises to a greater height, and is nearer Europe than any of the Javanese mountains, contains no such Alpine flora; neither do the mountains of Bourbon and Mauritius. The case of the volcanic peaks of Java is, therefore, to a certain extent, exceptional; but, as Mr. Wallace observes, there are several analogous if not exactly parallel cases, that will assist us in understanding how the phenomena may possibly have been brought about. For instance, the higher peaks of the Alps, and even of the Pyrenees, contain a number of plants absolutely identical with those of Lapland, but not to be discovered in the intervening plains. On the summit of the White Mountains, in the United States, every plant is identical with species growing in Labrador.

Now, not one of these cases can be explained by a reference to the ordinary methods in which seeds are carried from place to place. Most of the plants yield seeds so heavy that the wind could not possibly transport them such immense distances; and the agency

of birds is out of the question, when we remember the immense elevation at which the plants are found. In the face of so great a difficulty, some naturalists put forward the astounding theory that these species were all separately created twice over on these distant peaks! But the true solution of the problem is to be sought in the past existence of a Glacial Age—an age when the mountains of Wales were clothed with those huge ice-rivers which we call glaciers, and the mountainous parts of Central Europe, and much of America north of the great lakes, were dreary regions of ice and snow, with a climate resembling that of Labrador and Greenland at the present day. In that age, all the countries we speak of must necessarily have borne an Arctic flora. As the Glacial Period passed away, and the ice and snow receded up the mountain slopes or retired towards the North Pole, the plants also receded, “always clinging as now to the margins of the perpetual snow-line.”*

It will be said that, in respect to the Javanese flora, many of the *genera* are identical with those of Europe, but not the *species*. True: but this is easily explained. During the greatest severity of the Glacial Age, “temperate forms” of plants will have found their way to the confines of the Tropics; but on its departure they would, of course, retreat up the Southern mountains in quest of the climatic conditions necessary for their existence. But, in such circumstances, and owing to the lapse of time that must have taken place, many of the plants would undergo such modifications as to become distinct species. †

* The perpetual snow-line is the boundary (varying in elevation in different regions) above which the ice and snow do not melt.

† For further information on this subject the reader may consult Darwin's “Origin of Species,” chap. ii.

Another objection may be urged, that "a wide expanse of sea between Java and the continent would effectually prevent the immigration of temperate forms of plants during the Glacial epoch." But to this objection we reply, that the former connection of Java with Asia is proved by abundant evidence. "The most striking proof of such a junction," says Mr. Wallace,* "is, that the great mammalia of Java, the rhinoceros, the tiger, and the banting, or wild ox, occur also in Siam and Burmah, and these would certainly not have been introduced by man. The Javanese peacock and several other birds are also common to these two countries; but, in the majority of cases, the species are distinct, though closely allied, indicating that a considerable time (required for such modification) has elapsed since the separation; while it has not been so long as to cause an entire change. Now this exactly corresponds with the time we should require since the temperate forms of plants entered Java. These are almost all now distinct species; but the changed conditions under which they are now forced to exist, and the probability of some of them having since died out on the continent of India, sufficiently account for the Javanese species being different."

ANIMAL LIFE IN JAVA.

We may now take a rapid glance at the animal life of Java. If domestic and marine animals be included, it boasts of no fewer than one hundred species of mammals. In the west of the island the one-horned rhinoceros stalks among the ruined temples; and in the high wooded districts and dense jungles of the

* Wallace, "Malay Archipelago," i. 120.

upper valleys may be found the tiger-cat, the panther, and, more formidable than either, the royal tiger, annually demanding its human victims. Neither the tapir nor the elephant is an inhabitant of Java; though both animals belong to the fauna of Sumatra and the Malay Peninsula. Among the Suidæ may be named the wild hog and the babyroussa; the latter a fierce and dangerous animal, with four strong tusks projecting above the snout. The napu or Java musk is one of the most graceful of the moschine deer. The wild ox (*Bos Sondaicus*) is numerous in the woods, and remarkable not less for the beauty of his shape than the untamableness of his disposition. Of the Ape family the only representatives are the silvery gibbon (*Hylobates leuciscus*), two species of semnopithecus, and the ubiquitous "tailed ape," known as the *Cercopithecus cynomologus*; these are found in almost innumerable hosts, and the forests resound with their noisy chatterings.

Two kinds of lemurs—the *Stenops Javanicus*, and the kukang, or slow-paced loris, *Nycticebus tardigradus*—belong to Java, and are regarded by the natives with all the dread that arises from superstitious ignorance. Probably their alarm is increased by the animal's nocturnal habits. For it is at night that the loris awakes from its slumbers: night, when the birds on which it preys are resting in unsuspecting tranquillity, with their heads screened by their soft plumage. Then through the forest-gloom its large round eyes burn like two balls of red-hot iron; and by these eyes alone can its presence be detected, for, owing to the colour of its fur, its outline is invisible, and its white breast and abdomen may be mistaken



JAVA PEACOCK.

for a slanting moonbeam falling athwart a branch. With slow and stealthy movements it glides along the trees,—lifting paw after paw, and advancing step by step, until it has gained its victim's resting-place. The destroyer raises its hand, until the long curved fingers overhang and nearly touch the sleeping bird, which in a moment is torn from its perch and slain, almost before it has opened its startled eyes.

To Java also belongs the largest member of the Bat tribe, the *Pteropus edulis* (or *P. Javanicus*), measuring five feet across its membranous wings. It abounds in the neighbourhood of the orchards and gardens; hanging suspended from the branches during the day, and at night banqueting freely upon stolen fruit. Two civets (*Viverra inasanga* and *Viverra rasa*) are common enough: the Javanese show a strong partiality for the pungent perfume which they supply.

The ornithologist would find in this lovely island an inexhaustible field for his investigations. Almost all the important genera of Raptores abound. The peacock lightens up the woods with its brilliant plumage. Sometimes it measures fully seven feet in length, and to the spectator it seems impossible that a bird encumbered with such a "long and cumbersome train of feathers" should be able to rise from the ground. The woods echo with the warble of many thrushes; and a kind of blackbird (*Turdus fumidus*) haunts the vicinity of the principal craters, and keeps always within the area of eruption. There may also be found the green jungle-fowl (*Gallus furcatus*), its back and neck beautifully equipped with bronze feathers, and its smooth-edged oval comb of a violet-purple colour, merging into emerald at the base. King-

fishers frequent the banks of the streams, and the hornbill, the lorikeet, and the woodpecker inhabit the leafy woods. Fish are abundant in the rivers and the surrounding seas; and insect life is represented by many rare and curious as well as familiar forms. Through the sunlit air flash the bright-coloured wings of beautiful butterflies,—among others, the rare *Charaxes Kadeni*, remarkable for having on each hind wing two curved tails like a pair of calipers. Nor are the trogon, and the black and crimson oriole, and the resplendent miniver flycatcher, wanting. Or the charming little fruit pigeons (*Ptilonopus roseicollis*), with their head and neck of the most delicate rosy-pink colour, contrasting finely with their otherwise rich green plumage. In a word, the field of study presented to the naturalist is so wide, so varied, and so full, that the industry of a lifetime could scarcely exhaust it.

For our knowledge of the Javanese flora we are greatly indebted to the labours of the botanist Blume,* who contrived to accomplish, though at the cost of his life, the enterprise attempted in vain by not a few energetic predecessors. Its extraordinary wealth has suggested to Michelet a fine and eloquent passage, which may be transferred to these pages because it sums up, in few but accurate words, the salient features of the physical character of the island.†

MICHELET ON JAVA.

Java, he says, is dowered with fires. Notwithstanding its limited area, it possesses as many as the

* See his great work, the "Flora Javæ."

† Michelet, "The Mountain" (Eng. Transl., pp. 151, *et seq.*), bk. i., c. 13.

entire American continent, and all of them more terrible than burning Etna. And to these we must add its *liquid volcano*, its vein of sombre azure, which the Japanese call the "Black River." This is the great Equatorial Current, which, in its northerly course, warms the Asiatic seas; is remarkable for its muddiness; and tastes salter than human blood.

A hot sea—a torrid sun—volcanic fire—volcanic life! Not a day passes but a tempest breaks out among the Blue Mountains, with lightning so vivid that the eye cannot endure to gaze at it. Torrents of electric rain intoxicate earth and madden vegetation. The very forests, smoking with wreathed vapours in the burning sun, seem so many additional volcanoes situated midway on the mountain slopes.

In the loftier regions they are frequently inaccessible, and sometimes so thickly intertangled, so dense, so gloomy, that the traveller who penetrates them must carry torches even at noonday. Nature, without an eye to watch her, celebrates there her "orgies of vegetation," and creates, as Blume informs us, her river-monsters and colossi.

Stemless rhizanthææ seize on the roots of a tree, and gorge themselves with its pith and vitality.* Travellers speak of a species which measures six feet in circumference.† Their splendour, shining in the deep night of the forest, astonishes, nay, almost terrifies the spectator. These children of the darkness owe nothing of their resplendent colouring to the

* The *Rhizanthææ* is a class of plants destitute of true leaves, but with short amorphous stems which grow on the roots of trees. They include the three orders, *Balanophoraceæ*, *Cytinaceæ*, and *Rafflesiaceæ*.

† The *Rafflesia*, first made known in 1818. It is often found on the *Cissus*; and a single flower will weigh eighteen pounds, and its cup hold twelve pints!

light. Flourishing low down in the warm vapours, and fattened by the breath of earth, they seem to be its luxurious dreams, its strange, eëry phantasies of desire.

Java, continues the great French writer, has two faces. The southern wears already the aspect of Oceania, enjoys a pure air, and is surrounded by rocks all alive with polypes and madrepores. To the north, however, it is still India—India, with all it inherits of unhealthiness; a black alluvial soil fermenting with the deadly travail of Nature reacting on herself—with the work of combination and decomposition. Its inhabitants have been compelled to abandon the once opulent town of Bantam, which is now a mass of ruins. Superb Batavia is one triumphant cemetery. In less than thirty years—from 1730 to 1752—it swallowed up a million of human lives; sixty thousand in a single twelvemonth (1750)! And though it is not so terrible now, its atmosphere has not been purified to any considerable extent.

The animals of the primeval world which live forgotten in its bosom are remarkable, it seems, for their funereal aspect. In the evening enormous hairy bats, such as are found nowhere else, flutter to and fro. By day, and even at noon, the strange flying dragon,* that memorial of a remote epoch, when the serpent was endowed with wings, does not hesitate to make its appearance. Numerous black animals exist, which agree in colour with the black basalt of the mountains. And black, too, is the tiger, that terrible

* The flying dragon, or flying lizard (*Draco*), is a genus of Saurian reptiles, allied to the Iguanas, but characterized by the lateral membranes extending from the first six false ribs, which support them, like wings, in the air.

destroyer, which, as late as 1830, devoured annually three hundred lives.

Michelet continues :—

The double mountain-chain which forms the backbone of Java is intersected by numerous internal, concentrated, and sheltered valleys. Hundreds of lateral valleys, running in an opposite direction, vary the spectacle. This diversity of surface insures a corresponding diversity of vegetation. The soil in the lowlands is madreporic, and was once *alive*.^{*} At a higher level it has a foundation of granite, loaded with the fertile ruins and hot *débris* of the volcanoes. The whole is a vast ascending scale which, from sea to mountain, presents six different climates; rising from the marine flora and the flora of the marshes to the Alpine flora. A superb amphitheatre, rich and abundant at each gradation, bearing the dominant plants and those transitional forms which lead up from one to the other; and lead so ingeniously, that, without any lacuna, or abrupt leap, we are carried onwards, and vainly endeavour to trace between the six climates any rigorous lines of demarcation.

In the lowlands, facing India and the boiling caldron of the ocean, the mangrove absorbs the vapours. But, towards Oceania and the region of the thousand isles, the cocoa-nut tree rises, with its foot in the emerald wave, and its crest lightly rocking in the full fresh breeze.

The palm is here of little value. Above its bamboos and resinous trees Java wears a magnificent girdle, or zone, of forest; a forest wholly composed of teak,—the oak of oaks, the finest wood in the world,—

indestructible teak.* It boasts also of a gigantic plane, the superb *liquidambar*.†

Here every kind of food, and all the provisions of the five worlds, superabound. The rice, maize, figs, and bananas of Hindostan—the pears of China—the apples of Japan, flourish in company with the peach, pine-apple, and orange of Europe; ay, and even with the strawberry, which extends its growth along the banks of the streams.

All this is the innocence of Nature. But side by side with it prevails another and more formidable world: that of the higher vegetable energies, the plants of temptation, seductive yet fatal, which double the pleasures, while shortening the duration, of life.

At present they reign throughout the earth from pole to pole. They make and they unmake nations. The least of these terrible spirits has wrought a greater change in the globe than any war. They have implanted in man the volcanic fires; and a soul, a violent spirit, which is indefinable, which seems less a human thing than a creature of the planet. They have effected a revolution which, above all, has changed our idea of Time. Tobacco kills the hours, and renders them insensible. Coffee shortens them by the stimulus it affords the brain; it converts them into minutes.

Foremost among the sources of intoxication to which care unhappily resorts, we must name alcohol. Eight species of the sugar-cane which thrive in Java, abundantly supply this agent of delirium and of forcible feebleness. No less abundantly flourishes tobacco, the

* Teak-wood is obtained from a tree which is known to botanists as the *Tectona grandis*.

† The liquidambar belongs to a genus of trees called *Altingiaceæ*, with alternate leaves, flowers in catkins, and the fruit forming a kind of fir-cone.

herb of dreams, which has enshrouded the world in its misty vapours. Fortunately Java also produces immense supplies of its antidote, coffee. It is this which contends against tobacco, and supplies the place of alcohol. The island of Java alone furnishes a fourth of all the coffee drunk by man; and a coffee, too, of fine quality, when it has been dried sufficiently without any fear of reducing its weight.

Formerly Java and its neighbouring lands were known as spice islands only, and as producing freely violent drugs and medicinal poisons. Frightful stories were circulated of its deadly plants, the juice of which was a mortal venom; of the Gueva-upas, which but to touch was death!

Michelet concludes:—He who would see the East in all the fulness of its magical, voluptuous, and sinister forces, should explore the great bazaars of Java. There the curious jewels wrought by the cunning Indian hand are exposed to the desires of woman, temptation, and the cost of pleasure. There, too, may be seen another seductive agency: the vegetable fury of the burning and scorching plains which is so eagerly sought after; the perfumes of terrible herbs and flowers as yet unnamed. Marvellous and profound the night in its sweet repose, after the violent heats of the day! But be cautious in your enjoyment of it; as it grows old, you breathe death!

Take note of this: the peculiarity that gives to these brilliant bazaars so curious an effect is, that all the thronging crowds are dusky, with dark complexions, and all the animals are black. The contrast is singular in this land of glowing light. The heat seems to have burned up everything, and tinted each

object with shadow. The little horses, as they gallop past you, seem but so many flashes of darkness. The buffaloes, slowly arriving, loaded with fruit and flowers, with the most radiant gifts of life, all wear a livery of bluish-black.

Beware at this time of night not to wander too far, or to ramble in the higher grounds, lest you should encounter the black panther, whose green eyes illumine the obscurity with a terrific glare! And—who knows?—the splendid tyrant of the forest, the black tiger, may have begun his midnight prowling; that formidable phantom which the Malays of Java believe to be the Spirit of Death.

SUMMARY.

From these glowing passages of description the reader cannot fail to have gathered up such details as will assist him in realizing to himself this dazzling, fertile, beautiful, and yet terrible Java,—its blazing volcanoes, its rich mountain-valleys, its immense forests, and its terraced gardens, with all their exuberant abundance of fruit and blossom.

Of its native inhabitants, and their manners and customs, we shall speak in a future chapter; our object here being simply to put before the reader a lively picture of the physical aspects of the island, painted, as it were, with a few bold touches. They belong, however, to the great Malayan family, and in religion are Mohammedans, the creed of the Prophet having been introduced by the Arabs in the fourteenth century, and having superseded both Hinduism and Buddhism. They are an industrious, skilful, sober, patient, and obedient people; addicted to revenge;

superstitious; and possessed with a great veneration for the laws and usages of antiquity. Most of them are engaged in agriculture; but many pursue the arts of dyeing, weaving, and metallurgy with considerable success.

The principal exports are rice, coffee, sugar, nutmegs, mace, cloves, tin, indigo, cinnamon, cochineal, pepper, pimento, tobacco, and cocoa-nut soap. They exceed £5,500,000 in yearly value.

HOT SPRINGS IN JAVA.

We cannot complete our description of this interesting island, which offers so much that is attractive both in its scenery and its inhabitants, in its physical aspects and social life, without paying a visit to the Dieng, which is not only one of the most elevated situations in Java where Buddhist ruins may still be found, but is remarkable for the numerous volcanic lakes and hot springs comprised in its limited area.

Starting from Wonosobo, the first object of interest we meet with is the Lake of Mendjer; a small sheet of water situated at the foot of the Gunong Sorodjo. It measures about two miles in circumference, and in all probability occupies an extinct crater. Its waters are occasionally impregnated with sulphur.

The path now rises rapidly, and the traveller sees before him the lofty mountain-chain of Brambanan, with its summits enveloped in mist. The rocks and crags on either side are incrustated with sulphur, and perforated with holes and crevices, from many of which swift jets of steam or smoke escape, filling the air with odours that are not exactly those of "Araby the blest;" while a strange rumbling sound, like the distant echoes

of chariot wheels, now rises and now sinks upon the breeze.

We reach the summit of the Prau mountain, and thence descend, about one hundred feet, into the dreary valley of the Dieng; a valley measuring about a mile in circumference, and shut in by a semicircle of black, jagged, irregular hills.

Here, on its marshy area, among scattered blocks of stone, lie the ruins of five small temples, built with hewn slabs of stone, and sparsely ornamented with rude carvings. A broken causeway, in the rear of these shattered memorials of an ancient creed, leads to a larger temple on the brow of a hill; and thence we proceed to the shallow milky basin of the Tologo Lin, a small caldron of water, which is eternally seething and bubbling under the influence of volcanic heat, and emitting dense clouds of steam.

Just beyond, at the extremity of a deep hollow, called Pekareman, the earth throws off a considerable amount of carbonic acid gas, or some equally noxious vapour. It is customary for the native guide to prove its deleterious qualities at the cost of a poor chicken or two. When thrown into the fatal chasm, the head and neck of the victim are suddenly convulsed, and, flapping its wings in agony, it rolls over and expires.

It is said that the Javanese, under the influence of despair, *ati bingooong*, resort hither to decide their fate. They lie down near the lake to pass the night; and if they live until morning, they feel confident of securing an auspicious change of fortune. If the credulous creature expire before the dawn of day, his death is attributed, not to the gas, but to the vengeance of a *Pangooroo*, or evil spirit.

Another of these volcanic lakes is called Chondero di Mocko. It covers a space of not more than twenty feet; is, in fact, a small pool of boiling water, with an efflux into a narrow rill, that winds onwards like a line of vapour. In the centre the water rises in three or four jets to the height of about five feet, and flings around a shower of scalding spray. The banks consist of a soft, hot mud, sulphureous deposits, and small blocks of limestone which have been ejected, in course of time, by the restless waters of the little pool.

About a mile in an opposite direction, beyond the Dieng, lies the Talogo Warno, a many-coloured, reed-fringed lake, at the base of the Brambanan mountains, and about three hundred yards in length. Here the waters gleam with all the colours of the rainbow. A bright yellow at one part, and an emerald green at another; here a beautiful azure, and there a delicate rose; then orange and milky white,—all these hues blending and merging into one another as softly and gradually as the tints of a humming-bird's plumage. The cause of this extraordinary diversity is not stated by travellers, but it must be due either to the presence of different species of algæ in the bed of the lake, or, more probably, to some peculiarities of soil. It does not appear to be due to atmospheric influence, as the same condition of things prevails during both the dry and wet monsoons.

Between the Brambanan and Modrodo lies a hot muddy valley, called the Kawa Kiwung. Here may be seen another hot-water basin, with a constantly ebullient spring in its centre, which ejects into the air tall columns of boiling water.

But we may not tarry longer in this remarkable and

interesting district, which presents a scene of volcanic phenomena scarcely equalled in any part of the world. Everywhere the ground seems impregnated with sulphur: sulphureous odours fill the air; boiling springs seethe and hiss in every hollow; under the surface may be heard a continuous reverberation, as if the earth were in the throes of some great agony; the traveller feels as if he were treading on the light crust of a sea of molten minerals and liquid lava; and everywhere he cannot refuse to recognize the "signs and wonders" that justify the significant title which has been bestowed upon this luxuriant, fertile, romantic, and restless Java: it is, in very truth, a "land of fire!"

CHAPTER III.

LIFE IN JAVA.

REMARKABLE ANTIQUITIES.



IN our general description of Java we have cursorily alluded to the remarkable antiquities which are found in the interior of the island. These are frequently of a character to interest and astonish the traveller, as a visit to the ruins of Singha Sari, on the road to Passarouan, will at once convince the reader.

We start from Malang, and proceed in a northerly direction; traversing a countryside that is well cultivated and carefully irrigated. The plough and harrow used by the Javanese agriculturists deserve notice for their simplicity. First: the plough. The coulter is simply a long knife, attached to the end of a long bent handle, which forms the tail; while from the junction of the two a long piece of wood projects forward, and carries the cross-piece or yoke for the oxen to pull it along. Next: the harrow. This is nothing more than a Brobdingnagian rake, drawn by oxen, with the driver sitting in the cross-pieces.

The oxen are small and brown, not unlike the Brahman bull in shape; and better able to endure the heat, it is said, than the great buffalo or musk-ox, with its hairless mouse-coloured skin and huge spread-

ing horns. They are handsome cattle, and delicately and elegantly formed.

Turning off from the main road, a narrow grassy lane brings us to the famous ruins of Singha Sari, situated on the threshold of a venerable wood. They include six principal structures of hewn stone, besides the base of a circular tower; while numerous large and small figures, and various fragments of sculpture and statuary, are scattered in all directions. Three of these structures are quadrangular temples, rising by successive stages to a topmost shrine, which contains several large statues, more or less defaced. The ground-plan of the largest temple measures 93 feet by 36 feet. They are all without friezes, but along the sides are carved ornamental markings, and niches and pedestals for statues, and some figures in alto-relievo.

Two of the other buildings are vaguely described as tombs. They resemble the temples in style, but are of inferior dimensions; square at the base, rapidly diminishing towards the summit in successive stories, and then "bulging out" again in overhanging steps or ledges. One of them we observe to be crowned with the base of a ruined dome or cupola. This is called Chunkoop Wyang; the others are known as Chunkoop Putri. The sixth building, consisting merely of two solid blocks of half-ruined masonry, may have been part of the gateway opening into the sacred enclosure. On each side of it stands a colossal figure—one male, the other female—of bulky proportions and savage aspect, scantily attired, and each wreathed around by a huge serpent. They kneel—these weird corruptions of the Hindu fancy, for, undoubtedly, the ruins are of Hindu origin—on one

knee, with breast and body leaning on the other, while one hand rests on a huge square-headed club, elaborately carved. The right hand of the male colossus is lifted and turned outwards, with two or three fingers erect, as if to forbid an intruder's approach, or command silence. Each wears a kind of crown; the eyeballs are protruded as if in anger; deep frowns carve the vast brow with sunken lines; and from each side of the mouth inclines downwards a large tusk.

The dimensions of the male figure are thus given by Mr. Jukes:—

Height from the ground to the crown of the head....	12 feet.
Circumference round the waist, including the knee, which is pressed against it	25 feet.
Length of the face.....	3 feet.
Length of the nose.....	1 foot.
Width across the back of the shoulders.....	8½ feet.
Width of left hand across the knuckles.....	2 feet 1 inch.
Length of the right hand to tip of middle finger.....	2 feet 9 inches.

Each is sculptured out of a solid block of stone, hard but rather brittle—a close-grained, gray, porphyritic trachyte. The workmanship is admirable, every line being cleanly and smoothly cut; while all the folds of the skin are carefully represented. Round about lie many fragments of sculpture and statuary, not less skilfully executed: including a beautiful Brahman bull, about four feet long; human figures with elephant's heads; an admirably wrought fragment of a chariot drawn by several horses abreast; and figures of Hindu deities, each three-headed or four-headed, and with several pairs of arms. It is noticeable that not only are all these strange memorials of a past which has left no other record executed

with much carefulness and refinement, but they are wholly free from the extravagances and indelicacies of design which so commonly disfigure the antiquities of India. We are thus led to believe in the truth of Mr. Crawford's conjecture, that the Hinduism of Java was a purified religion; "a reformation of the bloody and indecent worship of Siva, brought about by sages or philosophers,—by persons, in short, of more kindly affections than the rest of their countrymen, and perhaps to keep pace with some start in civilization in the country where it had its origin."

Certainly, the ruling minds which selected the site of the ruined temples now before us must have been inspired by lofty sympathies, and have possessed as keen a sense of the beauties of Nature as any Hellenic philosopher or priest. The antiquities are remarkable, and so is the scenery by which they are surrounded. They occupy the summit of a knoll which overlooks the broad undulating valley-plain of Malang. On the right hand, towards the south-west, rises the picturesque group of the Kawi hills, whence a grassy but broken and jagged ridge extends northwards to the mighty mass of Mount Arjuno, which, with its peaked summit and wooded declivities, occupies all the north-western quarter of the horizon. Through a low gap in the north access is obtained to the surf-beaten line of the northern coast, with its populous towns and ample harbours. Towards the east we see the gigantic ridge of the Teng'ger, with all its spires and pinnacles and pyramids, gradually increasing in elevation until it reaches its loftiest points in the noble colossal forms of the Bromo and the Ider-Ider, from which it curves gracefully towards the south-east, and the beautiful

cone of the Semiru. The chord of this magnificent amphitheatre, or the distance from the Semiru to the Kawi, cannot be less than forty miles in length, and is formed by low undulating ridges, which shine in the full glory of the southern sun.

Rich and luxuriant is the loveliness of this glorious valley, which as yet no artist has painted and no poet sung; and even the most savage-featured of its encircling mountains are clothed with the leafy shadows of forests in almost boundless profusion; all except the two cones of the Semiru and the Arjuno, where the volcanic forces still linger, latent, but destructive and rebellious.

When we turn from these glories of Nature to the hoar memorials of the Past, which are mouldering here in the solitude and the silence, a spell falls upon the imagination. We seem to see them frequented by crowds of worshippers, and their altars tended by Hindu priests; while all the country round is studded with busy cities, adorned with palaces, and echoing with the hum of men. The dream rises upon the mind, of a Hindu kingdom, once powerful and opulent and civilized, which flourished, it may be for centuries, in this beautiful and fertile Java.

That such a kingdom once existed, cannot be doubted; we recognize its traces in the ruins scattered over the surface of the Malang valley, in the huge piles of bricks now half-concealed among the forests, in the ancient causeways still used as the principal roads of the country, and in the remains of the massive walls which stretch from the southern side of Mount Kawi to the sea, fortifying the valley of Kediri, and thus protecting the chief access to the plain of Malang

from the west. Any one of these structures, as Mr. Jukes remarks, is far beyond the capabilities of the present inhabitants of Java—at least, without European assistance; and points to the existence of a people among whom the arts and sciences had made no inconsiderable progress. Yet the history of this people is absolutely unknown, and is but slightly recorded even in tradition. It is true that a few dates have been discovered on ruins in other parts of the island, which, from their style and character, seem contemporaneous with those of Singha Sari; and these dates range from A.D. 1195 to A.D. 1296. Some names of kingdoms and princes linger, moreover, in the old Javanese histories or romances; but neither the research of a Raffles nor the laborious industry of a Crawfurd has brought to light any authentic facts.

Mr. Crawfurd describes the ruins of Java as consisting of temples, images, and inscriptions; and the first-named he divides into four classes:—1st, Large groups of small temples, of hewn stone, each occupied by a statue; 2nd, Single temples of great size, of hewn stone, consisting of a series of enclosures, the whole occupying the summit of a hill, and without any concavity or excavation; 3rd, Single temples, constructed of brick and mortar, with an excavation similar to the individual temples of the first class; and 4th, Rude temples, of hewn stone, of more recent construction than any of the rest.*

To the particulars already given we can add only a brief notice of the ruins of Brambanan, which are situated almost in the centre of the island, between the native capitals of Djokokerta and Surakerta.

Here are found the temples of Loro-Jongran and Chandi-Sewa. The former comprise six large and fourteen small temples. They are now a mass of broken ruins, but it is supposed that the largest temples were ninety feet in height. All were built of solid stone, profusely decorated with carvings and bas-reliefs, and adorned with numerous statues, many of which remain entire.

The group at Chandi-Sewa, or the "Thousand Temples," occupies an oblong square area measuring 600 feet in length and 550 feet in breadth. This area is covered with five rows of temples: in the outer row, 84; in the second row, 76; in the third, 64; in the fourth, 44; while the fifth forms an inner parallelogram of 28 temples. Each temple is pyramidal in structure, and consists of large blocks of hewn stone. Each of the smaller ones contained a figure of Buddha, and the chief and central building figures of the principal objects of Hindu worship, all of colossal size and admirable execution.

In reference to the sculptures and decorations, we shall content ourselves with quoting Mr. Crawford's remarks:—

— "First, the scenery, the figures, the faces, and costume are not native, but those of Western India. Of the human figures, the faces are characterized by the strongest features of the Hindu countenance. Many of these are even seen with bushy beards, an ornament of the face denied by Nature to all the Indian islanders. The loins are seen girt after the manner now practised in India, a custom unknown to the Javanese, or any other people of the Archipelago. The armour worn is not less characteristic. The

spear, the kris, and the blow-pipe for discharging the poisoned arrow, in all ages the weapons of the Indian islanders, are nowhere delineated in the temples; but, instead of them, we have the straight sword and shield, the bow and arrow, and the club. The combatants, when mounted, are conveyed in cars or on elephants—both of these modes of conveyance of foreign custom; for the elephant is not a native of Java, and the nature of the country precluded the use of wheeled carriages. Second, there is not a gross, indecent, or licentious representation throughout, and very little, indeed, of what is even grotesque or absurd; and third, we discover no very pointed nor very distinct allusion in the sculptures to the more characteristic and unequivocal features of Hinduism.”

SOCIAL LIFE IN JAVA: A GRAND ENTERTAINMENT.

From these curious memorials of the ancient life of Java, we turn to the consideration of some few aspects of its modern life, of the manners and customs of its present inhabitants; and if we accompany a recent traveller in a visit to the native Sultan of Bankalang, we shall become witnesses of a scene every feature of which is both novel and interesting to European eyes.

To do us honour, and impress us with a sense of the power of our princely host, the road to his “palace” is lined on either side by spearmen, at intervals of about three yards; each assuming a theatrical and studied but impressive attitude, and holding aloft his long quivering lance. Ushered by the sounds of a native band, or *gamelang*, we arrive at the gateway of the sultan’s residence, and by a wooden bridge

cross the broad ditch or moat in front of it. Here the place of the spearmen is taken by Javanese infantry, clothed in a Dutch uniform of blue and yellow, and armed with musket and bayonet. After passing through two similar gateways, we find ourselves in the presence of the illustrious potentate of Bankalang, and, exchanging the usual courtesies, are conducted by him into the state apartments. These consist of a great, irregularly-shaped hall, divided into several compartments, each with its separate roof, supported on pillars and square masses of brick-work, the spaces between which are left entirely open below. The roofs are constructed after a common Eastern fashion: rising by successive steps to the centre, and looking on each slope like the under surface of a staircase. Looking around, we observe that a large chandelier hangs from the centre of each roof, while at numerous convenient points are suspended large lamps of handsome design. Soft and gaily-coloured mats adorn the floor, while the pillars and walls are gay with French mirrors, and gaudy prints, and ornaments, and the slabs and tables are covered with opal vases and various specimens of the ingenuities and prettinesses of a luxurious civilization.

The guests having taken their places with a strict attention to the formalities of precedence, we refresh ourselves with tea—tea after the Oriental fashion—and cakes of savoury make. An interval, and we all rise; carriages drive up; and we depart in a body to become eye-witnesses of a fight between a buffalo and a tiger.

The arena is a large courtyard; in the middle of which stands a tall cage, made of square posts firmly

driven into the ground, and partly roofed over. At one side a stage is erected for the principal spectators, while the *polloi* crowd round on the ground. The combat begins, but lacks all interest and excitement; for the tiger, though once no ignoble tenant of the jungle, has lost courage, and disease, starvation, and old age have quenched its fires. In its time it has numbered seven human victims; but it was caught twenty days ago, and since its capture has refused all food.

The presence of the buffalo does not stimulate its appetite; it lies crouched in a corner of its cage, and will not move even when lighted torches are applied to it, and scalding water poured upon it. At length it tries to drag its feeble limbs into some quieter corner; whereupon the buffalo, with a loud snort, butts it with his horns against the bars of the cage; tosses it right up into the air; and allows it to fall on its back with a heavy thud, as if every bone were broken.

We pronounce the spectacle as brutal as it is dull, and are glad when the sultan gives the signal for returning to the palace.

Here we sit down to a splendid banquet, which, in its bright appurtenances, makes us forget that we are in Java, and carries us back to Veray's in Piccadilly, or *Les Trois Frères* in Paris. The table glitters with porcelain, and crystal, and plate; the dishes consist of soup, fish, flesh, and fowl, followed by cakes, sweetmeats, and fruit; and each guest may drink *ad libitum* of the best wines of France, and the finest ales and porters of the great English breweries!

The banquet ended, we retire to our various rooms,

and while away the hot hours of noon in a tranquil siesta.

At five we reassemble in the central hall, and have an opportunity of judging of the sultan's performances as a violinist. His fiddle has but two strings, and the sounding-board is nothing better than a cocoa-nut covered with parchment, but the rest of the instrument is adorned with ivory, gold, and jewels; and such as it is, he plays it with considerable taste. Presently he summons an old fellow, whom we take to be his buffoon or jester; and squatting down before us, he begins singing or chanting, in a loud harsh voice, a kind of burlesque song,—accompanying it with countless contortions and gestures, and mimicking the cries of fowls, geese, and other animals.

By-and-by, as evening comes in, the attendants set a number of many-branched stands about the courtyard, on which small glasses filled with oil emit a glowworm-like radiance; and gradually all the chandeliers and lamps in the hall are lighted up, and the scene assumes a really brilliant character. At six o'clock the sultan and his sons retire through a side-door to perform their evening devotions in an adjoining mosque; for our potentate, notwithstanding French wine and English porter, is a follower of Islam. These last until eight, when everybody appears in the hall in full dress, and preparations are made for the evening's amusement. Various games are introduced, but none of them attract us. Our attention is wholly given to what is indeed a novelty—a drama in the Javanese style!

At the entrance of the hall, a large white calico screen, about eight feet high, and sixteen or twenty

feet long, has been erected; and behind it, in the centre, hangs a remarkably brilliant lamp. On the floor lies a large recently-cut stem of a cabbage-palm tree, in which several hundred puppets are inserted. These puppets form the *dramatis personæ*, and are cut or stamped out of very thick leather, and profusely gilded and painted. They represent men and women, deities and demons, most of them with towering head-dresses and flowing robes, many with grotesque or hideous features, and all more or less distorted. Some are well-known characters in native history, romance, or legend; others are purely imaginative, and of a comic aspect. All the figures are motionless, except the arms, which are jointed, and can be moved by strings at the will of the exhibitor. From the base a long thin spike proceeds, by which the figure is fixed into the cabbage-palm until wanted, or held by the exhibitor's hand when its turn comes in the rapid action of the puppet-show.

The screen is raised about two feet from the ground, and in the centre a piece of carved work represents a gateway, flanked by a pillar and wall on either hand. The puppets make their appearance in the opening thus afforded, which is about three feet wide.

All the preparations being completed, we take our seats on the other or auditorium side of the screen, so that we see the shadows of the walls and gateway, and those of the *fantoccini*, strongly projected on the white calico screen by means of the brilliant lamp placed at a short distance in their rear.

The gamelang or band "tune up," and the play begins. The exhibitor, seated on the ground to prevent his shadow from falling on the screen, strikes a

board with a mallet, or wooden hammer, for the purpose of regulating the music, accelerating or retarding the time, increasing or diminishing the force of the instruments, in accordance with the various phases of his drama; and meanwhile he describes them in a kind of recitative, loud and monotonous, something between the tone of a plain narration and an ecclesiastical chant. As the story proceeds he brings on in succession the necessary characters, which describe the action by a variety of gestures, raising and lowering their arms in a curiously distorted and jerky fashion.

The subject, on this occasion as on most occasions, is taken from the old Javanese traditions and romances, and being familiar to the people, is intelligible to them, and probably interesting; but an English visitor soon grows weary of a show which he cannot understand, while it is unspeakably monotonous. We are not sorry, therefore, to seize an opportunity of retiring, and enjoying a little silence and repose until the dinner-hour arrives.

Dinner is a repetition, on a more elaborate scale, of the one o'clock lunch or breakfast. *Pumelos*, or shad-docks, of excellent quality, now figure on the board; as well as birds'-nest soup, which is savoury enough, but owes its savouriness to the condiments introduced, and certainly not to the birds' nests. These answer the purpose of isinglass, and are quite as tasteless.

Here we may conclude our visit to the sultan, which has made us acquainted with a strange medley of European and Oriental customs, and shown us that social life in Java among the higher classes is now very largely influenced by the spirit of the West.*

* Jukes, "Voyage of H.M.S. *Fly*," il. 145-155.

But there are some aspects, as we shall see, in which it retains its original character. The great body of the population are comparatively untouched by the new order of things, and retain their ancient habits, ceremonies, and traditions. It cannot be supposed that this immunity will long continue, now that commerce is pressing in on every side with its currents of new thought and new aspiration. But, at present, the attractiveness and interest of such ceremonies as the *Slamat* do not appear to have diminished. The *Slamat*, or *Slamatan Bromok*,—that is, the blessing or worshipping of the volcano,—takes place annually, and draws together a considerable concourse. The pilgrims frequenting it are Brahmans, unlike the Javanese in general, but not so rigid in their religious observances as their brethren in India. They inhabit the provinces of Probolingo, Malang, a great part of Bezuki, and part of the islands of Lombok and Bali.

THE SLAMATAN BROMOK.

The Bromok is a still active volcano, situated at a distance of about three miles from the town of Tosari, and forming one of a chain of green wooded hills and mountains among which it raises a barren cone, crowned by volumes of smoke and vapour. Its ascent has been frequently accomplished.

The path leads up extensive slopes covered with a tall yellow grass, called the *alang alang*, to the Mungal, an enormous extinct crater, reported to be the largest in the world. Here, if the traveller pause and survey the prospect before him, he will observe a cluster of mountains, distant fully two miles. The foremost is called the *Batok*, or *Butak*,—that is, the

Bald; referring probably to its barren summit, for its declivities are well clothed with herbage. It is conically shaped, and its sides are marked with deep grooves, showing the course taken by the lava-streams in its whilom period of activity. To the right, and a little in its rear, extends the sharp-pointed chain of the Dedari and Widadaren, or "dwelling of fairies;" while on the left, wreathed about with smoke-clouds, which partially conceal its bulk, groans the Bromok, a dark and dreary object in a picture of surpassing brightness.

The track now descends into the crater, and crosses its sandy floor, the Dasar,—or, as it is appropriately called, the Sandy Sea,—where not a tree or shrub is visible, and the only signs of vegetation are a few scattered patches of dried and scrubby grass. The surface, moreover, is curiously corrugated or ridged, like the sea-sand at ebb of tide; and the whole landscape is as full of gloom as the wastes of the African Sahara.

The form of the Bromok is that of a truncated cone. From one of its sides project numerous irregular masses, or mounds of mud and sand, incrustated in a baked clay like red lava. Some of these mounds have been wasted by the tropical rains, which have channelled the Sandy Sea with deep broad fissures; while others, still supplied with liquid matter from the volcano, are encroaching on the Dasar, and covering that portion of it in the immediate neighbourhood of the crater. Embedded in these mounds are large blocks of lime and ironstone; also huge black stones veined like marble and glittering like granite.* These, as well as

* D'Almeida, "Life in Java," i. 159, *et seq.*

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kinds of cakes ; of strips of silk and calico ; and coins of gold, silver, and copper.

Some minutes having been spent in prayer, each priest dips his goupillon or cup into the vessel of water before him, mutters a few unintelligible words, and sprinkles the offerings as they are brought to him. Then all the holy men bow their heads and repeat a prayer in a loud and distinct voice.

The oldest rises up, followed in succession by his sacerdotal companions, uttering words which sound like "Ayo, ayo, Bromok!" and may be construed to mean, "Forward, forward to the Bromok!" At this signal the whole multitude hastens to the Bromok, he who first gains the ridge believing himself the favourite of fortune, and certain of "good luck." Every now and then some of the older priests come to a halt, spread their mats, and prostrate themselves in prayer for five or ten minutes ; thus earning a reputation for special saintliness, and at the same time securing an interval of rest.

The summit of the volcano being gained, the various families and individuals again present their offerings to the priests, who mumble over them a few additional words. They are then hurled down the crater, each person repeating some prayer or wish. And so the ceremony of worshipping or blessing the Bromok is concluded. The crowd descend from the volcano to indulge in a variety of games and pastimes, and towards evening everybody returns home, and the Sea of Sand regains its normal aspect of dreariness and solitude.*

One more picture of Javanese life we shall venture to

* D'Almelda, "Life in Java," i. 165-173.

put before our readers, availing ourselves of the information collected in M. D'Almeida's lively pages. It describes the ordinary evening entertainment of the upper classes of Java.

AN EVENING ENTERTAINMENT.

Our authority was invited, one evening, along with some friends, to the house of a dignitary whom he designates the Tumungong Mertonegoro (that is, “ the good of the land ”), in order to take part in a social entertainment. On reaching the house of the Tumungong they were received in due form, and introduced to the ladies of the household, wife, daughters, nieces, and the like, who, radiant with jewels, were seated in a semicircle round the upper part of the pringitan. The gentlemen were in the pendopo, or hall, which contained a large collection of glittering spears and other native weapons.

To the right of the pringitan, behold the orchestra : here thirty instrumentalists, forming a gamalan (or gamelang) band, are assembled. Very curious are the instruments from which these musicians educe “ sweet sounds ” ! One is an enormous gong ; enormous indeed, for a person could comfortably bathe in its interior. Another bears some resemblance to a violincello ; measures four feet in length ; has an oval back ; a diminutive piece of wood, placed close to the finger-board, serves as a bridge ; the finger-board, tail-piece, and pegs are of ivory. A couple of wires form the strings ; and these, when tightly drawn, produce a music which cannot be described as pleasing. The gamalan is a kind of cymbal, and sounds best, like the Scottish bagpipe, at a distance.

Javanese music is always extemporaneous; a circumstance which does not render it more agreeable to the cultivated ear. The measure is almost invariably common time; though in some of the allegro and presto passages the time changes to what in the West is known as $\frac{3}{4}$.

The proceedings began in this wise:—

Six vocalists arose, conducted by one who appeared to be recognized as leader, and sang, from a manuscript, a very animated and eulogistic description of a recent review of the sultan's army, in which the Tumungong was a colonel. The instruments sometimes ran in accord with the singers; but the accompaniment being improvised, more frequently they lost sight of the air, and wandered away into indescribable variations.

This performance at an end, six young girls, two of whom were daughters and the others relatives of the prince, came forward on the pringitan or dais, marching with a stately step. They were richly attired in silken kabayas, fastened round the waist by a jewelled girdle, and gay sarongs, which flowed behind them like a European lady's train. Jewels blazed in their ears, and glittering coronets encircled their heads.

Turning towards the ladies as they entered, they took their seats on the ground, and raised their hands to salute the Raden Ayu, or wife of the prince. A moment, and they started up simultaneously, separating into two parties, which, after crossing and recrossing several times, suddenly stood still in the same attitude, as if they had been stricken by a spell. Thus they remained for a minute or two; after which they began to twist, and bend, and wave their bodies

in a manner possible only to the supple Asiatics, and with a gracefulness and ease which were truly extraordinary. One of their movements was very curious, and not so elegant as the rest, though executed with the same facility: they protruded the inner joint of the elbow, and turned their hands backwards in a curve until the middle finger touched the wrist.

The next dance, of a military character, was performed by four boys, dressed as Chinese mandarins. Each was accompanied by a page or esquire carrying the weapons to be used in the mimic fight; but the juvenile warriors, loaded with padded clothing, and having no other instrument to excite them than a bamboo clarionet, soon grew weary of their task.

Then the six girls who had joined in the first dance reappeared. A table covered with white was stationed in the centre of the *pringitan*, and a vase of flowers placed upon it by an old duenna, who every now and then rearranged the attire of the dancers, or smoothed out their tangled locks. The new performance was a kind of pantomime, or ballet, called the *Buksan*, designed to illustrate the following story:—

In ages long ago, a king named Praboe Sindolo, of Mendang-Kamolan, determined to retire from the world, though he was still in the flush of youth. Accordingly he shut himself up in a cave or hut on the summit of a mountain, and devoted himself to study and meditation, rigidly observing certain days as *tapa*, or fasts. Like Faust, however, he was frequently interrupted in the midst of his reflections by a Javanese Mephistopheles, who, in order to beguile him from his profitable perusal of sacred books, painted in the most glowing colours the enjoyments of the world. Growing dis-

trustful of the steadfastness of his resolve, and anxious to exorcise the demon that inspired him with sensual thoughts and images, Praboe sent for a large bird, with whose language he had made himself acquainted, and for four vestal virgins.

Previous to their arrival, he transformed himself into a flower, and bloomed brightly in the heart of a vase of blossoms, around which the four maidens danced and sung to avert the presence of the evil spirit. Now it happened that a fair princess passing by, charmed by the appearance of the fragrant vase, plucked one of the flowers, and carried it home with her. What was her surprise, on placing it in water, to see it suddenly change into a handsome young king! As for Praboe himself, he was so enraptured with the beauty of the princess that he forgot all about his hermitage and his *tapa*, and offered her his "hand and heart;" wisely concluding, we suppose, that a man's duty in this world is to overcome its temptations, like a brave warrior, and not to fly from them like a coward!


The dance intended to develop this agreeable little story was followed by one or two warlike representations, and then the whole party adjourned to the supper-room. As this apartment was across the courtyard, the Javanese gentlemen, adopting the European fashion, offered their arms to the ladies; but the courtesy did not seem generally acceptable, and in some cases was refused.

The supper was prefaced with soup, but differed in few respects from the mode of entertainment common among the Dutch residents in Java. After supper the guests retired.

CHAPTER IV.

BORNEO.

EXTENT AND SITUATION.

T seems strange, says Mr. Jukes,* that the regions included in the East Indian Archipelago, one of the most favoured portions of the globe, should have remained even to our day comparatively unknown and uncared for, while so many other parts of the world, less accessible and less interesting, have been constantly ransacked and described by travellers of all kinds. The grandeur and loveliness of the scenery of this great group of islands can hardly be surpassed, while the richness of their productions in the animal and mineral kingdoms is great, and in the vegetable kingdom they are unequalled, whether in beauty, rarity, or value to man.

Much has been done of late, however, to remove this reproach of ignorance,—particularly by Messrs. Wallace and Bickmore; while in one of the most important of the Eastern islands the British flag has been successfully planted through the courage and perseverance of the late Sir James Brooke. English science is not slow to follow in the footsteps of Eng-

* Jukes, "Voyage of H.M.S. *Fly*," II. 226.

lish enterprise ; and thus it has happened that of the great island of Borneo, the largest in the Archipelago, we now possess a very considerable amount of knowledge.

Borneo is not only the largest island in the Archipelago, but the largest island in the world. Its most northern point is Cape Sampanmangio, its southernmost Cape Salatan ; so that it covers more than twelve degrees of latitude, or about 850 miles in length. Its easternmost point is Cape Oonsang, and its westernmost Cape Pandan ; so that it extends over ten degrees of longitude, or 720 miles in breadth. Its breadth, however, if taken at right angles to its length, is about 600 miles ; and this diminishes towards the north. In form it has been not inaptly compared to a shoulder of mutton ; or, mathematically speaking, to an irregular pentagon, with a small rhomboid attached to its north-east side. Its area may be estimated at about 270,000 square miles, or about three times that of Great Britain.

Can we obtain a clear idea of the situation of Borneo ? Yes. In the first place, let us conceive of it as the central mass of the Asiatic division of the Archipelago ; a division of which Sumatra may be taken as the western boundary, the Moluccas and Philippines as the eastern, while Java, Bali, and Lombok define it on the south. On the east, the Macassar Strait separates it from Celebes ; on the south, the Java Sea from Java ; on the north and west it is washed by the Chinese Sea. The Equator almost equally bisects it from east to west. It is in the same latitude, therefore, as Central Africa ; and a line drawn from Cape Salatan, its south-east point, would touch the volcano of Kilimand'jaro, if prolonged to

the westward. Prolonged to the eastward, it would traverse the island-groups of Polynesia. Its shores on the east and south are fringed with coral reefs, built up since it was disrupted from the Asiatic mainland.

Physically speaking, Borneo may be described as one immense forest, generally of moderate elevation,—that is, 300 to 700 feet,—traversed by great rivers, which descend from a central group of mountains, and surrounded by wide alluvial plains, edged with mangrove swamps, or broken up into low deltas, constantly subject to inundation. It has, therefore, a physical character distinct from that of either Java or Sumatra its plains are of much greater extent, and its mountains, on an average, do not attain the same elevation.

MOUNTAINS AND RIVERS.

From north-east to south-west extends a chain of mountains, nearly parallel to, but at a great distance from, the west coast, which, in or near lat. 3° N., curves round to terminate at Cape Sipang. From this chain a short spur projects, and links it to a double range of lesser heights,—one of which runs south-west to a point near Cape Sambas, while the other pursues an irregular south-eastern direction, and reaches Cape Salatan. The culminating point of the first-named chain is Kinibalu, 13,680 feet in height. This is the loftiest summit in the island; and on the east side of it lies a great lake, the source of numerous rivers. The other important peaks are Kamingting, in the south-west chain, 6500 feet; Luangi, in the south-east, 6300 feet; Meratoo, also in the south-east, 4000; Batang-Loopar, east of Sarawak, 4000; Krimbang and Saramboo, both south of Sarawak, 3250

and 3000 respectively; and Santibong, at the mouth of the river Sarawak, 2050 feet. Thus it is evident that the general elevation of the island is not considerable. If it were sunk five hundred feet, at least four-fifths of its area would disappear, leaving several long peninsulas, of tolerable breadth, divided by broad ocean-channels, and relieved by solitary mountain-peaks rising here and there above the waters. If sunk one thousand feet, nothing would remain but a few of these peninsulas: the ocean-ways would be broader, and the mountain-peaks wider apart.

We come now to the rivers of Borneo. In most countries the configuration of the surface is determined by the course of one principal river, or it is defined by the basins of two or three main streams. Thus: Germany is marked out by the basin of the Rhine; France by the basins of the Rhone and Loire; Egypt, by the valley of the Nile. So far as our knowledge of Borneo at present extends, it offers us no such assistance in surveying and laying down its superficial area. Its rivers are mostly tidal; but their basins seem to be very narrow, and they descend languidly and slowly through vast level deltas, which merge into inundated plains. Their branches are numerous, and their facilities for internal communication are very great; but their mouths are blocked up by sand-banks and shallows, which render them inaccessible from the sea to vessels of even moderate burden. Borneo is as emphatically the land of rivers, however, as Java is the land of volcanoes; and in this respect can be compared only to the forest-region of South America, which, from other points of view, it closely resembles. These rivers descend from mountain-ranges of moderate

altitude, with a sluggish but steady flow, in the shade of enormous masses of overhanging foliage, with clumps of the creeping palm-like *nipa* adorning their banks, or barriers of mangroves steadily resisting the encroachments of the waters. Bridges here and there are thrown across them; not such solid structures as we are accustomed to in our well-cultivated country, where floods are of rare occurrence, but ingenious substitutes, and well adapted for locomotive purposes. A Dyak bridge consists merely of stout bamboos, crossing each other at the roadway like the letter X, and rising a few feet above it. At the point of junction they are firmly bound together, as well as to a large bamboo which rests upon them, and forms the sole pathway, while a slender and often not very firm one serves as a handrail. This simple platform is partly suspended from an overhanging tree, and partly supported by diagonal struts from the banks; no posts being placed in the stream itself, where they would surely be carried away by floods. Such a bridge as this is traversed daily by men and women carrying heavy loads, so that any insecurity is quickly detected, and, the materials lying close at hand, is quickly remedied.

The littoral or shore-country on the north and north-west, a comparatively level tract, about six hundred miles in length, is watered by a perfect network of rivers,—though, probably, not one of them exceeds a hundred and fifty miles in its full career. They rise from the range of mountains of which Kinitalu is the culminating summit, and their course being short, are more rapid than those in any other part of the island. Some of them preserve their fresh-water character down to the very coast.

Tracing them from the north, we may notice, first, the river Brúnai (or Borneo), a broad sheet of water, navigable for some distance by large ships. Next, the Binbula and the Judal, both of which are considerable streams. Passing Cape Sirrik, we observe the mouths of the Rejang—which at eighty miles from its mouth is one mile wide—and the Sarebus. Still larger than these is the noble Butong Lupar, which measures nearly five miles across, and can float a large frigate. The Sarawak, famous in our annals of English enterprise, is not so much remarkable for its length or breadth, as for its numerous branches, which ramify in such a manner as to afford an extensive district all the advantages of water-communication.

South of the Equator, we find the Mejak, the Sambas, and the Kapooas. The first-named was ascended by a Dutch steamer as far as Malu in March 1855. The last-named is one of the chief rivers in the island, perhaps the chief, measuring not less than seven hundred miles in its sinuous course.

On the south coast we notice the Djelli, the Pembuan, the Mendawi, the Great Dayak, the Little Dayak, the Kahajan, the Murong, and the Banjer-massin, or Burito. This last is connected by several arms with the Murong, on the west, and thence again with the Kahajan; so that a water-way penetrates into the very heart of the interior. In the lower part of its course it is continually overflowing the country, as its name indicates: *Banjer-massin*, "frequent floods." In the upper part it is called the *Dooson*, or village-river, because its banks are occupied by several agricultural communities. It is fed on the east by the Nagara; a river which in itself is of considerable importance.

On the east coast the rivers are not so large nor so numerous ; but we notice the Kooti or Coti, with its wide delta, extending over one hundred miles of coast. It was ascended by Major Müller, a Dutch officer, in 1825 ; and he had succeeded in crossing the mountains, and descending into the valley of the Kapooas, when he was murdered by the Dyaks. Further to the north lie the Pantai, or river of Berou ; the Boolongan, with its two mouths or arms, the Sabanom and Umara ; and the Kinabatangan.

ASCENT OF A BORNEAN RIVER.

We shall obtain a better notion of the features of the Bornean rivers if we attempt the exploration of one of them, and trace its career upwards from its mouth. For this purpose we may select the Sadong, because it falls into the sea at a point near the British settlement of Sarawak, and has been ascended by the naturalist, Mr. Wallace.

Up to the village of Jahi it is somewhat monotonous, the banks being cultivated as rice-fields ; and the unpicturesque uniformity of a muddy margin crowned with tall grasses being only occasionally relieved by the little thatched huts of the Dyak cultivators. But above Jahi we pass the limits of culture, and enter the domain of the virgin forest, which pushes its supremacy down to the very margin of the flood, and seems inclined to dispute with the river even its very bed. The virgin forest ! Yes ; with its stately trees, its beautiful tall palms, so shapely and erect, its strange forms of vegetation, its interlacing creepers, its epiphytes, and tree-ferns, all blending in an inextricable maze of leaf, stem, and blossom, of gloom and green-

ness, occasionally lighted up with a fitful gleam by some intrusive ray.

At Tabókau we come upon the first village of the Hill Dyaks, situated on the steep, rocky bank in a narrow space which has been cleared of trees. Here, on a kind of green, about twenty boys are playing at a game which reminds us of "prisoner's base;" their ornaments of beads and brass wire, and their gay-coloured kerchiefs and waist-cloths, presenting a bright and attractive spectacle. We enlist them in our service, and they remove our baggage to the "head-house," a circular building attached to almost every Dyak village, and serving a variety of purposes,—such as an *hospitium*, or lodging for strangers; a mart or trading-place; a sleeping-room for unmarried youths; and a general council-chamber. It is elevated on lofty posts; has a large fireplace in the middle, and windows in the roof all round.

The only dress of the young men is the long *chawat*, or "waist-cloth," hanging down before and behind, and made generally of blue cotton, with the broad tail-bands of red, blue, and white. The well-to-do also display a handkerchief as a head-covering; either red, with a narrow border of gold lace, or of three colours, like the *chawat*. As ornaments, they wear large, flat, moon-shaped ear-rings of brass, a heavy necklace of black beads or white, and armlets of white shell. A long, slender knife, and a pouch containing the necessary materials for betel-nut chewing, are slung at the side.

To beguile the time, they are good enough to favour us with a specimen of their pastimes.

And first they have a trial of strength. Two boys

take their places opposite one another, with foot set against foot, and a stout stick grasped by both hands. Each endeavours to throw himself back, in such a manner as to lift his adversary from the ground, either by sheer force or by a sudden surprise. After this, one of the men enters into competition with three boys ; and then, by way of finale, each clasps his own ankle with a hand, and while he stands as firmly as he is able, the other pirouettes on foot, with the view of striking his opponent's fore-leg so smartly as to topple him to the ground.

These displays of athleticism at an end, we are entertained with a novel concert. Some of the performers place a leg across their knee, and strike their fingers sharply on the ankle ; others flap their arms against their sides, just as a cock uses his wings when about to crow ; another, with his hand under his armpit, produces a deep "trumpet note : " and, strange to say, as all these movements are performed simultaneously, and in good time, the effect, though novel, is not disagreeable.*

Refreshments are served, and we retire to rest.

Next morning we resume our river-voyage, but in a boat of a different construction. Though thirty feet long, it is only twenty-eight inches wide, and draws but little water. The river now changes its character. The deep, tranquil stream, flowing through steep banks, becomes a noisy, rippling watercourse, tumbling over a rocky bed in a succession of "miniature cascades and rapids," and throwing up on either side masses of beautifully coloured pebbles. Our con-

* Wallace, "Malay Archipelago," i. 66, 67. In our imaginary river-voyage we are reproducing an actual excursion of this distinguished naturalist.

mountain region, has an important bearing on the modern theory, that the form of the ground is mainly due to atmospheric rather than to subterranean action."

Our earlier geologists were very prone to adopt what may be called sensational explanations of natural features, and to see in everything the effect of an earthquake or a deluge. But it is more reasonable to conclude that the course of nature, in the past as in the present, has been gradual, equable, and continuous. We can see every day with our own eyes the influence of the rains or the streams in modifying the features of a landscape. And when we have a number of "branching valleys and ravines running in many directions within a square mile," instead of attributing their origin to rents and fissures produced by earthquakes, we may well ask ourselves whether they have not been wrought out by the heavy tropical rains acting on an easily decomposed rock, and swelling into rapid and violent streams.

At the village of Menyerey we obtain a fine view of Penressin Mountain, at the head of the Sarawak River, six thousand feet in height. To the south rise the Rowan, and further off the Untowan Mountains, apparently of equal elevation. Crossing the small river Kayan, we slowly ascend to the pass, about two thousand feet high, between the Sadong and Sarawak rivers. From this point we descend to Sodos; a noisy stream rushing through a rocky gorge on either side, across which we occasionally pass upon bamboo bridges of apparently frail construction. From Sodos we proceed to Senna. Here the Sarawak loses its character

of a mountain torrent, and subsides into a bright pebbly stream, navigable for small canoes.

It is not without hard bargaining that we obtain the use of a boat from a Malay trader, and hire three Hill Dyaks to take us down to Sarawak. They are less skilful in the management of boats than the Sea Dyaks, and our crew are constantly employed in striking against rocks or running aground. But we surmount every difficulty, and get into smoother water, as the river broadens and deepens, flowing through a picturesque and well-cultivated country, with limestone mountains rearing on either hand their broken and jagged heights out of masses of luxuriant vegetation. The river-banks are abundantly planted with fruit-trees; rich tropical trees, with such succulent, juicy, nutritious fruit as the European orchard can never produce; fruit which can ripen only under a tropical sun. Here are the mangosteen, the langsat (or lanséh), the rambutan (or rambootan), the blimbing, the jack, the jambou; but, above all, the durian, of which an old traveller writes: "It is of such an excellent taste that it surpasses in flavour all the other fruits of the world!"

THE DURIAN-TREE.

The reader will excuse us if we anticipate our botanical chapter for the purpose of introducing him at once to this justly celebrated fruit, which is given to fortunate man by a tree known as the *durian*, or *Durio zibethinus*.

This tree is a child of the forest, and grows, when mature, to a stature of sixty or eighty feet, with something of the general appearance of an elm. Its leaves are entire, oblong, and rounded at the base; they taper

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upwards into a long point, and are densely covered on the under surface with minute scales, producing a silvery red appearance. The flowers are yellowish green, and gather in little clusters on the smooth scaly trunk or main branches ; each has a tubular calyx and a five-petalled crown. Then, as for the fruit, it is either globular or oval, measures about ten inches in length, has a thick hard rind, and is armed all over with very strong sharp prickles, the bases of which touch each other, something like the cells in a honey-comb. It is the *Nemo me impune lacessit* of fruit ; and if the stalk be broken off, delicate fingers will scarcely care to lift it from the ground ; while so thick and so tough is the outer rind, that it is as difficult to break as a cocoa-nut.

From the base to the apex five lines are faintly traced, and by applying your knife to one of these you may get at the inside, which is divided into five cells, each containing from four to five seeds rather larger than pigeons' eggs, and completely enveloped in a mass of firm, luscious-looking, cream-coloured pulp. This is the *eatable* part of the fruit, and had the Greeks known of it they would certainly have represented it as the favourite food of their Olympian divinities. Its flavour is perfectly unique, and has been compared to that of a rich buttery custard rendered piquant by an infusion of almonds ; but intermingled with it, says one enthusiast, "come wafts of flavour that call to mind cream-cheese, onion-sauce, brown sherry, and other incongruities." It is neither acid, saccharine, nor juicy, but something better than either of these ; and then it glides down the throat with a jelly-like smoothness that is all its own. In fact, "to eat

durians," we are told, "is a new sensation worth a voyage to the East to experience." The only drawback is the abominably offensive odour; but this one learns to overcome after tasting the fruit. Besides, you can hold your nose while eating it, and then your enjoyment is simply perfect!

When unripe, the durian may be used as a vegetable, and cooked. The ripe fruit may be preserved salted, in jars and bamboos, and served up with rice; but in such a case it acquires so offensive an odour that no European can conquer his repugnance to it.

The durian is sometimes dangerous, and in a very curious way. As the fruit ripens it falls daily, nay, almost hourly, and accidents often occur to persons walking or working under the trees. For if it strikes a man in its fall it produces a terrible wound; the strong spines tearing open the flesh, and the heavy blow not unfrequently smiting the unfortunate individual to the earth.

THE BAMBOO.

We turn from the durian to the bamboo, which is infinitely more useful, though it does not possess the attraction of a savoury fruit. What the palm is to the Polynesian, that, with some qualifications, the bamboo is to the Dyak. It furnishes bridges, posts, rods, drinking-vessels, mats, screens, chairs, tables, bedsteads, bedding. With the help of this single grass—for it belongs to the great family of Grasses, though it grows to the height of forty and fifty feet—the Dyak not only builds his house, but furnishes it. He also builds his boats with it, erects a bamboo mast, and hoists bamboo sails.

The admirable qualities of a bamboo are seven in

number :—Strength, lightness, roundness, straightness, smoothness, hollowness, and divisibleness.* In how many plants will you find all these *combined*? And when they *are* combined, must there not necessarily be something very good and desirable in the combination?

Look at that Dyak house yonder. It measures two hundred feet in length, and forty feet in width, and is raised upon stout posts. Well, its walls are made of bamboo, and its roof is thatched with bamboo; and inside, the partitions are formed of bamboo, and with bamboo the floor is laid. Strips split from large bamboos, so that each may be nearly flat, and about three inches wide, are used for this last purpose; being securely tied down with ratan to the joists beneath. We are told, and can believe, that when well made, this is a delightful floor on which to walk *barefooted*—“the rounded surfaces of the bamboo being very smooth and agreeable to the feet, while at the same time affording a firm hold.” Lay down a mat upon it, and the elastic floor is at once converted into a capital bed! “Here,” says Mr. Wallace, “we at once find a use for bamboo which cannot be supplied so well by another material without a vast amount of labour—palms and other substitutes requiring much cutting and smoothing, and not being equally good when finished. When, however, a flat, close floor is required, excellent boards are made by splitting open large bamboos on one side only, and flattening them out so as to form slabs eighteen inches wide and six feet long, with which some Dyaks floor their houses. These, with constant

* That is, it can be split with great facility and neatness, or cut, or bored, or disjointed.



BAMBOO THICKET.

rubbing of the feet and the smoke of years, become dark and polished, like walnut or old oak, so that their real material can hardly be recognized. What labour is here saved to a savage whose only tools are an axe and a knife, and who, if he wants boards, must hew them out of the solid trunk of a tree, and must give days and weeks of labour to obtain a surface as smooth and beautiful as the bamboo thus treated affords him. Again: if a temporary house is wanted, either by the native in his plantation or by the traveller in the forest, nothing is so convenient as the bamboo, with which a house can be constructed with a quarter of the labour and time than if other materials are used." *

IN THE BORNEAN FOREST.

Our dissertation on the durian naturally leads us from the rivers to the trees and plants of Borneo—from its hydrography to its botany. Its forests contain most of the varieties which we have noticed as flourishing in Java and Sumatra. Palms are abundant, especially the cocoa-nut, betel, sago, and gomati. By the river-side blooms the *Nipa frutescens*, with its creeping trunk, feathery leaves, and large round bunches of fruit. The leaves are often twenty feet in length, and are frequently used as thatch. The scented flowers, which are enclosed in a spathe, attract immense hosts of bees; and these winged plunderers supply an excellent wax, of which large quantities are exported. Cinnamon and sugar-cane, as well as a kind of nutmeg, grow wild; and the gutta-percha tree, which here attains a diameter of six feet, is plentiful. Pine-woods clothe the mountain-sides in magnificent profusion; and to-

* Wallace, "The Malay Archipelago," i. 77, 78.

wards the summit is found the iron-wood tree,—*Diospyros*,—which grows slowly, but attains a noble stature. Among the columned aisles of the forest thrive numerous varieties of ferns; though tree-ferns are neither so plentiful nor so fine as in Java.

Borneo is famous for its pitcher-plants,—*Nepenthes*,—which nowhere else attain so extraordinary a development. Their graceful vases depend from every shrub and plant: some long and slender, others broad and short; some green, tinted with red; others green, shaded or glossed, as it were, with purple. The *Nepenthes Rajah*, named after Sir James Brooke, Rajah of Sarawak, has a pitcher twelve inches long by six in diameter, closely resembling our ancient ampulla; the blade of its leaf measures eighteen inches in length by seven in breadth. It will contend on almost equal terms with the *Nepenthes Edwardsiana*, the pitcher of which is narrow, but twenty inches long, while the plant itself is twenty feet. Then there is the *Nepenthes Rafflesiana*, which, like some other species, has two kinds of pitchers: those on the lower leaves, of an ampulla form, with two fringed wings in front, about four inches long by two wide; those on the upper leaves, less elegantly coloured, but longer, funnel-shaped, and narrowing gradually to the base, where they curve upwards gracefully.

The general character of the Bornean forests is necessarily tropical. In the higher regions the traveller gazes delightedly on the infinite number of fantastically flowering orchids, and arborescent ferns with colossal leaves of filmy lace-work, perennial urticæ (or nettles) three feet high, glorious bignonias, and splendidly beautiful passion-flowers, filling the air with fragrance,

and intertwining, in an embrace that death only can put aside, with creepers, bushropes, and interminable lianes.

Further downwards, the creepers are still exuberant, but the scene is greatly changed; for now the eye rests on every variety of palm, on resinous terebinths and anacards; on leguminosæ, whose sap exudes in many a precious balsam; on aromatic laurels; on large-blossomed petunias and solandras, and broad-leaved heliconias; and on countless other flowers which attract by the beauty of their form or the intensity of their colouring.

In the deep lowlands, as a writer has well remarked, the forest assumes a severer and gloomier aspect. The dense, over-canopying foliage accumulates in shadowy vaults which exclude almost the light of day; and trunk after trunk, in irregular rows, cluster all around, like the pillars of some huge temple whose roof is lost to sight in an atmosphere of gloom.

A hurricane striding through the Bornean forest seems like the crash and downfall of Nature. In the upper regions its roar reverberates like the artillery of an army engaged in deadly battle; then it descends into the lower air, and as the darkness is illuminated by the incessant blaze of the lightning, and the echoes are awakened by peals of continuous thunder, the branches of the trees strike against one another like contending weapons; and the huge trunks, uprooted by some sudden blast, are flung to the ground in fearful ruin. Whoever enters the forest after one of these storms, finds himself surrounded by melancholy memorials of its violence and awful power.

Among the curiosities of the forest must be ranked

some small anonaceous trees of the genus *Polyalthea* which attain the height of thirty feet, their slender trunks ornamented with large star-like crimson flowers twining about them like so many garlands, and resembling an artificial decoration rather than a natural product.

To this order of trees belongs the sweet-sop, *Annona squamosa*, which is found in the West Indies as well as the East, on the mainland as well as in Borneo. Its orange-shaped fruit is covered with projecting scales; the rind is thick, but encloses a luscious pulp much esteemed by the natives, but not very agreeable to Europeans. Its leaves have a heavy, disagreeable odour; and the seeds contain an acrid principle, fatal to insects. For which reason the Indians use them powdered and mixed with the flour of gram (chick pea), for washing and cleansing the hair.

Occasionally the traveller meets with a marvellous fig-tree, whose trunk forms a small forest of stems and air-roots; or trees of still stranger character which look as though they had begun to grow in mid-air, and from the same point throw off a world of wide-spreading branches above, and a complex pyramid of roots descending for seventy or eighty feet to the ground below, and so reaching round and creeping on every side, that it is possible to stand in the centre with the tree overhead, and an enclosure of intercrossing roots all around. It has been suggested, as an explanation of this remarkable phenomenon, that the trees we speak of originate as parasites, from seeds which have been dropped by birds in the fork of some lofty forest stem. Hence descend aerial roots, which clasp the supporting tree in an embrace that stifles

and gradually destroys it, until it is replaced by the usurper which had found in it a resting-place and an asylum. If this be true, it shows us an actual "struggle for life" in the Vegetable Kingdom, not less fatal to the defeated than the contentions among animals which we have more opportunities of observing and comprehending.

ANIMAL LIFE IN BORNEO.

Animal life in Borneo is found on an abundant scale. Tropical Nature is rich in an almost endless diversity of forms; and the far-spreading shades of the mighty forests offer a secure asylum to those beasts of prey which elsewhere civilization is rapidly reducing in number. The panther haunts the leafy recesses; sleek, handsome, agile, ferocious. In the mountainous districts the striped tiger, *Felis macrocelis*, finds a seldom disturbed lair. But the chosen lord of these retreats is the orang-utan (*Simia satyrus*), which the Malays, from his ghastly resemblance to humanity, call the "wild man of the woods." He approaches mankind, however, less closely than the chimpanzee, for his hind-legs are shorter, while his arms are so long as to touch his ankles. He excels the chimpanzee in intelligence. A brutal expression is given to his hideous physiognomy by his thick protuberant lips and projecting jaws. In a properly proportioned human face the distance from nose to chin is a third of the total length: in that of the utan, it is one-half; so that his countenance is rather a caricature than a likeness.

He differs in habits and character from the monkey race, being indolent even to phlegmatic supineness,

suspicious, morose, and melancholy. One might almost say that he recognized how near he was to the lofty standard of humanity, and yet, on the other hand, how far from reaching it! Even in his native wilds he exhibits no activity, and nothing but hunger or terror rouses him from his lethargic repose. He loves to sit for hours together upon a branch of the forest trees, in a kind of crouching attitude, with his back bent, and his eyes fixed upon the ground; while from time to time the melancholy nature of his reflections would seem to be indicated by the low, sad wail he utters. During the night he retires to the topmost boughs of a nibong-palm or a screw-pine; or, if the weather be inclement, he ensconces himself among the orchids and ferns that surround the colossal trees. He makes for his use a couch of leaves and small twigs; and with a layer of leaves protects his body; while he sleeps as man does, on the side or back, and not as the apes do, in a sitting position.

He feeds upon fruit to a large extent, especially on the durian, but appears to be fastidious in his tastes, and rejects and throws away much more than he eats. Sometimes he varies his fare with leaves, buds, and young shoots. He prefers unripe fruit to ripe; at least, he seems to be partial to fruit with a slight flavour of acidity. With his long, powerful arms he can climb the loftiest trees, and swing himself from bough to bough easily, but deliberately; never leaping or jumping, and never showing any signs of haste. When he walks, the pressure is on the knuckles of his hands, and not on the palm. When an adversary approaches,—though he has none but man, for the animals of the forest, it is said, never

attack him,—he plucks off the nearest branches and fruits, and rains at him a shower of missiles which generally compels his retreat. The Dyaks are partial to his flesh, and kill him with poisoned arrows; but he has grown so suspicious that it is difficult to catch him unawares. They hunt him for another reason—his destructiveness to the fruit-trees; and there is reason to believe that his numbers are rapidly decreasing. His pursuit is not unattended with danger: woe to the unfortunate Dyak whom he seizes with his long muscular arms, and rends with his cruel teeth! That he is a formidable opponent, may be inferred from the fact, confirmed by several Dyak witnesses, that in a contest with the crocodile—and when he is seeking food along the bank of a river, such sometimes takes place—he is always victorious.

IN PURSUIT OF A MIAS.

A recent traveller describes his adventures in pursuit of an orang-utan, or a mias, as the Dyaks call him. Having heard that one had been seen on a path leading to some mines, he set off, accompanied by a young English lad, and a couple of natives. Very cautiously they made their way, avoiding the least sound, for the mias is singularly quick of hearing, and watching attentively for any indication of his whereabouts. "After a short time," says our hunter, "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 them, we came up with the creature on the top of a high tree near the road, where some Chinamen had discovered him, and were shouting their astonishment with open mouth: ‘Ya, ya, tuan; orang-utan, 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 him 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



HUNTING THE ORANG-UTAN.

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."

We will not pursue the narrative further, for though, no doubt, the writer would plead that he was actuated by a disinterested love of scientific inquiry, we confess that to us there seems something remorseless in this deliberate death-hunt. At last the traveller secured his victim, or, as he would say, his specimen; and he proved to be a giant of his kind—with a head and body as large as a man's; with arms which, when outstretched, measured seven feet three inches across; while his height, from the heel to the top of the head, was four feet two inches. He was what the Dyaks call a "Mias Chappan" or "Mias Pappan," the skin of the face being broadened out to a ridge or fold at each side.

The mias is not so ferocious as common accounts represent him. He does not attack man, woman, or child, except in self-defence, and is always anxious to escape from the neighbourhood of man. The stories told of his colossal proportions are equally exaggerated. His height does not exceed four feet or four feet two inches; and his arms, when extended, seven feet three to seven feet nine inches. The average girth of the body may be estimated at three feet and a half.

He is found only in Sumatra and Borneo; chiefly

in Borneo, for in the former island he is rapidly dying out, and very few individuals remain. In Borneo he ranges through the low swampy forests which skirt the north-west, south-west, north-east, and south-east coasts. A continuous extent of leafy shade seems absolutely necessary to his existence. As he lives among the trees, seldom touching the ground, but passing from branch to branch and bough to bough, feeding upon fruits and leaves, making his "nest" among the embowering foliage, and there, in the unfrequented and solitary recesses, bringing up his young, it is evident that open and cleared ground would be distasteful to him. Where the soil is dry, or elevated, or cut up by patches of cultivated ground, or clumps of forest, the mias is never seen.

STRANGE ANIMALS.

An animal peculiar to Borneo is the *Potamophilus barbatus*, of which we shall here say only that its scientific name refers to its aquatic habits and its singular whiskered face; that it is carnivorous, and forms a link, apparently, between the otter and the ornithorhynchus. The fig-tree woods are haunted by a species of gibbon (lar), or long-armed ape; a melancholy, peaceful, solitary creature, which feeds upon fruit in the lonely depths of the greenery, and ever and anon disturbs their echoes with his long loud wail, like that of an animal in pain. In the lower forests are found the long-nosed and crested apes, inhabiting the banks of the lakes and rivers.

The long-nosed or proboscis monkey is sometimes called the *kahau*, from a supposed resemblance of his cry to that many-vowelled word. His enormously

long nose gives a peculiar, and certainly an unattractive, character to his countenance. It does not interfere with his activity, however, and he will leap from branch to branch for a distance of fifteen feet or more. The Dyaks assert that, when accomplishing these gymnastics, he takes his nose in his hands, to guard it against possible injury; but the statement seems to require confirmation. He is a gregarious animal, assembling in large companies, which regulate their movements by the sun, and salute it at its rise and setting with a deafening chorus of howls.

His fur is thick, but not woolly or long: the principal colour is a bright chestnut-red; the sides of the face, however, as well as the under parts of the body, and, to some extent, the shoulders, glow with a golden yellow. Over the head and between the shoulders spreads a rich brown tint, which grows paler on the arms and legs.

The kahau's nostrils do not resemble those of man, though a resemblance exists between the human nose and its exaggerated proboscis. Placed quite at the extremity of the nose, they are separated from each other by an exceedingly thin cartilage; and, therefore, are wholly devoid of that expression which characterizes the human nostril.

Borneo has also its bear, the Malayan or sun-bear, which climbs the cocoa-nut trees, and banquets on their precious fruit, or devours the succulent topmost shoot, in which its vitality centres. He is also a persevering robber of the hive, evincing an unconquerable partiality to honey. His fur is nearly black, and on his breast he wears an orange-coloured patch. He

stands or sits on his hind limbs with much facility, and has a curious habit of placing his superabundant food on his hinder paws, as if to protect it from defilement. He eats with a slow and dainty deliberation that is quite amusing.

The Bornean "Bruang," as the Dyaks call him, is sometimes characterized as a species distinct from the Malayan; but the sole difference is in the colour of the breast escutcheon, which in the latter is of a grayish white.

We need say no more of the *Sus barbatus*, than that this member of the great Swine family is hideous of aspect, and distinguished by its enormous whiskers.

The banteng, or Javan ox, has been naturalized in Borneo. He is a robust and swift-footed animal, living in small herds, whose movements are directed by careful sentinels, and frequenting the low wooded valleys. He stands about five feet and a half at the shoulder, and is of a blackish brown colour, with a large patch of white on the hind-quarters.

In the higher grounds lives the graceful and nimble napu, or Java musk, an animal of gentle disposition, easily domesticated. The kanchil, or pigmy musk, prefers the sylvan recesses of the dense tropical forests.

There are three species of deer. The natives have a peculiar dread of the flesh of one of these,—the *munchae*,—asserting that whoever eats of it incurs a fatal cutaneous affection.

Of the porcupine, *Hystrix fasciata*, a peculiar species not met with in Africa or Europe, they assert that it is the only animal which can feed without injury on the fruit of the celebrated upas-tree.

Fish are abundant in the lakes and rivers, and on the shores; and the reefs and islets clustering in the neighbouring seas yield an abundance of pearl-oysters, and of shells both "rich and rare." The larger rivers are haunted by the crocodile, and especially by a species which resembles the Gangetic gavial.

INSECTS AND REPTILES.

Insect life is present in numerous and beautiful forms, many of which command the admiration of the naturalist by their splendour of colouring. Butterflies there are which flash through the air with wings that seem made of jewels. Then the coleoptera are clad in coats of mail which would delight the heart of a beetle collector. Among these are interesting specimens of the wood-feeding beetles, the longicornis and rhynchophora; of the former three hundred species have been distinguished, and all are remarkable either for size or colouring. In all, about two thousand distinct kinds of beetles will reward the investigation of the naturalist in Borneo.

Among the reptiles we can allude only to the so-called flying frog, described by Mr. Wallace. Its toes are of great length, and fully webbed to their very extremity, so that when displayed they present a surface much larger than the body. The fore legs are also bordered by a membrane, and the body is capable, it appears, of considerable inflation. Back and limbs are of a deep shining green colour; under parts and inner toes, yellow; webs black, striped with yellow. The body, judging from Mr. Wallace's specimen, measures about four inches in length; while the webs of each hind-foot, when fully expanded, cover a surface

of four square inches, and the webs of all the feet, in an aggregate, about twelve. As the extremities of the toes are furnished with disks, or suckers, by which the animal can cling to the trunks of trees, it seems improbable that all this extent of membrane should be for swimming purposes only, and we may suppose that it is designed to assist it in passing through the air.

SOMETHING ABOUT THE DYAKS.

We may find occasion to speak hereafter of the mines of Borneo, which yield gold, antimony, tin, platina, iron, and copper, but, as yet, are not worked on any extensive scale. The island-antiquities, including remains of Hindu temples, erected in the "dim past" by, it is presumed, a Hindu colony, might also claim a few words of notice. But we must proceed to notice the inhabitants of Borneo, who are divided into three distinct races,—the Dyaks, or aborigines; the Malays, who live principally on the coast, and occupy their territories as conquerors; and the Chinese, who are immigrants or commercial speculators, attracted by the greed of gain. Of the last it is unnecessary, in the present volume, to say anything; of the Malays we shall speak at length in a separate chapter; and our remarks will now be confined to the Dyaks. These are divided into various nations, as well as into Sea Dyaks and Hill Dyaks; but there can be no doubt that they have had a common origin, and they resemble each other in manners and customs. So, too, their language is the same, allowance being made for dialectical differences. Each tribe, we may add, is generally known by the name of the river in whose valley it is settled.

The Dyaks are well-made, but not of very vigorous frame ; about the middle height, with small hands and feet. Their complexion varies from reddish brown to yellowish brown, and is always lighter than that of a Malay ; jet black the hair, and straight ; beard scanty or altogether wanting ; nose small and broad ; cheek-bones prominent as those of a Highlander. Altogether, far from a handsome race, but personable, vigorous, and athletic.

One who knows them well speaks of them as livelier and more talkative and less suspicious than the Malays ; as partial to out-of-door amusements and to all sports and pastimes. He gives them credit also for plainness and honesty, and has a word of praise for their moral character—at least, for that of the Hill Dyaks. The Sea Dyaks are pirates, and their standard of morality cannot be very high. They are truthful, however ; temperate in food and drink ; and free from the sin of covetousness—at least, among themselves. They are not naturally cruel, though the frequent inter-tribal wars have led to the custom of “head-hunting ;” so that no young Dyak can marry until, like a North American Indian, he can present his intended wife with a proof of his prowess in the shape of an enemy’s head. This memorial of his victory is preserved, and with tufts of grass in the ears, and cowry-shells in the eye-sockets, hangs suspended to the wall of the “head-house,” like a knight’s escutcheon. On great occasions it is taken down by the proud Dyak to whom it belongs, and he joins in the dance with one or more of these ghastly ornaments, slung over his shoulder, or dangling from his waist.

The dress of the Dyak differs according to his tribe,

but the staple article is a wrapper of cotton cloth around the loins. The Saghai Dyaks are attired in tiger-skins, with head-dresses of monkeys' skins and the plumes of the Argus pheasant, very striking and handsome. Others make the head-dress of the bark of trees, or of cloth, always embellishing it with feathers, or tufts of fibre to resemble feathers. Some of the tribes are tattooed with as complex designs as a Polynesian islander. All are fond of ornaments, and go about decked with immense metal rings round their limbs and shoulders, and with collars of human teeth or the teeth of apes and wild boars. They also wear huge ear-rings, which distend the lobes of the ear unnaturally and hideously.

Their weapons are simple,—a sword or knife, a shield of hard wood, and a long spear. They also resort to the sumpitan (or sarbucan); a slender tube, about five feet in length, through which is blown a small javelin, nine inches long, dipped in the poisonous juice of the upas. This they employ with singular dexterity.

Like all uncivilized tribes, they shrink from hard labour; but, under European superintendence, are capable of working effectively, and show considerable skill in the cultivation of the ground. They have no manufactures; and their principal industries are the building of their ingenious and spacious houses, and the construction of their prahus, or canoes, which are frequently fifty feet in length. The greatest blot on their character is the degraded condition of servitude in which they keep their women, on whom devolves every kind of toil, so that they grow old and decrepit before their time, to the serious injury of the physical

character of the race. On the other hand, they marry but one wife, and are faithful to her. Towards their children both parents display a strong affection.

Their language, in the main, is Malayan. Of religion they have no traces; they have neither priests nor form of worship; but they are amenable to many superstitious influences. We allude, of course, to the tribes which have adhered to the "old ways" of their forefathers; but some have adopted the creed of the Malay. Their government, so far as it has any recognized system, is republican; for the chief of the tribe seems to possess very little real power.

HISTORICAL NOTES.

Borneo was first brought within the sphere of European knowledge by Lorenzo de Gomez, in 1518; and afterwards by Pigafetta, in 1521, who brought hither the ships of Magalhaens' expedition after crossing the Pacific. They named it Brunai or Bruni, from the port and principal city on its north-west shores where they first touched. This name, which the Malays write as *Búrni* or *Boorni*, may be referred to the Sanskrit *Bhurñi*, or "land," and came to be applied by Europeans to the whole island. In 1598, the island was visited by a Dutchman, Oliver van Noort, whose report of its diamonds and bezoar-stone, then held in high repute as a universal medicine, a remedy for all the ills to which human flesh is heir, induced the Dutch to take steps for establishing there a factory, which gradually developed into a fortified post and a considerable colony. With a brief interval, they have ever since maintained their footing, and gradually extended their supremacy, until

about two-thirds of the island more or less directly acknowledge their rule. The northern districts, however, have maintained their independence; and, until recently, were divided between two Malayan sovereigns—the Sultan of Borneo Proper, whose authority spread from Cape Dattoo to the river of Kimanis; and the Sultan of Sooloo, who reigned from the river of Kimanis to the river Atuo: the two thus exercising their authority along a line of coast 1200 miles in extent.

In 1842, an English gentleman, Mr. (afterwards Sir James) Brooke, purchased from the native chiefs the district of Sarawak, in Borneo Proper; and in the following year it was formally ceded to Great Britain by the sultan. In 1846, Mr. Brooke captured the city of Brunai; after which he obtained possession of the valuable island of Labuan, and thus laid the foundation of a colony which is probably destined to attain great importance.

CHAPTER V.

MORE ABOUT BORNEO.

DR. SCHWANER'S EXPLORATIONS.



IN the preceding chapter we have attempted to furnish the reader with a general view of the great island of Borneo, its towns and villages, plains and forests, lakes and rivers, and mountains. From the narratives of recent travellers we now propose to select such additional details as may serve to complete the picture we have been desirous of drawing; so that the reader's mind may receive and retain a clear, comprehensive, and accurate idea of Borneo as it is.

Between 1843 and 1847, Dr. Schwaner, under the directions of the Dutch Government, ascended several of the Bornean rivers, and explored a considerable portion of the interior of the island previously unknown to Europeans. It may be useful and interesting if we accompany him on one of these expeditions.*

The Troussan forms a kind of natural canal uniting the rivers Mouroung and Kahayan, and traversing a vast

* Borneo: Beschrijving van het stromgebied van den Barito, en reizen langs eenige voorname rivieren van het zuidoostelijk gedeelte van het eiland. Von Dr. C. A. L. M. Schwaner. Amsterdam, 1854. Dr. Schwaner was born at Mannheim in 1817; died at Batavia, March 30, 1850.

breadth of swamp, through which a myriad streamlets take their way, interlinked by trenches and water-courses, and all pouring their tribute into the Troussan. At a short distance to the west of the kampong, or village, of Papallao, it divides into two branches, of which the northern is the more ancient—the southern having been excavated by human industry, after the former had been rendered impracticable for boats by fallen trunks of trees and accumulated deposits of mud. At its eastern mouth the river is seventy feet in width, but as we advance in a westerly direction it narrows considerably, is shallower, and more difficult of navigation, owing to the thick, intertangled growth of aquatic plants. The smallest boats run aground when the tide ebbs, and particularly during the eastern monsoon, when the voyager must wait for the flow to resume the ascent towards the Kahayan.

Let us suppose that we have reached the latter river. Near its point of confluence with the Troussan, and on the north bank of the latter, stand in the shelter of a clump of palms two small huts, where voyagers deposit, in passing, their offerings of rice, tobacco, and sherds of pottery, to appease the evil spirits. The banks of the river are lofty, and the neighbouring country enjoys an immunity from inundations; but the interior is of a lower level, and almost entirely covered by marshes.

Another illustration of the superstitious nature of the Dyaks is afforded us at Tjouknij-Pamali, which is haunted, they assert, by evil spirits. In its neighbourhood, therefore, the natives will neither fell wood nor gather fruit, lest their sacrilege should be punished

by loss of reason. Similar instances of districts overshadowed by this meaningless terror are found along other rivers, and also in the interior, and may always be recognized by the presence of the *nibong* palms, which usually grow only on the sea-shore. The native legends affirm that one of these evil spirits, being desirous, in a moment of recreation, to form a cascade in the river, flung into it a heap of stones; but he failed in his design, and all the stones resulted in nothing more than a diversion of the shallow waters, without obstructing navigation.

In making the ascent of the Kahayan, we find the shores gradually decreasing in elevation, and in many places they entirely disappear under the flood of water which overspreads the country; their direction is indicated only by the floating trunks of trees. The Kahayan becomes more tortuous than in its lower course, and its curves and angles and bends form a complete labyrinth. One of the reaches which we traverse is called *Rantau-Cadjah-Moundor* (or the curve or "reach" of the returned or sent-back-elephant); a designation curious in itself, and all the more curious from the fact that not a single elephant is to be found in the island, and that the vast majority of the natives have never seen one. It may be a memorial, however, of some historic event; as, for example, of the defeat of one of the Hindu chiefs who anciently lorded it over a part of Borneo, and made use of elephants in their wars. At all events, there is the *name*; and a local legend thus explains it:—

Once upon a time an elephant, which had come over the sea, ascended the Kahayan for the purpose of

encountering the animals of the island in fight. To give them an idea of his size and strength, and strike terror into them beforehand, he sent one of his tusks by the messenger which carried his cartel of defiance. And, as he expected, the animals, filled with terror at the sight of so formidable a tooth, were about to acknowledge his superiority, when the address of the porcupine extricated them from their embarrassment. He persuaded them to accept the challenge, and to send one of his spines to the common enemy, that he might estimate aright the potency of the animal which was clothed in hair like that! Deceived by the artifice, the aggressor durst not await his formidable adversary, and returned in shame and discomfiture.

After voyaging for some days in the depths of desert forests, we observe that the river begins to run in a more confined channel, and between banks of increasing elevation. We are once more in a cultivated country, and approach the kampong of Moura-Rawi, the residence of the principal chief of the Middle Kahayan; a feeble old man, whose authority is acknowledged only in the upper portion of his territory. The kampong is in decay, and most of its inhabitants, discouraged by the successive failures of the rice-harvest, have settled on the banks of the neighbouring river, the Roungan. The population now does not exceed two hundred and ten souls. The palisade-enclosure has fallen to the ground; numerous houses have been abandoned, and others are in ruins; and the former prosperity of the kampong is shown only by the many idols clustered about the houses, and the quantity of cocoa-palms which

INTERIOR OF A DYAK HUT.



spread all around their grateful shadow. The posts on which the huts are raised are much higher than in the lower districts. The side-walls are made of the bark of trees, or bamboo trellis-work; and the roofs thatched with a grass so durable that it does not require reparation oftener than once in ten or fifteen years.

In the interior these huts are black and squalid, the smoke having no other issue than the door, or the horizontal openings in the walls which serve instead of windows. The apartments are very irregular in size. The general rule is, however, a large hall in the centre, surrounded by various chambers, which are separated from one another by decorated partitions, bamboo trellis-work, or by planks gaily ornamented with pretty arabesques and carved garlands. To the walls are suspended the household implements, weapons, fishing appliances, clothes, amulets, and other articles.

Near the river are situated the *balais*, or common halls, in which the inhabitants of the kampong assemble to celebrate their festivals. Most of these edifices, which are much larger than the private houses, are exceedingly simple in appearance and arrangement; consisting only of a long open hall, supported upon poles four feet high, and covered with a high-pitched roof. Close at hand may usually be found a small forge, free to all the inhabitants of the locality, and even to strangers.

The place of disembarkation is a small raft moored to the shore, from which a ladder, made of the trunk of a tree, or of several joists, leads to a pavilion erected on the margin of the river-bank, and serving as a "Travellers' Rest." Thence the way to the

kampong is along a causeway of planks raised two feet above the ground, and divided into as many branches as there are houses. Thus the inhabitants are able to visit one another dry-footed during the rains and the consequent inundations. They breed various species of domestic animals: buffaloes, swine, goats, poultry, dogs, and cats. Their principal occupations are the cultivation of rice, collecting ratans in the rainy season, and various kinds of resins during the dry monsoon. Some employ themselves in washing out the gold dust brought down by the river; but this industry is more profitable in the uplands than here.

The kotta of Hanoa, at which we next arrive, deserves notice as a *fortified* kampong; that is, it is surrounded by posts of iron-wood, thirty feet high, on the summit of which are fastened long poles surmounted by carved wooden images of the rhinoceros-bird, some holding in their grim talons human skulls. Within the enclosure a crowd of idols are collected. The four groups of buildings which compose the kampong are raised fifteen feet above the ground, which is marshy, muddy, and malodorous, and communicate with one another by rude wooden bridges.

The ascent of the Bornean rivers, we may here remark, is not unattended by disagreeable experiences.* The voyager must be careful, in some localities, not to shake snakes into his boat. These dangerous reptiles are constantly found hidden among the thick foliage of the fruit-trees, or lying supine upon the branches, and catch unwary birds in quest

* Spenser St. John, "Forests of the Far East," ii. 73, *et seq.*

of food. And so closely do their colours resemble those of the trees, that it is frequently difficult to distinguish them. A native attendant of Mr. Spenser St. John one day pointed to a tree, exclaiming, "Yonder is a large snake!" The English traveller at first could not see it, but on closer scrutiny "became aware" of a brown creature thicker than his arm, coiled round a bough, with its head resting near a bunch of fruit, waiting the advent of some incautious "pargam," the brilliant green pigeon of the Bornean forests. Its tint was precisely that of the bough on which it was resting. And the emerald snakes are not less difficult to detect. One species there is, with large regular scales and a triangular head, which is the terror of the native; and if its poisonous qualities correspond to its offensive aspect, that terror is not without excuse. This unpleasant neighbour, however, is not very frequently seen; though pretty green flower snakes may sometimes be observed among the lower growth of the woods, or gliding over the blossoms in pursuit of insects. One of a bright green, with yellow stripes down its sides, may almost claim to be regarded as an object of beauty.

Again: land tortoises frequently drop from the overhanging trunks of trees, alarmed by the noise of the paddles. Or among the visitors who thus unceremoniously make your acquaintance may be a huge *biawak*, or iguana. Everybody knows, of course, that the iguana is a kind of lizard, but everybody may not know that in "Brunei" it attains the length of six or seven feet. It is a sore plague to the poultry-yard, and its appetite for fowls and chickens seems to grow by what it feeds on; but, in revenge, it is freely

eaten by the Chinese, who are partial to novel dainties and variations of the ordinary bill of fare.

Rock snakes are not pleasant to meet with, but still more disagreeable is the cobra, which sometimes takes to the water. It is said that it cannot be frightened back from a boat merely by beating the water with the paddles, but must be killed, or it will force its way into the proa; and if it succeed in this burglarious entrance, every Malay, in a panic of fear, will instantly spring into the water, and leave the boat to drift away with its lonely but fatal passenger.

At times the voyager falls in with a party of native hunters, who present a picturesque but somewhat forbidding appearance. Generally they are armed with sumpitans, or blow-pipes, made of a dark red wood, and having a spear-head, lashed on very neatly with ratans, on one side of the muzzle, and an iron "sight" on the other. The arrows are carried in very neatly carved bamboo cases, and are neither more nor less than slips of wood, tipped with spear-shaped heads cut out of bamboo. The poison looks like a translucent gum, of a rich brown colour; in water of a temperature of 150° it begins to melt rapidly, but as rapidly hardens on being exposed to the flame of a lighted candle. The butt of the arrow is fixed in a disc of the pith of a palm, cut so as to fit the blow-pipe's orifice.

The equipment of the hunter includes a war-jacket and a helmet: the former of some native stuff, well padded, and thickly covered with cowry-shells; the latter of the same material, with hanging flaps, intended to protect the wearer's neck from poisoned arrows. The hair is fastened up in a knot behind, and kept in

its place by a great pin, fashioned something like a spear-head, and nearly as large, and made either of brass or bamboo, according to the means of the wearer.

These hunters occasionally meet with curious adventures. For example, they run the risk of being attacked and carried off by the orang-utans; and an English traveller tells a strange story of a young Murut hunter who, in violation of a well-established custom, was run away with by a female! Some years ago the hunter was wandering in the jungle, armed with sword and sumpitan. Coming to the bank of a pebbly stream, and being oppressed by the heat, he resolved on the enjoyment of a bath. Accordingly, he placed his clothes and weapons at the foot of a tree, and leaped into the cool, sparkling water. Here he disported to his heart's content; until, growing weary, he prepared to land and dress, when, to his alarm, he discovered an enormous female orang-utan standing between him and the tree. Before he could recover from his surprise, she sprang forward, and seizing him by the arm, compelled him to follow her to a branching tree, and climb up into the leafy pavilion it afforded. On reaching her resting-place—a kind of nest, constructed with woven boughs and branches—she made him enter. He remained there for some months, closely watched by his jealous and far from agreeable companion, fed by her upon fruits and the palm-cabbage, and seldom allowed to descend to the ground, his movements being generally limited from tree to tree. He grew very weary of this life, and eagerly seized the first opportunity of effecting his escape; sliding down the trunk of the tree when she was temporarily “off guard,” and running to the place where he had formerly left his weapons. She

hastened in pursuit, but was pierced as she approached by a poisoned arrow.

Among the trees met with in these forests is the jintawan, or india-rubber plant; the fruit of which is pleasantly acid, about the size of a very large pear, and of a deep orange colour. It consists of "a thick rind full of india-rubber, surrounding some pulp-covered seeds." A bold and vigorous creeper, it climbs up the loftiest trees, and spreads itself luxuriantly over their outspreading boughs.

The nepenthes, or pitcher-plants, in some localities are very abundant, but do not often occur in the well-drained lowlands. Several species will be found described in an earlier chapter.

UP THE KAHAYAN.

After this digression, we may continue our ascent of the river Kahayan, in company with Dr. Schwaner.

The upper basin of the river is thickly peopled; that is, for the interior of Borneo. It comprehends fourteen kampongs and thirty-three kottas; and has a population of 7300 inhabitants—of whom 2628 are settled on the river-banks, and the remainder on the banks of its affluents.

They are known as the Ot-Danoms; and are so named from the situation of the country which they inhabit—*ot* signifying "upper," and *danom* "water." They belong to the same race as the Kaponas-Mouroung, and differ but slightly from the other tribes of the Eastern Dyaks.

Their principal industries are gold-washing and the cultivation of rice. When the gold dust is discovered

at the bottom of the river, a small raft, fitted up with an apparatus of cross-beams, which closely resembles a grate or railing provided with a hinge, is warped to the spot. Down drops the apparatus, which serves both for ladder and anchor; and the lower end of it is kept down at the bottom of the water by means of heavy stones. The divers, both men and women, descend the ladder to sift the auriferous sand in wooden platters, and remain some time under water.

This industry is sufficiently laborious, but so profitable that with its products the Ot-Danoms can purchase all the commodities they need. They never cross the borders of their own territory, however, the commerce being entirely in the hands of the merchants of Poulou-Petak.

Availing ourselves of our sojourn on the banks of the Kahayan to familiarize ourselves with the customs of the Ot-Danoms, we find that there are no professional dancing-priestesses or bayaderes among them, as there are among the Dyaks of the South. Their places are filled by the wives and daughters of the well-to-do, whose duties are limited to healing the sick, exorcising evil spirits, conducting the souls of the departed to the abode of their ancestors, and demanding the favour and protection of the gods. Before a woman can assume the sacerdotal rank, the soul of a *sangsang* or angel must have passed into her body; and more, so long as her incantations last she must abstain from all intercourse with her family.

The souls of the dead do not wait here, as among the Niadjou Dyaks, for the funereal rites, before taking leave of earth. As soon as the corpse is stretched in its coffin, its spirit departs for the other world under

the guidance of a *sangsang*, and to the sound of hymns chanted by the priestesses, or *bilians*. They pass over an invisible bridge, which begins at the mortuary-house, and abuts on the land of the departed.

The dead body, reposing on its bier, is first carried out into the open air ; afterwards the bones are cleaned and burned, and the ashes collected in urns, which are deposited in the *sandong*, or house of the dead. The funeral ceremony is an occasion of great pomp, when not only buffaloes and wild hogs, but also men, are sacrificed. The heads of the victims are hung up in the *sandong*. Dr. Schwaner speaks of a chief named Toundan, who deposited in the coffin of his deceased wife eight suits of clothing and all her ornaments. Immediately after she expired he immolated a slave ; three others when her corpse was removed from his house ; and after the incremation of the body, eight slaves, sixty hogs, and two buffaloes were put to death around the pile.

A singular custom obtains among the wealthy : the survivor, whether husband or wife, cannot under any pretext quit the house for a certain period, which is longer or shorter in different families. Not infrequently the disconsolate widow or widower remains seated and impassive, doing absolutely nothing, three, four, and even seven months.

Human sacrifices are also offered up on the conclusion of treaties of peace and alliance. The public and private charms and talismans are then dipped in human blood, and the persons present at the horrid rite sprinkle their forehead, their shoulders, their chest, their stomach, their knees, their feet, while uttering their vows and prayers in behalf of one another.

Among the Ot-Danoms, their occasions of festivity, always prolonged, coarse, and noisy, terminate very often in contention. Men and women become intoxicated : the quarrelsome seize their weapons and threaten hostilities, but those who have preserved some degree of calmness separate them, and bind them until they recover their senses ; so that after one of these orgies the ground is covered with the prostrate bodies of the captives.

In common with all the Dyaks, the Ot-Danoms are very superstitious, and cowardly slaves to their grotesque fancies, of the effects of which even strangers are disagreeably reminded. When they arrive for the first time in certain localities, custom requires that they should pay the inhabitants the *balas* ; that is, a sum of money for the purchase of buffaloes or hogs, which they immediately sacrifice to the gods to appease their wrath. A *balas* costs a traveller, according to his means and the object of his voyage, from forty to one hundred gulden (£3, 3s. 6d. to £7, 18s. 4d.).

It is probably from the Chinese that the Ot-Danoms have borrowed their custom—a truly barbarous one—of shutting up their daughters, at the age of eight to ten years, in a narrow and dimly-lighted cell. The poor captive is never permitted to emerge from it, on any plea whatsoever ; nor even to receive the visits of her father, her mother, her brothers, her sisters. For six or seven dreary years she sees only the slave attached to her service ; and her sole occupation is to weave mats. Her limbs, deprived of all exercise, do not acquire their natural development ; and her feet, more particularly, remain small and stunted—a deformity according to all natural canons of taste, but a

beauty in the eyes of Ot-Danom or Chinese connoisseurs. She gains her freedom when she reaches a marriageable age, and returns to the world without like a spectre from the dead,—pale as a waxen effigy, her trembling limbs scarcely able to support her attenuated body, and ignorant as a new-born child. On this occasion a slave is immolated, that the body of the young girl may be sprinkled with the victim's blood. The object of this seclusion, according to Dr. Schwaner, is to render famous the unhappy prisoner, and, by preserving her daintiness of figure, to enhance her attractions in the eyes of wealthy suitors. It is called *bakouwo*.

ABOUT THE OT-DANOMS.

Among the Ot-Danoms dogs are held in high honour, both during their lives and after their death. It is believed that they have souls; and an old tradition describes them as descended from Patti-Palangkiang, the king of animals. One day, when this monarch, poorly clad, was presiding gravely over the assembled beasts, the scantiness of his costume provoked all who were present into an immense outburst of laughter. Offended by this want of respect, he leaped into the midst of his subjects, assailed them roughly, and put them to flight. This escapade was followed by his deposition; and thereafter he nourished so great a hatred towards the rebels that his sole happiness consisted in hunting them savagely. His descendants, it would seem, have inherited his rancour; and this circumstance it is which constitutes their chief merit in the eyes of the Ot-Danoms. When a dog goes the way of all flesh, his master inters the carcass, wrapped in fine cloths, near his house; deposits rice and salt in

the grave, and spreads rice and salt over its surface, with the view of influencing the gods to conduct the departed spirit into the paradise of dogs. Finally he erects a rude monument in memory of his faithful servant, adorning it with the jaws and heads of the deer and wild boars which have fallen before the prowess of the faithful animal.

DRESS OF THE OT-DANOMS.

The Ot-Danoms are tattooed, like the Niadjous and other Dyak tribes; but among the former the designs are more graceful, as well as more complicated, and cover the whole body with the exception of the face. Formerly, tattooing was a much simpler affair; it has attained its present perfection under the directions of the *bilians*, who profess to know how and in what manner the *sangsangs* or angels ornament themselves. The legs of the women are tattooed from the knee to the root of the foot. They wear a short and narrow apron (*pagne*), generally of a blue colour, fastened round the loins by a girdle of ratan or a leather belt. To the left side of the belt or girdle numerous strings of large pearls are attached, frequently replaced by wreaths and tufts of fragrant herbs, interwoven with pearls and tinsel. Their other ornaments—for, like all the daughters of Eve, they show a great fondness for personal decoration—are copper bracelets and earrings as large as a five-shilling piece, wrought with much elegance, and incrustated with tiny plates of gold. Their appearance is often heavy and ungraceful, owing to a superabundance of health and strength. Yet their activity is marvellous, and here, as everywhere in Borneo, the rudest labours are undertaken by the women.

They manufacture various kinds of tissues with filaments of bamboo and leaves of trees—dyeing them of different colours, particularly blue, for which they evince a strange partiality.

The men, like their spouses and sisters, wear bracelets of copper or of shells, and cover the chest with cornelians suspended to one, two, three, or even four crescent-shaped ornaments of gold. Besides the *talawang*, or wooden buckler, about three and a half feet long, by fourteen inches wide, and the *mandau*, or two-handed sword, recently introduced among them, they make use of the following weapons and military engines: the *sarbacan*, provided with an iron-wood point, and employed as a pike; the quiver, filled with poisoned arrows, which they discharge through the *sarbacan* as a blow-pipe; the ordinary lance; and finally the trident, with which they transfix their fish.

To sum up: as to their character, the Ot-Danoms are less honest and truthful than the Niadjous, and coarser and more dissolute. Greedy in the extreme, they hesitate not at the most unblushing extortion. In short, their morality, like their civilization, is at the lowest ebb.

Here we may conclude our sketch of the Kahayan, which has guided us through the dense shades of the virgin forest, and introduced us to a tribe of the Dyaks little known to the European traveller. At the mouth of the Hulelet we turn our back on the Kahayan, and direct our steps towards the Roungan.

In the rainy season the Hulelet is navigable to a certain distance for prahus of moderate burden; but it is now dry, and we must be content to fare a-foot.

So we breast steep braes, and descend into deep valleys, and cross a multitude of little streams which feed the larger river in the days of plenty, until we reach its well-heads. Then the acclivities grow steeper, though never high enough to deserve the name of mountains. We see numerous huts and houses, isolated, or grouped in little villages ; these have all been temporarily erected for the cultivation of the rice-fields or working of the gold-mines. We have travelled now beyond the borders of the forest.

Following the banks of the Tahoyan, one affluent of the Roungan, we penetrate into a broad, rich, and beautiful valley, which charms us with its verdant slopes and leafy bowers. Once more we take to the water, and our light canoe, threading its way through rocks and shallows, and descending cataracts, carries us down to Kotta-Menihau, where our exploration may be regarded as at an end. It is an easy journey from thence to the Dutch settlements.

IN THE INTERIOR.

To complete our picture of Borneo, we shall borrow a few touches from the graphic pencil of Madame Ida Pfeiffer,* who visited the island in 1852, and from the west coast gallantly penetrated to the mountain-masses which form the watershed of the interior.

It was the 22nd of January when she embarked on the *Lupur*, resolving to ascend it as far as the *Sekamil* chain. Almost at the outset she crossed the borders of civilization, and entered the territory of the independent Dyaks, among their fiercest and most savage tribes.

* Pfeiffer, "Mon Second Voyage autour du Monde," traduit de l'Allemand. Paris, 1857. Hachette & Co.

Her narrative runs as follows :—

We arrived at an early hour in the afternoon at one of the Dyak houses, with the intention of passing there the night. All my efforts were addressed to the task of securing the confidence and cordiality of the people. I shook hands with both men and women ; I took my seat in their midst ; and while looking on at their work, placed their children on my knee. Afterwards I betook myself to the forest in quest of insects. Thither I was immediately followed by a whole troop of the natives, and particularly by companies of children. They were all anxious to see where I was going, and of what use was the net for catching butterflies, and the case which I always carried with me to receive my insect treasures. They were as curious to observe my gestures and movements as I was to study theirs. They began to laugh at me when they saw how eagerly I hunted the smallest gnat or butterfly ; but when I made them understand that they were useful in the preparation of medicines, they ceased to laugh, and most of them assisted in the chase. It was necessary to tell them something within the reach of their intelligence.

On my return at nightfall, I found that a small corner, covered with very clean mats, had been prepared for me. The good people arranged themselves near me, but touched nothing ; the respect in which they held everything belonging to me was so great, that whenever I quitted my seat they also quitted theirs. I could leave everything open without fear ; even when I was eating they removed to a distance, so as not to incommode me. My usual meal was rice and *kuri*, or curry. Unfortunately, this soup was

always prepared with rancid cocoa-nut oil. But hunger always prevailed over my disgust; and when the smell was very strong I held my nostrils, while I swallowed the unsavoury food as quickly as possible.

At noon the next day we halted among another tribe. But here the aspect of things was not very lively, for the men had returned from a campaign only two days before, bringing with them a human head, which hung with others, already completely dried, above the hearth where they prepared my couch. This, I must tell you, is the place of honour always offered to a guest; I found it a very unwelcome distinction, which it was not possible to refuse. The dry skulls which the current of air jostled against one another, the horrible stench arising from the recently decapitated head, the appearance of the men,—still excited, and restlessly revolving around my bed though the fire was extinct,—deprived me of all desire and all possibility of sleeping.

I was glad when the morning came, that I might resume my voyage. At every stroke of the paddles our route became more interesting; rich plantations of rice succeeded to marshes, and afar, against the horizon, the bright, fresh hills became visible. Among the trees which lined the lofty banks were some magnificent giants, one hundred and ten to one hundred and thirty feet in height; others were adorned with spreading branches, which stooped and stretched across the water in arches of verdant foliage.

Upon the tall erect trees with few branches we often discovered large bee-hives. To seize the honey, the natives construct a kind of bamboo ladder, which

they fasten at intervals of two feet to the trunk of the tree ; often it is eighty feet long.

This day, as yesterday, I rested in a Dyak hut. At night, I had scarcely flung myself on my couch before I was aroused by a lively, cadenced clapping. Up I got, and hastened to the spot whence came the sounds ; there I perceived a man lying motionless on the ground, while half a dozen young people were drumming on his body, in due succession, with their hollow palms. I supposed he was dead, and was astonished at the ceremony performed upon his corpse ; but after a while the pretended dead man sprang to his feet amid loud shouts of laughter from his young companions : the game was ended. So far as I could understand, such exercises are regarded as very useful for the body, giving it both suppleness and strength.

Dating on the 25th of January, Madame Ida Pfeiffer writes :—

The loveliest scenes are constantly presenting themselves to my gaze. The mountains multiply, and rise higher and yet higher. Some of the peaks appear to be fully 3200 feet in altitude. Travelling in Borneo reminds me in some degree of the interior of Brazil. Here, as there, virgin forests with a luxuriant vegetation ; here, as there, occasional clearings and some scattered huts ; the only difference is, that Borneo is intersected by an abundance of rivers and rivulets, while a part of Brazil has only a few very rapid torrents. What might not be done with both countries, if they were inhabited by a peaceful and industrious population ! Unfortunately, such is not the case. The natives are few in number, and are more partial to war and

destruction than to cultivation and work ; while the climate is unfavourable for European colonists.

A curious characteristic of Borneo is the deep brown colour of its waters. Some travellers would explain this peculiarity as due to the quantity of leaves falling from the dense woods which overhang the rivers, and these leaves rot in the water. I should be inclined to contradict this opinion ; for in the island of Ceram, which is as rich in woods and rivers as Borneo, the water is transparent as crystal. Moreover, Humboldt observed this peculiarity of colouring in the American rivers ; which, he adds, are peopled neither by fish nor crocodiles. This is not the case at Borneo, where there is no want of crocodiles or fish ; or, at least, of caimans, which are closely akin to crocodiles.

In the evening I found myself seated anew in the midst of a troop of Dyaks, with whom I conversed as well as I could, through the medium of a Malay interpreter. I inquired if they believed in a Great Spirit, and if they had any idols and priests. So far as I could comprehend, they believed in nothing, and had neither idols nor priests. On the first point, it is possible I may have misunderstood them ; as to the second, I never saw priests or idols among them. On the other hand, rajahs are plentiful enough ; this pompous title is given to every chief, even if his tribe should be composed only of a few dozen families. This reminds me of Hungary and Poland, where everybody who is not a serf is styled a gentleman.

In the midst of this conversation, a boy brought in a wild pigeon which he had caught in the woods. Immediately one of the men seized it, twisted its neck, plucked a few of the longest feathers from its wings,

and threw it into the fire ; before the other feathers were half burned he removed it, took off its head and the tips of its wings, and gave them to a child standing beside him, who had been awaiting them impatiently. Then he replaced the pigeon in the fire, but only for a few moments ; again withdrew it, and tore it into six portions, which he distributed among as many children. As for himself, he did not taste a morsel. I had already had occasion to remark with what affection the Dyaks treated their children.

Madame Pfeiffer, in the course of the same evening, was the eye-witness of a terrible storm, accompanied by a deluge of rain such as is seen only in tropical climates. In the midst of the din and fury of the tempest, a gust of wind extinguished all the fires. Her entertainers and herself sprang from their seats to take refuge in the interior of the hut, expecting every moment that a second paroxysm would strip the leaf-thatched roof that protected their heads. But violent things are generally of brief duration, and so it was with this Bornean hurricane ; in half an hour it subsided.

The Dyaks had set to work with their gongs, and to sing their loudest ; probably in the hope of appeasing and dispelling the tempest. They continued the hurly-burly until daybreak,—their songs reminding Madame Pfeiffer of the howling of wolves. She was able to distinguish two melodies as chanted by a single voice ; after which all the others took up the refrain as a chorus. Four young persons, meanwhile, joined in a dance, moving with a slow and measured step around the fireplace, to which were suspended the in-

evitable skulls. Each of the choregraphists carried a large stick in her hand, with which she beat the ground violently at every step. At intervals they spat upon the skulls! Strange to say, neither song nor dance had any reference to the storm, but were part of a festival held in celebration of an approaching expedition.

Our intrepid traveller was generally unmolested, but on one occasion she was reminded that the experiment of travelling in savage countries is not without its dangers.

She was sitting in her prahu, when a canoe approached, manned by four Dyaks, who were lustily rowing down the stream. Without pausing near her, they warned her, in passing, to retrace her steps with all speed, because the neighbouring tribe, living up the river, were then starting on what the American Indians would call the "war-path." They themselves had escaped, they said, only because they had not been seen.

Madame Pfeiffer was much alarmed by this intelligence. To approach so near the huge inland mountains,—so near that she would reach their foot that very evening,—and to be compelled to retrace her steps! After deliberating with one of her crew, a trusty sailor, who could speak a little English, she resolved to risk everything, and continue her voyage. He was a man of rare courage; and it was his opinion, moreover, that the Dyaks, though accustomed in their expeditions to massacre everybody who fell into their hands, would nevertheless respect the flag of Rajah Brooke, which Madame Pfeiffer carried by permission. She acted on his advice, hoisted the flag, and, dis-

regarding the remonstrances of the rest of the crew, gallantly continued her course. She had not long resumed her voyage when she suddenly heard the shrill discord of the war-song, accompanied by gong and drum. Her crew rowed into the midst of the thick reedy growth which lined the river-bank, and for a while lay still; but on ascending a little higher up the river, and turning an abrupt angle, they saw before them a spectacle which might have intimidated the bravest. On a small promontory were assembled a hundred savages, carrying high narrow bucklers, and brandishing lances in their hands. On catching sight of Madame Pfeiffer's canoe, they uttered the most furious shouts and indulged in the most terrible gestures.

"I trembled, and was seized with fright," says our heroic voyager; "but it was too late to think of retreat. Firmness alone could save us. Opposite the promontory, in the middle of the river, was a sand-bank. My valiant cook sprang on this bank, and carried on with the rajah a negotiation, of which, unfortunately, I did not understand a single word, for it was couched in the Dyak language. And I was still further alarmed when I saw the savages suddenly leap from the height on which they had assembled, throw themselves into their canoes, plunge into the river, and by dint of rowing and swimming reach my prahu, which they surrounded on all sides, and eventually escalated. I thought my last moment had come. But, happily, at this crisis I heard the voice of my cook, who, forcing his way through the crowd, shouted from afar that they gave us welcome. And, at the same time, a small white flag, as a sign of peace, was raised upon the height.

“They who have never seen death so near can form no idea of the anguish I had endured, or of the joy I experienced on finding myself saved.”

It was necessary, however, that the heroic woman should subdue her emotions and exhibit the utmost calmness; this is the only means of imposing upon the savage. However, her cook was right; and Rajah Brooke's flag was the talisman which had secured her safety. Not only did the Dyaks abstain from doing her any harm, but, on the contrary, they showed the warmest friendship, and persuaded her to disembark and visit their encampment. She found their tents pitched behind the hill. On the ground were spread out their provisions; especially a great quantity of flat cakes of all sorts of colours,—white, yellow, brown, black,—so appetizing in appearance that our traveller accepted them eagerly. But when she tasted them great was her disappointment! The white cakes were made of rice flour and the yellow of maize; but the flour was coarsely ground, and kneaded up with a quantity of rancid fat which is extracted from the kawan fruit. The brown and black cakes were coloured by a mixture, more or less considerable, of a black syrup extracted from the sugar-cane, or the juice of different palm-trees. Fearful of offending her hosts, Madame Pfeiffer was compelled to swallow a few mouthfuls of the unsavoury compound, though it was an act of heroism equal to any she had previously achieved!

Among the male Dyaks who surrounded her, several wore suspended at their side the small basket destined to receive the head of a conquered enemy. The basket was elegantly woven and decorated with shells, as well

as festooned with tresses of human hair. This last ornament is allowed only when the owner of the basket has already distinguished himself by carrying off a ghastly trophy of his prowess.

Resuming her voyage, Madame Pfeiffer reached the central mountains, when she abandoned her prahu, and placed herself under the guidance of a rajah to whom she had been commended by Rajah Brooke. Preparations were immediately made for crossing the mountain range. A strong escort was organized and armed ; a large supply of provisions collected ; and on the 28th of January the expedition started.

Madame Pfeiffer soon found, however, that she had no laborious ascent to make of tremendous acclivities. The mountain-mass is broken up by numerous winding valleys which never attain any very considerable elevation, and through these the travellers took their way. The road was difficult, traversing an uninterrupted series of brooks and marshes and stagnant waters, in which they frequently waded knee-deep. From the crest of the hills, the views they obtained amply recompensed them, however, for all they underwent. In the distance accumulated a threefold chain of mountains intersected by deep valleys and noble rivers, and buried in the sombre shadows of impenetrable forests. Occasionally they came upon a small clearing, where a little colony of industrious Dyaks had planted rice, and maize, and sugar-cane, and *ubi*, a kind of sweet potato.

Whenever the expedition approached such an oasis it halted, and a party of scouts was despatched to examine the ground, "interview" the Dyaks, and request permission to pass. Twice the travellers were

actually compelled to traverse the very houses of the settlers—climbing up one side by means of a ladder, and in the same way descending on the other side. It should be understood that the Dyaks purposely leave the forest-growth untouched in the neighbourhood of their dwellings, to render more difficult the approach of an enemy. They leave open only a few narrow paths, which can be barricaded without difficulty. And a Dyak village has, therefore, very much the appearance of a block-house.

On reaching a place called Beng-Kellang-Bocnot, our adventurous and heroic explorer embarked on the river Batang-Lupur, in a small boat manned by a single rower! The river trails its dark brown thread through the green shadows of untrodden woods; its channel is very narrow, and frequently so contracted by the trees which line its banks as almost to render the passage of a boat impossible. Sunlight never penetrates through the dense canopy of leafage; around you prevails an awful silence, only now and then interrupted by the crackling of a branch as an ape leaps from tree to tree, or the flutter of the wings of a bird as it rises in the air. Acheron itself could not be more sombre or more still. The rustle of a falling leaf breaks painfully on the ear; and the traveller almost dreads to breathe, so great is the influence upon him of the intense tranquillity.

The inky Lupur loses itself, after a course of about thirty miles, in Lake Bocnot, a basin of water about four miles across. Do not suppose that this lake resembles the lovely tarns of Cumberland or the lochs of the Scottish Highlands. It lacks their picturesque brightness and variety of aspect; and is filled with the trunks of trees, close set one against another,—

not uprooted, and scattered here and there, but, on the contrary, clinging to their old foundations, though dead, leafless, branchless,—like palisades planted by the hand of man. A broad natural canal, about half a mile in length, leads into another lake, named Taoman, which is twice the size of that of Bocnot, and shines with limpid and translucent waters. All around these two singular basins open up the depths of great wooded valleys, bounded on the east by lofty mountains, with picturesque soaring peaks, upwards of 4000 feet in height.

From Lake Taoman the explorer entered upon the river Kapuas, the largest of the rivers of Borneo. Its width may be at this point about half a mile, but varies greatly, because, like most of the Bornean rivers, it has no clearly defined banks. Its waters frequently overflow into the neighbouring forests.

The dangers of the voyage ceased when Madame Ida Pfeiffer arrived at Sintang, a small town with a population of about fifteen hundred, the residence of a sultan. The Dyaks occupying the territories which she had yet to traverse were under the rule of Malay chiefs, to whom letters of recommendation were provided by the Sultan of Sintang.

Of the independent Dyaks she gives, on the whole, a favourable character. She found them generally honest, kindly, and reserved; and in these respects she places them far above most savage races. She could leave her boxes open, and be absent for hours; on her return not the most trivial article was missing. They would sometimes ask for anything which specially won their fancy, but never pressed their request after a single refusal. They were never importunate

or troublesome. It may be objected that to cut off heads and preserve skulls is not exactly a mark of natural goodness ; but the reader must remember that this deplorable custom is rather the result of a profound ignorance and a dreary superstition. Let us place as a counterbalance, their truly patriarchal domestic life, their morality, their reverence for their parents, and their affection for their children.

The free Dyaks live a much easier, a much more joyous life, than those who are under the Malay yoke. They live on the products of their own industry : rice and maize, tobacco, and sometimes sugar-cane and the ubi. They use largely the oil of the *kawan* fruit, collect in the woods the resin of the dammar, which they turn to account for torches and lamps, and are rich in stores of sago, ratans, and cocoa-nuts. With some of these articles they carry on a considerable trade in exchange for brass, glass beads, salt, red cloth, and other objects, which they value highly, setting them far above gold. They have also numerous herds of swine and large flocks of poultry, but eat them only on festival occasions and at their marriage-feasts.

Many travellers have put before us the free Dyaks as handsome men,—as savage Adonises, in fact,—well-featured and strong-limbed. Madame Ida Pfeiffer, looking at them with a woman's eye, can speak of them only as a little less ugly than the Malays. Generally of medium height, their arms and legs are spare and shrunken ; and they have little or no beard, for they carefully remove the hair from the face. They are distinguished from the Malays by two agreeable

characteristics : the nose is not so depressed, and the cheek-bones are not quite so prominent.

The conjugal arrangements of the Dyaks are all made in favour of the man, who may have as many wives as he likes,—though he has the good sense in most cases to content himself with one. Divorces are very rare, and quarrels are still rarer ; and their morals are incomparably purer and loftier than those of the Malays. The youth of the two sexes are kept strictly separate. The young girls sleep in the inner apartments ; the young men in the verandah, or else in the chief's hut. The Dyaks do not intermarry with other peoples ; if any of their women espouse Chinese husbands, they are regarded as no longer belonging to the tribe.

The Dyaks have no written language, and, apparently, not even a religion. On the latter point, however, opinions are divided. Temminck asserts that they *have* a religion, and describes it as closely resembling “fetichism.” The god Djath, he says, governs the sublunar world, and the god Sangjang reigns over hell : these gods they represent as wearing the human form, but as invisible ; and they invoke them by sprinkling rice on the ground, and offering various sacrifices. In their houses, he adds, wooden idols are often met with.

Other travellers attribute to them the profession of a kind of Pantheism ; and if their accounts may be credited, the Dyaks, like the ancient Greeks, believe in gods above the earth and gods under the earth, as well as in innumerable good and evil spirits, of whom Budjang-Brani is unquestionably the most wicked. All

diseases are caused by the intervention of demons, and all misfortunes ; no wonder that the Dyaks should endeavour to drive them away by shouts, and shrieks, and the discordant gong.

There are not a few writers who affirm that the Dyaks cherish certain vague ideas of a Divine Unity and of the immortality of the soul.

Turning to the graphic and evidently honest pages of Madame Pfeiffer, we find that she neither endorses nor confutes these various opinions ; but, as the result of her own explorations, positively declares that she saw neither temples nor idols, priests nor sacrifices, in any of the tribes she herself visited. On the occasions of their births, marriages, and funerals they perform certain ceremonies, but these are without any religious character. Usually, on such occasions they kill fowls as well as hogs. When concluding treaties of peace, they slaughter some swine, but do not eat them. A few tribes burn their dead, and preserve the ashes in hollow trees ; others inter them in almost inaccessible localities, such as the summits of lofty mountains ; others bind the corpse to the trunk of a tree in the position in which St. Peter was crucified—that is, with the feet upwards and the head downwards.

THE SULTAN OF SINTANG.

But we must resume our brief narrative of Madame Pfeiffer's experiences.

She was admitted to an interview with the Sultan of Sintang, being unquestionably the first European lady to whom such an honour had been accorded. The sultan sent for her in a "large and beautiful bark" manned by twenty rowers ; and on her arrival

at the palace, a house built of timber, she was received with the sound of music and the firing of cannon. The pathway was lined with mats for some hundreds of paces. The sultan himself met his guest half-way, and nothing could exceed his politeness—except his embarrassment. Never before face to face with an European lady, he was at a loss how to behave; and, moreover, his Mohammedan prejudices were a sad stumbling-block. He summoned up courage, however, to give her the tips of his fingers, and host and guest, balancing themselves almost as if they were dancing, repaired to the divan or presence-chamber, separated from the vestibule only by a wooden balustrade about two feet high. It contained a massive table half-covered with a coloured cloth, a chair, and, in default of a second chair, a chest. The sultan and the lady took their places at the table; his ministers, and the great personages of his little kingdom, were seated on the ground, along the walls. Outside gathered a curious multitude, pressing forward to obtain a glance at the stranger.

The letter of recommendation which Madame Pfeiffer had received from the Rajah of Beng-Kellang-Bocnot was brought in on a silver dish; the bearer glided on his knees, and with his eyes closed, to the sultan's feet, took his hand, kissed it, and presented the dish. The sultan ordered his chief minister to take the letter, open it, and read it.

This ceremony over, refreshments were served up: they consisted of tea without milk or sugar, various delicacies, and fruits displayed upon more than twenty tiny but elegantly-shaped plates of crystal. All who were present took part in the repast.

Afterwards the sultan conducted his guest into the women's chamber. Here too a place of honour was accorded to her. The sultan then presented to her his wife and daughters, all of the true Malay type. Clothed in simple sarongs, which reached half-way up the bosom, their appearance was neither royal nor attractive. No conversation could take place between persons who understood not a word of each other's language, and Madame Pfeiffer soon afterwards took her leave,—the sultan promising to place at her disposal a *sampun*, or large boat, for the voyage to Pontianak.

The next day this obliging potentate, accompanied by his father, paid the European lady a return visit, which she thus describes :—

“The sultan's father wore a small cap and vest embroidered with gold brocade; these were the first precious objects, in the way of garments, of which I had seen a Bornean prince possessed. Independently of the ordinary beauties peculiar to his race, this man was also gifted with a remarkable goitre, the second which I had seen in the island; the first, considerably inferior in size, adorned the neck of the wife of the Rajah of Beng-Kellang-Boenot.

“This distinguished society showed not one-half of the reserve which the head-hunters, the Dyaks, had so admirably displayed. They opened and rummaged everything; threw themselves like wild beasts on my little travelling-bag, which unfortunately I had left open. I had but a pair of eyes, and could not guard all my riches, especially the insects and reptiles, or preserve them from mishap. The sultan's father at last seized on my bag and its contents; and pointing

with his finger to my comb, tooth-brush, and soap, asked me their various purposes. At the end of my explanation, their utility appeared to him so obvious that he calmly announced his intention of keeping them for himself. However, before he left, I recovered them with little ceremony, and gave him in exchange some small images and other trifles."

TO PONTIANAK.

The voyage from Sintang to Pontianak, occupying three days and a half, was successfully accomplished, without adventure or misadventure.

At Pontianak, the capital of one of the Dutch residencies, Madame Pfeiffer ascertained the existence of an evil far more fatal in its results than any of the cruel or abject customs she had observed among the savage Dyaks ; an evil which, unfortunately, the Dutch Government, far from attempting to root up, employs all its influence to promote : we refer to the use of opium.

One evening Madame Pfeiffer visited, in the Chinese quarter, six small public saloons for opium-smoking. The smokers were seated or lying on mats, with little lamps by their side for kindling the fatal pipe. It is curious to see how dexterously the smoker, although sodden and confused and half-intoxicated, contrives to remove from the leaf to which the opium is attached the most imperceptible fragment !

The visitor to these places of public poisoning sees before him a hideous spectacle. Here a poor wretch, dizzy and tottering, rises, and endeavours to drag himself homeward, but lacks the strength to get

further than the threshold ; there lies another, apparently lifeless, and utterly incapable of thinking even of his home ; yonder sits an unhappy creature with pale and hollow cheeks, and lustreless eyes, and trembling body, too poor to smoke until all consciousness is lost. A few persons are stimulated by the opium into a condition of extraordinary gaiety ; they laugh and chatter until exhausted, when they fall back upon their couches, to enjoy, if they may be believed, celestial dreams. The most painful part of it all is, that he who has once tasted the poison can seldom conquer its fascination. He becomes an inveterate opium-eater or opium-smoker. Nothing can save him ; with rapid steps he passes down the steep slopes of destruction. His body shattered and enervated, he can neither work nor think ; he is incapable of every effort, except so far as he can gain from the deadly drug a new stimulant and a temporary life.

Madame Pfeiffer, to her great surprise, in the opium-houses of Pontianak met with women as passionately addicted to the body and soul destroying drug as men. Sad to say, the greater portion of the revenue of the Dutch Government in Borneo is derived from the sale of opium.

CHAPTER VI.

THE STORY OF SARAWAK.

ITS POPULATION.



WE cannot quit Borneo without a glance at the settlement which will be inseparably connected with the name and fame of Sir James Brooke.

Sarawak, including its dependencies, stretches from Cape Datte to Kidorong Point—a coast-line of about three hundred miles—and, according to Mr. Spenser St. John, presents every variety of surface, from the low fertile soil along the banks of the river Sarawak to the lofty mountains which rise in every direction throughout the various districts.

No country could possess more abundantly the gift of fertilizing waters. At least three of its rivers are of the first class—the Rejang, the Sarawak, and the Batang-Lupur; among those of the second class we may name the Samarahan, the Sadong, the Kalaka, and the Bintulu; and among those of the third class three are very important—the Mato, the Oya, and the Muka—because they traverse the great sago-producing districts, where for miles and miles the land is covered with forests of that precious palm.

What shall we say of the inhabitants of Sarawak, numbering in all perhaps about 300,000? That they

form a motley aggregate, speaking many languages and more dialects, and distinguished by a wondrous variety of customs and costume, morals and manners.

First there are the Malays, who may be found in little clusters along the banks of almost every river and creek, but assembled in the largest numbers at the capital, Kuching.

Next come the Chinese, always industrious and pacific—always displaying a remarkable faculty of accommodating themselves to new conditions. They concentrate chiefly in Sarawak, but some are now working gold on the Batang-Lupur river; and they abound in every place where commerce is possible and profit can be obtained.

The Indian races are but scantily represented.

The Land Dyaks occupy a portion of Lundu, with the interior of Sarawak, Samarahan, and Sadong.

The Sea Dyaks include the Sibuyans, who are scattered through the various districts; and the inhabitants of the Batang-Lupur, the Serebas, Kalaka, and the branch streams on the left-hand bank of the Rejang.

The Milanaus are settled on the lands that border on the mouths of the Rejang, the Oya, the Muka, the Bintulu, and other and smaller streams.

Towards the interior of the districts which lie between the Rejang and the Bintulu live the tattooed races of the Kanowits, Pakatans, and Punons; while the Kayans occupy the Balui country, as the interior of the Bintulu and the Rejang is called.

It was over all these races that Sir James Broöke, by his moral force, resolution, courage, and prudence, obtained a truly imperial ascendancy, welding them together into one peaceable and prosperous community.

This extraordinary man was born in Bengal, of English parents, in 1803. After receiving a careful education in England, he entered the East Indian army, served with distinction in the Burmese war, but, being severely wounded, returned to England "on furlough," and spent some time in travel on the Continent.

On the voyage out to rejoin his regiment he was shipwrecked, and consequently was prevented from arriving in India before the expiration of his furlough. According to the rule then in vogue, all his appointments lapsed, and Brooke abandoned the service.

RAJAH BROOKE'S ADVENTURES.

Possessed with a burning spirit of adventure, and capable of forming and carrying out great plans, he was led by various circumstances to conceive the idea of exterminating the terrible piracy that was then the scourge of the Eastern Archipelago, and of making known the civilizing influence of England in the rich islands that stud the Indian seas.

Purchasing a small yacht, he manned it with a crew of twenty picked seamen; and after a three years' cruise in the Mediterranean—which developed the good qualities of his followers, secured their confidence in their commander, and proved the seaworthiness of his little vessel—he sailed for Sarawak in October 1838.

On arriving there, he found the rajah, Muda Hassim, the uncle of the Sultan of Borneo, engaged in war with some of the independent Dyaks. Brooke lent him the assistance of his genius, his men, and his artillery; and, in return, was appointed Rajah and Governor of Sarawak. Thus he unexpectedly found himself in a position to put into practice the theories he had formed

of the most effectual modes of governing and civilizing the inferior races. His rule was severe, but it was just. In his personal intercourse with the natives he was always courteous, but dignified. He has expressed, in simple language, the objects he steadily kept in view :*—

“ My intention, my wish, is to develop the [resources of the] island of Borneo. My intention, my wish, is to extirpate piracy by attacking and breaking up the pirate towns ; not only pirates direct, but pirates indirect. I wish to correct the native character, to gain and hold an influence in Borneo proper ; to introduce gradually a better system of government ; to open the interior ; to encourage the poorer natives ; to remove the clogs on trade ; to develop new sources of commerce. I wish to make Borneo a second Java. I intend to influence and amend the entire Archipelago, *if* the British Government will afford me means and power.”

In some of these objects he succeeded : probably, *if* the British Government had supplied him with “ means and power,” he would have succeeded in all. He established a settled government ; provided the machinery for a strict administration of laws which he set about enacting ; instituted free trade ; and developed commerce. The barbarous custom of “ head-hunting,” to which we have had frequent occasion to allude in the foregoing pages, he declared to be a crime punishable with death ; and he put it down in the territories subject to his influence. Then he began his campaign against the pirates of the Archipelago, in which he was energetically supported by Commodore (afterwards

* Templar, “ Private Letters of Sir James Brooke,” ii. 42.

Admiral) Keppel. The stern policy which he unfalteringly pursued raised against him, however, in England, the enmity of the pseudo-philanthropists, who think that revolutions can be effected with rose-water, and bestow a cheap benevolence on the savage and barbarian. Brooke, therefore, returned to England, to vindicate his character and conduct. The inquiries of a Royal Commission declared him guiltless of the charges brought against him by maudlin agitators; and the heroic adventurer—who, almost unaided, had founded a new state, and rendered the navigation of the Archipelago comparatively free from danger—received at the hands of his countrymen the welcome he deserved. The University of Oxford honoured him with the degree of D.C.L.; and in 1848 he was created a Knight Commander of the Bath. He was also appointed Governor of Labuan—an island near Sarawak which the British Government had purchased—and Commissioner and Consul-General to the Native States in Borneo.

In this twofold capacity he resumed his crusade against the Eastern pirates; not, be it said, without exposing himself to the attacks of his enemies in England. That he behaved with unrelenting severity must, indeed, be admitted; but then the savages whom he hunted down were steeped in the blood of the innocent and weak, and had been guilty of the most atrocious crimes. We shall gain some idea of the nature of the work he undertook from the following narrative, which describes his expedition against the piratical Serebas.

“This,” he says, “is the real story:—

“The action was a night action. The pirates were entirely surrounded, and after their first panic dashed

at Point Marrow, and engaged our native prahus guarding it; but failing to force a passage at once, they ran their prahus ashore to the number of ninety, and fled into the jungle. In this encounter several of our people were wounded, and one or two killed; and had the pirates succeeded in their object, they would have escaped. The remains of this large fleet, trying to escape by sea, were cut up by the steamer *Nemesis*. The total loss during the night engagement, on the part of the pirates, was three hundred men killed: two hundred and fifty of these were killed by the steamer, and fifty by the natives. They could not resist the steamer; but they did engage the natives, and would not have abandoned their prahus so easily excepting from the dread of being attacked from the Kaluka side.

“I held firm in the Kaluka river with my division, to prevent any of the pirates ascending it, or returning along the coast to the Rejang. I was ill of the ague when the fight commenced, and during the whole night. Information was brought me that a desperate struggle had taken place between the pirates and our people at Point Marrow, and rumours were rife that we had been defeated. During this time there was no water for our heavy boats between the Kaluka and Serebas without going a very long way round, and leaving the Kaluka open. The morning assured us of victory. Now, will any one state at what time the action should have been discontinued? Should all the pirates have been allowed to escape, or half of them, or a quarter; and by what patent means is an action to be stopped at any given moment?

“In the morning, when the result was known, our

fleet gathered together, and with the pirate prahus captured we moved up the river, passed the Rambas, and ascended the Paku, thus drawing off our force as much as possible from the pursuit. Had I taken possession of the neck of land between Serebas and Palo, the three thousand men must have fought and been killed, or have died of starvation. Had we gone up the Rambas, we might have killed the fugitives by hundreds. As it was, some thirty to fifty of these fugitives were killed by our stragglers: but how was this to be avoided? Stragglers and loose fish are to be found with every body of men, whether European or native. And the number thus killed appears to me exceedingly small, considering the circumstances; and our natives behaved with great humanity.

“We had one prahu from Sadung manned by Malays, every one of whom had lost a near relative, killed by the Serebas during the year.

“The total number of the pirates destroyed was eight hundred; namely—

Killed during the action by the steamer and English boats...	250
Killed by the natives during the action	50
Killed after the action, when on their way home.....	50
Died in the jungle, or after reaching their homes.....	450
	800

“I know very well,” adds Sir James Brooke, “that these people are to be reclaimed by punishment and by kindness, and there is no chance of their being ‘exterminated;’ though there is a certainty of all the poorer and peaceful Dyak tribes being exterminated if the Serebas and Sakarran are countenanced by the English philanthropists, and encouraged to slaughter their neighbours.”

At all events, Rajah Brooke's policy was crowned with success ; and though success does not in all cases justify the means employed, it does not seem possible that by any milder course could the destruction of the murderous and treacherous piratical communities, which had so long been the scourge of the Archipelago, have been accomplished.

A FIRM RULE.

In 1857, the rajah's constancy and courage were exposed to a very severe trial. He had been superseded by the British Government in the governorship of Labuan, but by arrangement with the Sultan of Borneo retained his position as Rajah of Sarawak. Here, at night, he was attacked in his house by a large body of Chinese, who had been stimulated into rebellion by his persevering efforts to prevent the smuggling of opium. It was with the greatest difficulty, and only through his imperturbable calmness, that he effected his escape,—swimming across a creek, and obtaining shelter in a friendly quarter. The Chinese burned his house, and committed great depredations ; but when day dawned the indomitable rajah collected some faithful natives, attacked his enemies, drove them from point to point, and finally forced them back into the jungle, where those who had escaped the sword perished miserably of starvation.

Soon after this event Brooke returned to England and endeavoured to awaken the public mind to a perception of the great advantages, moral and material, which England would secure by the annexation of Sarawak. He made numerous converts to his views, and an influential deputation waited upon the late Earl of Derby, then (November 1858) head of the

ministry, to secure their adoption by the British Government. Failing in this, they raised a public subscription to compensate Sir James Brooke, who was broken in health, for his invaluable public services. Sir James continued to reside in England until his death, in 1868. His nephew succeeded him in the rajahship of Sarawak, and Labuan has continued to be governed as a Crown colony.

There can be no doubt that Sarawak flourished greatly under the rajah's vigorous and enlightened rule. Its population rose from 1,500 to 15,000, and its trade from a paltry sum too small to be recorded to £250,000 per annum. The natives gained in peace, prosperity, and personal security. Before the advent of this able Englishman, the country was in a completely anarchical condition,—Malays were fighting against Malays, and Dyaks against Dyaks. The latter drank deeply of the cup of wretchedness: they were exposed to continuous exactions,—their children were carried off, their villages attacked and plundered by piratical hordes, and their troubles were frequently increased by want, approaching almost to famine.

An independent observer says, that as far as material comfort adds to the happiness of man, the Dyaks had every reason to be thankful. They enjoyed whatever they earned. Their sole payment to the Government was a tax of four shillings on every family, and other exaction they had none. Nor were the Malays less benefited by the change of system. Formerly the chiefs employed a crowd of relations and followers to collect their taxes and oppress the aborigines; and, as is the case at Brunei now, if the master demanded a bushel of rice, the man insisted upon two more for

himself. Such a system was as demoralizing as it was unjust; injustice, indeed, must always be demoralizing; and it was better, and in the long run more profitable, for these men, as well as more honest, to adopt a legitimate course of trading.

The impetus given by the rajah's colossal energy was so great, that in this desert place a thriving commercial community rapidly sprang up. Trading prahus were built, and voyages undertaken which developed a race of bold and skilful seamen. Singapore, Java, the Malay Peninsula, and even a portion of Sumatra, were brought within the range of their enterprise. Hence came wealth, and the comforts that flow from wealth, as were evidenced in the improved dwellings, the larger prahus, the gayer and costlier dresses, and the amount of gold ornaments worn by the women.

In all their intercourse with Europeans, the Sarawak traders showed their entire confidence in the truth of the maxim that "Honesty is the best policy." An Englishman, who greatly facilitated their commercial transactions by loans of money at a rate unusually moderate for the East, where usury has always flourished, told Mr. Spenser St. John that, in all his wide experience, he had met with only one Malay desirous of defrauding him. He never demanded receipts, but contented himself with an entry in his book; yet, except in that one instance, all his loans were repaid.

The following anecdote of a Malay trader affords an interesting illustration of this remarkable integrity. The man borrowed a small sum and went on a voyage; in a month he returned, stating he had lost both prahu and cargo, and asking to be entrusted with double the amount of his first debt. His request was complied

with. Again he returned in misfortune, having been wrecked close to the river-mouth. He came to the Englishman, explained his loss, but added,—“You know I am an honest man. Disasters cannot always happen to me; lend me sufficient to undertake another voyage, and I will repay all I owe you.” The merchant hesitated a moment, and then lent him the whole amount demanded. The Malay was absent for three months; but his smiling face, when he once more presented himself before his creditor, showed that his perseverance had been appropriately rewarded. He paid off the principal portion of the debt at once, and soon afterwards discharged the remainder.

The secret of Sir James Brooke's success was his undeviating firmness. He never wavered; never inclined to one extreme or the other; was always inflexibly just, and always treated the natives as intelligent and reasoning men, capable of appreciating an honest and steadfast rule. Moreover, he associated with him in the government the principal local chiefs; and wisely availed himself of their knowledge of the feelings and sympathies of their countrymen, before attempting the reform of their institutions, imposing new taxes, or introducing any changes in the system of levying the old.

Nothing appears more striking, we are told, to those who have resided long in Sarawak, than the extraordinary change which appears to have been effected in the character of the *people*. It may be admitted that Sir James Brooke had to work upon a soil which was naturally good, or these results could not have taken place; but when we obtain an insight into the previous savagery and lawlessness of the men whom he

converted into faithful followers and peaceable citizens, we cannot refuse our admiration to a work so glorious, carried out by a genius at once so prudent and so bold.

The following anecdote is told of one of the chiefs whom the rajah associated with him in the government,—a man whom he found to be brave, loyal, and unshaken by the greatest temptations.

Once when he was cruising near Datte Point he observed a small trading-boat passing out at sea. He immediately gave chase, and on nearing her noticed that the crew were all armed, and making ready to defend themselves. His followers thereupon advised him to sheer off, but he insisted on pushing alongside; and leaping on board the trading prahu with his kris gleaming in his hand, he struck such terror into its crew that they ran below. They were six in number; but he killed them all; and was wont to say, when narrating the circumstances, that one only did he pity,—and him because, while the others in their agony called on their mothers, he alone asked mercy of his God.

It may well be said that few men would have undertaken the responsibility of governing a country with such materials; but, to render the task easier, some excellent men were found among the multitude, and a retired pirate makes generally a good servant, if the energies that led him to adopt a roving life can be directed into a legitimate channel.

THE CHINESE COLONY.

Mr. Spenser St. John gives an interesting account of the Chinese colony in Sarawak, but our limits pre-

clude us from doing more than borrow his description of one of their gold-workings. Here the industrious immigrants had embanked the end of the valley so as to form a large reservoir of water about a quarter of a mile in length. The works were very neatly constructed, being completely faced with wood towards the water, and partially timbered on the outside, to enable it to resist the heavy rains which fall in Borneo. A ditch, about four feet broad, was cut from the reservoir towards the ground which had been selected as likely to afford a good yield of gold; and a well-made sluice-gate was constructed in the dam, to supply the ditch with sufficient water; minor sluice-gates to the main ditch answered the same purpose for the smaller ones. When all was prepared, the sluice-gates were opened, and the earth thrown into the ditch; whereupon the rush of water carried away the sand and mud, while the gold particles sank to the bottom. At intervals of three or four months the ditch is cleaned out, the residuum carefully washed, and it is generally found that the yield of precious metal affords a tolerable profit to the workmen.

Such a system of working gold is, however, very wasteful; and we may reasonably expect that by this time some of the economic processes adopted in the Australian gold-fields will have been introduced into Sarawak.*

* An English company has recently obtained cessions of territory in Borneo (1878), which may lead to important results.

Book Second.

THE AUSTRALO-MALAY ISLANDS.

CHAPTER I.

THE TIMOR ISLANDS.

GENERAL ENUMERATION.



OUR survey of the Eastern Archipelago now brings us to the second or eastern division of its many islands; a division differing from the former in the character of its fauna and flora, in the general aspect of its scenery, in the racial distinctions of its inhabitants. We seem to enter upon a new world; and so we do, to a certain extent, for the Asiatic influences will no longer be visible, and those of the vast Australian "island-continent" will be found to predominate. The change, however, is not abrupt and sudden; it forces itself upon our attention more and more strongly as we pursue our eastward course: but, at first, in Lombok, the westernmost island of the Timor group, it is very slight and gradual; so that the breezes of Asia seem to mingle, as it were, with those of Australia.

The Timor Islands include Lombok, Sumbawa,

Flores, and Timor, with several smaller islands. We shall visit them in their geographical order, beginning from the west; but, first, it will be convenient to notice *Bali*, which lies between Java and Lombok, and in which we see the earliest signs of the transition already spoken of.

BALI.

The island of Bali lies between Java and Lombok; separated from the former by the Strait of Bali, from the latter by the Strait of Lombok, neither being above a mile and a half or two miles in width. On the north it is bounded by the Sea of Java; on the south, by the Indian Ocean. Its length nowhere exceeds eighty-five miles; its breadth, fifty-five. Its superficial area may be computed at seventeen hundred square miles; so that it is about ten times larger than the Isle of Wight. In shape, it may be compared to a wedge or triangle, of which the apex points towards Java.

It is a very charming and attractive island, with a warm climate, a rich vegetation, and beautiful scenery. Of these advantages the inhabitants have made such excellent use, that it may well be entitled "The Garden of the Eastern Seas." A gently undulating plain extends inland from the sea-shore for ten or twelve miles, where it is bounded by a range of well-wooded hills. Above these runs a lofty volcanic ridge, bold, impressive, majestic, culminating in the peak of Agoeng, 11,326 feet—a volcano which, after a long interval of repose, burst into activity in 1843. This ridge continues the "belt of fire" which starts from the Bay of Bengal, and through Java and Sumbawa extends, in an irregular curve, to the

Aleutian Islands. The mass of mountains which thus forms the centre of Bali is broken up by numerous beautiful and well-watered valleys, which, as well as the littoral plain, show every sign of careful cultivation. Houses and villages, embowered in feathery clumps of cocoa-nut palms, tamarinds, and other fruit-trees, diversify the landscape, which gains a character of its own from the extensive rice-grounds that spread in every direction, and are watered by a labyrinth of tiny artificial canals. In and out wind lanes as green as those of England, though with a different greenness; the principal hedges being formed of prickly cacti, interspersed with the cocoa-nut tree, which is *the* tree of the island.

Bali, as we have seen, has a strong volcanic character, and is subject to violent earthquakes. In 1815 the shock was so disastrous, that a mountain near Bleling was shivered into fragments; and in the inundation which followed upwards of twelve hundred persons, it is said, lost their lives. On the south, however, the island assumes a calcareous formation, and the well-known and extensive headland of Taffel-hock (or Table-point) is a mass of chalk.

LIFE IN BALI.

The principal products are rice, cotton, and coffee; the principal animals, cattle and buffaloes, besides a hardy but small and meagre-looking breed of horses. Tigers haunt the forest-growth in the northern and western districts; and the woodlands are inhabited by large numbers of monkeys, swine, and goats. Birds are many; and here is found a weaver-bird, the *Ploceus hypoxanthus*, which builds of leaves and

twigs a curious bottle-shaped nest, very compact and ingenious. This bird is found no further east. Orioles are also met with, and starlings and thrushes; most of them being Javanese species, but some indigenous to the island. Of the former we may name,—the black grasshopper-thrush;* Malay oriole;† Java ground-starling;‡ Java three-toed woodpecker;§ rosy barbet.||

None of these, it is to be observed, are found in Lombok, though the two islands are separated only by a narrow arm of the sea. The animal life and vegetation of Bali are exclusively Asiatic. Indeed, Zollinger asserts that it does not contain a single animal which is not to be found in Java. The Strait of Lombok, therefore, as we have stated in our introductory remarks, defines the boundary between Asia and Australia.

The inhabitants of Bali are partly Chinese and partly Malays; but the former, having adopted the native costume, are distinguishable only by their flatter features. The aborigines are a handsome race, taller and manlier than the Javanese, but their love of opium is rapidly bringing about their degradation and decay. Unlike the Dyaks of Borneo, they yield an unqualified submission to their chiefs. Their prevailing religion is Hinduism. Their chief manufacture is cotton goods, which the women make and sell for the benefit of their husbands. Other industries are the working of iron, and of gold trinkets, and the manufacture of pottery. Tobacco, rice, and cocoa-nut oil are the principal exports; and the commerce in these is not only considerable, but is annually increasing.

* *Copsychus amoenus*.† *Oriolus Horsfieldi*.‡ *Sturnopastor jalla*.§ *Chrysonotus tiga*.|| *Megalæma rosea*.

The costume of the natives would have delighted Horace, being *simplex munditiis*. It consists of a piece of cotton cloth wrapt about the loins; to which is added a *sabak*, or cloak, on state occasions. The richer natives, however, adopt a modification of the Malayan dress; and all wear suspended their huge *krisses*, or curved knives, with handsome handles of polished wood, ivory, or gold. The houses of the poor are built of mud, sun-baked, and covered with reeds; those of the princes, of bricks, which are well-cemented, as if laid by a British bricklayer. The villages are arranged in squares, or parallelograms, and enclosed by high mud walls.

We now cross the Strait of Lombok, and enter the Australian world.

LOMBOK.*

Though differing so widely in its animal and vegetable life, Lombok resembles Bali in its physical character—consisting of a low shore and sloping plains, from which rise single detached conical mountains, and clusters or ranges of such mountains, of greater or less extent. Here, as at Bali, the island seems to rise on all sides towards one great culminating peak,—Goenong Rindjanie, 12,000 feet; but a closer inspection reveals that its heights form two distinct ranges, and that Goenong is included in the more extensive, which occupies the north, east, and west of the island, while a smaller range skirts the southern coast.

Lombok, in the chain of Indian islands, is the next link to Bali, from which it is separated by the

* Or Lombock: native name, *Tanak Sassak*.

Strait of Lombok; the Strait of Alass, or Allas, divides it from Sumbawa; on the north it is washed by the Sea of Java; on the south, by the Indian Ocean; the surrounding waters attaining a depth of more than one hundred fathoms. It is forty-eight miles in length, and thirty-seven in breadth; its total area, 1668 square miles. In shape it is a rhomboid, with a long and narrow peninsula which projects boldly from its south-west angle.

The chief town of the island is Ampanam, on the shore of the Lombok Strait, of which Mr. Jukes furnishes some particulars.* The houses are all built on posts about six feet high, which are sometimes left open, and sometimes fenced round as an enclosure for poultry or as a rice-store. Steps, or a ladder, give access to the front door. The houses are generally constructed of bamboo; the apartments being partitioned off by curtains or screens of split bamboo, and the floor covered with clean mats. Along the ceiling racks are suspended, and these are filled with muskets, spears, agricultural and fishing implements.

The same writer describes a view which he obtained of Lombok Peak. The level beams of the sun tinged with gold all the crags and ridges of the lower mass, kindling into bright relief the furrows which broke up its sides, and lighting up the summit-cone with a deep and intense glow, as if it shone by its own light. All the valleys and ravines were hung with dark woods, which mantled also round the base of the cone, and seemed to struggle up it in irregular wavy lines, defining the slight hollows in its declivities. The upper part of the cone, as well as the sharp ridges and peaks

* J. B. Jukes, "Voyage of H.M.S. *Fly*," li. 209-212.

and mounds of the lower mass, were brown and barren, except where relieved by a clump of pine-like trees. No lava-streams were anywhere visible, having probably been long covered up by dust and ashes, as in the volcanoes of Java. Though somewhat lower than the Peak of Teneriffe, it has a much more majestic appearance when viewed from the north side, as it seems to start more abruptly from the sea; while on the south, where it rises from a comparatively low and level country, it is richly wooded, and thus excels Teneriffe in beauty still more than in grandeur of aspect.

A PEEP AT THE INTERIOR.

The bay or roadstead of Ampanam is of considerable extent, and well sheltered from the south-east monsoon. Its beach is of black volcanic sand, and very steep; at all times a heavy surf thunders upon it, and this, occasionally, is so formidable that no boats can attempt to pass it. Often it will increase during perfect calms to as great a force as if a gale were blowing, and so suddenly that it dashes to pieces any boat which an imprudent native may have left upon the shore. No doubt this surf and swell are caused by the rolling billows of the great southern ocean, as they endeavour to whirl and rush through the strait into the Javanese Sea.

The country in the neighbourhood of the capital is interesting, particularly to the naturalist. For insect life is superabundant, and the entomologist may ceaselessly impale magnificent specimens of coleoptera or libellulæ, beetles or dragon-flies; and the ornithologist will meet with birds of great variety and beauty. The great horned lamellicorn beetles are roasted on

the embers and eaten by the natives; while the dragon-flies, fried in oil, and served up with onions and preserved shrimps, are regarded as a "dainty dish." The orioles here are of a rich orange colour, and perched among the glossy foliage present an attractive spectacle. The woods re-echo with the shrill scream of the white cockatoo, and with the peculiar "quaich-quaich" of a bird resembling the Australian friar-bird, *Tropidorhynchus Timoriensis*. Then there are large green pigeons by scores in the clustering palm-groves, where they feed upon the young fruit; and the thickets are haunted by beautiful kingfishers, which dart to and fro like coloured flames of fire. On the bending branches, in more open and sunny places, the Australian bee-eater takes its stand, ready to dart upon any unfortunate insect that comes near it, and looking very gay in its bravery of emerald plumage, with collar of rich brown and sapphire blue.

In the dry plains covered with thickets, more particularly at the fall of the leaf, the naturalist meets the beautiful ground-thrush, *Pitta concinna*, hopping about in quest of insects, and on the least alarm fluttering into the dense covert, or taking a flight close along the ground. At intervals it utters a peculiar chirp of two notes, which is easily learned, and by repeating which the curious fowler will often decoy the imprudent bird into his snare. The upper part of the ground-thrush's fragile little body is clothed in a rich soft green plumage; the head is jet black, with a stripe of blue and brown over each eye; bands of bright argentine blue mark the base of the tail and ornament the shoulders; while the under parts exhibit

a delicate buff, with a stripe of rich crimson and a black border on the belly.

Lombok must be one large aviary, judging from the narratives of voyagers and the enthusiastic records of naturalists. We read of grass-green doves, crimson and black flower-peckers, large black cuckoos, golden orioles, metallic king-crows, green fruit-pigeons, the fine jungle-cock, the dainty yellow zosterops,—until we are filled with a desire to see them in their habit as they live, and basking in the sunshine of a tropical sky. Here, too, is to be found the mound-maker, *Megapodius Gouldii*; and this is the first place where he presents himself to the traveller whose course is eastward. He belongs to a small family of birds, the Megapodidæ, which are found only in Australia and the surrounding islands,—extending no further, however, than the Philippines and North-West Borneo.

The Megapodidæ are allied to the gallinaceous birds (such as our barn-door fowl), but differ from them and from all the feathered tribes in never sitting upon their eggs, which they bury beneath large mounds of rubbish, sticks, stones, earth, rotten wood, dead leaves,—frequently six feet high and twelve feet in diameter,—and leave to be hatched by the sun's heat or the internal fermentation. The manner in which the materials are accumulated is very curious. According to Mr. Gould, the bird does not use its bill, but always grasps a quantity in its foot, throwing it backwards to one common centre, and in this way clearing the ground for a considerable distance so completely that scarcely a leaf or a blade of grass is left. The eggs, each measuring fully four inches in length, are deposited, not side by side, as with other birds, but at a distance

of nine inches or a foot from one another, and are buried with the large end upwards, at a depth of two to three feet. After an interval of six weeks the chicks, strong and full-fledged, suddenly make their appearance, one after another, and begin to seek for food; at night they scrape holes for their places of retirement, and lying down in them are covered over by the old birds.

Similar mound-like nests are constructed by the tallegalla, or brush-turkey of Australia; by the leipoa, or native pheasant; by the megapodius of New Guinea; and by the *Megapodius tumulus*, or jungle-fowl.

The Megapodidæ feed upon fallen fruit, centipedes, snails, earth-worms, and the like. To the inexperienced traveller the pyramids of rubbish which they construct in the woods and thickets are a puzzle and a wonder; and he usually refuses to be enlightened when informed that they are the work of a bird. It seems to him impossible.

THE BOTANIST IN LOMBOK.

The botanist will find much to interest him in Lombok. If he comes fresh from Europe, its jungle-growth will furnish him abundant occupation, though his researches may be somewhat obstructed by its thorniness. For the shrubs are thorny; and the creepers are thorny; and Mr. Wallace asserts that even the bamboos are thorny. It is not easy, therefore, to make your way through so formidable a tangle; though it contains many remarkable forms of vegetation. To the monkeys it offers no obstacles, for they spring nimbly from bough to bough of the

tall trees that rise above the prickly growth, throwing fruit at one another, or at the human intruder, and chattering incessantly upon subjects known only to themselves.

Here is to be seen the lofty cylindrical trunk, about a hundred feet high and seven to ten feet in circumference, of the gubbong or gebang palm, a species of corypha, which forms a prominent object in the plains of Lombok. This is one of the fan-palms, and when in full foliage presents a noble spectacle. The leaves drop off when the flowers appear; and these appear but once in the entire lifetime of the tree, forming a magnificent terminal spike, on which are produced masses of a smooth round fruit of a green colour, about an inch in diameter. As soon as the fruit has fallen the tree dies, but remains standing a year or two before it comes to the ground. The fruit is much relished by the green fruit-pigeons and by the monkeys. The natives use the leaves for thatching or plaiting into mats and baskets; and a kind of sago is obtained from the trunk.

We must avail ourselves of Mr. Wallace's fascinating pages, to give our readers an idea of the careful cultivation which prevails in the island of Lombok.

He says that he rode through this "strange garden" utterly amazed, and hardly able to realize the fact that in this remote and little known island, from which all Europeans except a few traders at the port are jealously excluded, many hundreds of square miles of irregularly undulating country have been so skilfully terraced and levelled, and so permeated by artificial channels, that every portion of it can be irrigated and dried at pleasure. According to the more or less

rapid slope of the ground, each terraced plot consists in some places of many acres, in others of a few square yards. "We saw them," writes Mr. Wallace, "in every stage of cultivation : some in stubble, some being ploughed, some with rice-crops in various stages of growth. Here were luxuriant patches of tobacco; there, cucumbers, sweet potatoes, yams, beans or Indian corn, varied the scene. In some places the ditches were dry; in others little streams crossed our road, and were distributed over lands about to be sown or planted. The banks which bordered every terrace rose regularly in horizontal lines above each other; sometimes rounding an abrupt knoll and looking like a fortification, or sweeping round some deep hollow, and forming on a gigantic scale the seats of an amphitheatre. Every brook and rivulet had been diverted from its bed, and instead of flowing along the lowest ground, were to be found crossing our road half-way up an ascent, yet bordered by ancient trees and moss-grown stones so as to have all the appearance of a natural channel, and bearing testimony to the remote period at which the work had been done. As we advanced further into the country, the scene was diversified by abrupt rocky hills, by steep ravines, and by clumps of bamboos and palm-trees near houses or villages; while in the distance the fine range of mountains of which Lombok Peak, 8000 feet high, is the culminating point, formed a fit background to a view scarcely to be surpassed, either in human interest or picturesque beauty."

Except the mountain-ranges, a patch of forest here and there, and some few square miles of jungle, Lombok appears to be one large garden, for the cultiva-

tion of which human industry has exhausted all its resources. The island is covered with vegetation in extraordinary profusion; it creeps even to the rugged rim of the crater of Goenong, while every river-bank is clothed with trees and shrubs. Rivers and streams are numerous: on the west coast, the Bakong, Babak, Barnjok, Djankok, and Antjar; on the east, the Poetiu, Melanting, Sagara, Labuan, Pejoct.

The staple produce of the island is rice; but it also exports cattle, raw cotton, tallow, tobacco, timber, dried beef, cocoa-nut oil; maize and coffee; oranges, mangostems, bananas, and other tropical fruits.

THE GUNMAKERS OF LOMBOK.

The inhabitants are Malays; and famous for their skill in the manufacture of krisses and firearms. They are governed by a number of chiefs, who acknowledge the authority of a sovereign head—the Rajah of Lombok—known to his subjects as the *Anak Agong*, or “Son of Heaven.”

The gun manufacture carried on in Lombok is truly remarkable. A visitor to a gunmaker's works sees nothing more than an open shed, with a couple of mud-forges; where the fire is kept up to the requisite intensity by means of a rude bellows, consisting of two bamboo cylinders, with pistons worked by hand. These move very easily, having a loose stuffing of feathers thickly set round the piston so as to act like a valve, and produce a continuous blast. Both cylinders communicate with the same nozzle, and one piston rises while the other falls. For anvil, the gunmaker uses an oblong piece of iron embedded in the ground; his vice is attached to the stump or

root of a neighbouring tree. These, with a few files and hammers, constitute his stock in trade; and yet he contrives to turn out weapons of really exquisite finish.

The barrel is twisted, and often six to seven feet in length, with a proportionably large bore. But how is this bore made? Ask a native gunmaker, and he will reply, "With a basket of stones." The answer seems an enigma, until you see the *modus operandi*. The basket is made of bamboo, with a pole about three feet long thrust through the bottom, and kept in its place by a few sticks tied across the top with ratans. The bottom of the pole has a ring of iron, and a hole in which four-cornered borers of hard iron can be inserted. The barrel to be bored is buried upright in the ground; the borer is worked into it; the top of the stick or vertical shaft being held by a cross-piece of bamboo with a hole in it, and the basket filled with stones until the requisite weight is obtained.*

Two boys are employed to turn the bamboo round. The barrels are made in pieces of about eighteen inches long, which are first bored small, and then welded together upon a straight rod of iron. Borers of increasing diameter are used in succession until the proper calibre is arrived at; a task which occupies about three days. Of course, the process here described entails a great waste of time and labour, but it results in the production of a very efficient and even handsome weapon.

SUMBAWA.

Continuing our course to the westward, we arrive at the island of Sumbawa, which measures about one

* Wallace, "The Malay Archipelago," i. 168, 169

hundred and sixty miles in length, from east to west, and about thirty-one miles in extreme breadth. It is curiously irregular in shape, the sea having apparently moulded it according to its fancy, and cut out innumerable inlets, coves, bays, and creeks. The coast-line is consequently broken up by bold headlands and rugged promontories, and bordered with a fringe of little isles, which at one time must have formed a portion of the mainland. On the north it is washed by the Sea of Java; on the south, by the billows of the Indian Ocean; the Strait of Alass separates it, on the east, from Lombok; and that of Sappi, on the west, from the islands of Comodo and Flores. Its appearance from the sea is picturesque in the extreme: it rises in a mass of mountains, topped by the grand volcanic summit of Tomboro, 8940 feet; the upper portions being naked and rugged, the lower hidden in luxuriant vegetation, just as if the island of Arran had been half-buried in the depths of an immense tropical forest.

Tomboro or Tumboro has neither cone nor peak, but a summit-crater of great dimensions. It is famous in connection with the terrible eruption which occurred in April 1815. The roar travelled as far as Sumatra in one direction, Celebes in another, and the Moluccas in yet another, or over an area of eight hundred and forty miles; while in Java it was so distinctly heard that many of the inhabitants supposed it was an explosion of one of their own volcanoes. Ashes were ejected in such quantities as literally to darken the air; and they fell so heavily in Lombok that many people were buried under them, while a famine was caused by the injury they did to vegetation. In the

eastern part of Java, at a distance of three hundred and forty miles, they accumulated to a depth of several inches; and it is asserted that they fell even in Sumatra, eight hundred and forty miles away, being carried thither by the violent winds. In Sumbawa itself the ravages effected by this awful outburst were most disastrous. In the district of Tomboro alone twelve thousand persons perished; and the sea, as is usual on the occurrence of these eruptions, rising several feet, and overflowing the shore, many houses were destroyed by the inundation, and numerous lives lost.*

Another outbreak occurred, but not on so terrible a scale, in November and December 1836.

The soil of Sumbawa is wholly volcanic; it is generally fertile, and produces rich crops of rice, as well as an abundance of the usual tropical fruits. The valleys are well-watered, and their slopes clothed with palms. Here grows the *Cæsalpinia sappan*, a tree about forty feet high, with prickly branches, which yields the sappan-wood of commerce, useful for communicating a red dye to cotton goods.

* Gunong Api, or the "Burning Mountain," attains an elevation of 5800 feet. It is not a single but a double peak; the north-western, from the deep valleys and ravines in its sides, being apparently the older. On the eastern flanks of this peak, near the shore, is an ancient crater, the outer wall of which has been washed away by the sea. For one third of the distance from the shore to the summit some shrubbery is found in the bottoms of the deep ravines; but the remaining two-thirds are completely barren. At its top it terminates in a small truncated cone. The south-west peak seems of recent formation; for, from crest to base, a continuous sheet of fine volcanic materials extends, scored only by narrow grooves with perpendicular sides. When viewed in profile, the unbroken sweep of its flanks from the sea to the summit is singularly majestic, and it is difficult to believe that it has not been modelled by art. Not far distant lies Gillibunta, the highest point of which is not more than twelve hundred feet above the sea. Its Javanese name means, "The one that stops, or disputes, the way." It is nothing more than the ruin of an old crater, whose north-western wall has disappeared beneath the sea. The voyager, as he passes through the strait which divides Sumbawa from Comodo, obtains a full view of the lonely volcanic rock,—mute memorial of mighty convulsions in the far distant ages!—and is able to discern the southerly direction of successive overflows of lava.—*Bickmore*, "*Travels in the Eastern Archipelago*."

EDIBLE BIRDS'-NESTS.

Deer and swine thrive vigorously; and the natives also breed cattle, goats, and fowls. The Sumbawese horses are much esteemed throughout the Archipelago:



EDIBLE BIRDS'-NESTS.

there are two breeds, that of Tomboro and that of Bima; the latter is chiefly reserved for exportation. On the coast edible birds'-nests are procured in large quantities, and a considerable commerce is done with

them. They are the nests of a species of swallow peculiar to the Indian Islands, *Hirundo* [*Colocalia*] *esculenta*, and by the Chinese are regarded as a luxury for the table. In shape they resemble the nest of the common swallow; in external appearance and consistency, a fibrous, ill-concocted isinglass.* The nests of all the swallow tribe in these countries, says Crawford, are more or less formed of this singular substance. The common house-martin uses it partly, and partly the ordinary materials, such as hair, straw, and feathers. There can be no doubt that it is elaborated from the food of the bird, and hardened by exposure to the air.

The nests are collected from the rocky caverns that abound on the coast, and, very frequently, cannot be obtained without danger. Sometimes the caves can be approached only by a perpendicular descent of hundreds of feet, by ladders of bamboo and ratan, over a sea dashing furiously against the rocks. When the cavern-mouth is gained, the perilous task of securing the nests must frequently be performed by torchlight; and the adventurer penetrates into recesses where the slightest slip of the foot would hurl him into the boiling surf below.

There are birds' nests and—birds' nests. The finest are the whitest—that is, those taken before the young birds are hatched; dark-coloured nests are of inferior quality. Again: the best are obtained in the deepest caves; which, according to the natives, are inhabited by the cock-bird only. The Chinese distinguish three sorts or classes: and those of the first, *pas-kat*, fetch upwards of £5, 18s. per pound weight; those of the second, *chi-kat*, about £4, 15s.; and those

* Crawford, "Indian Archipelago," iii. 431.



SEARCHING FOR EDIBLE BIRDS'-NESTS.

of the third, *tung-tung*, about £3, 5s. They are supposed to be a stimulant and a tonic; but it is probable, as Crawfurd says, that their most valuable quality is their harmlessness.

Sumbawa can boast of considerable mineral wealth, though little has been done to develop it. Gold has been found in the districts of Sumbawa and Dompe; sulphur and saltpetre are plentiful in Bima. On the coast of Papekat, the pearl-oyster is the object of a small fishery.

Sumbawa is under Dutch rule, but is divided into six native states, each governed by its own rajah: Tomboro and Sumbawa on the north; Bima on the east; and Dompe, Sangar, and Papekat on the south and west. Though an island of deep interest to the geologist and the botanist, it is but imperfectly known; and the foregoing particulars indicate the extent of our information respecting it.

The inhabitants are Malays, and their religion is a modified Mohammedanism.

A small island lying off the north-east coast of Sumbawa, named *Gunong Api*, must here be mentioned, because it contains a volcano,* and forms a

* It is recorded that the inhabitants of Java, when the eruption began, mistook the explosion for discharges of artillery; and at Jokyokarta, a distance of four hundred and eighty miles, a force of soldiers was hastily despatched to the relief of a neighbouring port that was supposed to have been attacked by an enemy. At Surabaya gun-boats were ordered off to the relief of ships which were defending themselves, it was thought, against pirates in the Madura Strait; while at two places on the coast boats put off to the assistance of "ships in distress." For five days these reports continued, and on the fifth the sky over the eastern part of Java grew dark with ashy showers, so that the sea was invisible. According to Mr. Crawfurd, the sky at Surabaya did not become as clear for several months as it usually is in the south-east monsoon.

Eastward, the din of the explosion reached the island of Ternate, near Gilolo, a distance of seven hundred and twenty geographical miles, and so distinctly was it heard that "the resident sent out a boat to look for the ship which was supposed to have been firing signals." Westward, it was heard at Moko-moko, near Bencoolen, or nine hundred and seventy geographical miles.

part of that "belt of fire" to which we have adverted as one of the most remarkable physical features of the Indian Archipelago.

We now pass on to

FLORES,

the native *Endé* or *Mándjirai*, which measures upwards of two hundred miles in length, and between

Dr. Junghuhn thinks that, within a circle described by a radius of two hundred and ten miles, the average depth of the ashes was at least *two feet*; a circumstance which will enable the reader to form some idea of the tremendous character of the eruption. The mountain, in fact, must have ejected several times its own mass; and yet no subsidence has been observed in the adjoining area, and apparently the only change is, that during the outbreak Tomboro lost two-thirds of its previous height.

The rajah of Sangir, a village about fourteen miles south-east of the volcano, was an eye-witness of the eruption, and thus describes it:—

"About seven P. M., on the 10th of April, three distinct columns of flame burst forth, near the summit of the mountain, all of them apparently within the verge of the crater; and, after ascending separately to a very great height, united their tops in the air in a troubled, confused manner. In a short time the whole mountain next Sangir appeared like a mass of liquid fire, extending itself in every direction. The fire and columns of flame continued to rage with unabated fury until the darkness, caused by the quantity of falling matter, obscured it about eight P. M. Stones at this time fell very thick at Sangir, some of them as large as a man's two fists, but generally not exceeding the size of walnuts.

"Between nine and ten P. M., showers of ashes began to fall; and, soon afterwards, a violent whirlwind ensued, which overthrew nearly every house in the village of Sangir, carrying along with it their lighter portions and thatched roofs. In that part of the district of Sangir adjoining the volcano, its effects were much more severe; it tore up by the roots the largest trees, and whirling them into the air, dashed them around in wild confusion, along with men, houses, cattle, and whatever else came within the range of its fury. The sea rose nearly twelve feet higher than it had ever been known to do before, and completely destroyed the only small spots of rice-lands in Sangir, sweeping away houses and everything within its reach."

The captain of a ship despatched from Macassar to the scene of this awful phenomenon, stated that, as he approached the coast, he passed through great quantities of pumice-stone floating on the sea, which had at first the appearance of shoals, so that he was deceived into sending a boat to examine one, which, at the distance of less than a mile, he supposed to be a dry sand-bank, *upwards of three miles in length*, with black rocks projecting above it here and there.

Mr. Bickmore speaks of seeing the same kind of stones floating over the sea, when approaching (in April 1865) the Strait of Sunda. He adds: Besides the quantities of this porous, foam-like lava that are thrown directly into the sea by such eruptions, great quantities remain on the declivities of the volcano, and on the surrounding mountains, much of which is conveyed by the rivers, during the rainy season, to the ocean.—*Bickmore*, "*Travels in the Eastern Archipelago*," pp. 108-110.

forty and fifty in breadth, or about one-third smaller than Scotland. It carries on the great island-chain which connects the Malay Peninsula with the north-east coast of Australia; and is separated from Timor, east, by several small islands and channels of sea; from Sumbawa, west, by the island of Comodo, lying between the Straits of Sappi and Mangderai. On the north flows the Flores Sea; on the south, the Indian Ocean, somewhat broken in its majestic roll by the island of Chandana (or Sandal-wood Island). The narrow passage of Flores Strait divides the island, on the east, from the small isles of Solor and Adenara.

Flores is a mass of rugged mountain and deep-wooded valley, sinking into level and open country towards the coast. Little is known of its interior; and of its products we can say no more than that, like those of Lombok and Sumbawa, they approach the Australian type. It figures but little in the present records of commerce, for the sandal-wood which it once supplied in abundance has now become very rare, through want of economy and absence of cultivation.

Of this same sandal-wood (*Santalum*) there are three varieties, white, yellow, and red, which we have named in their order of value. The tree grows in the mountains. From Java and Madura eastward it is scattered in small quantities throughout the Indian Islands, improving in quality as we proceed eastward, and in Timor being at once most abundant and most valuable. Its Sanskrit name is *Chanduna*; whence Chandana or Sandal-wood Island. It is a beautiful tree, with leaves like those of the willow, regular and tapering branches, and clusters of small red or white flowers.

There is reason to believe that the forms of animal and vegetable life which inhabit Flores are the same as those which inhabit Timor; and, therefore, our description of them will be reserved until we arrive at the latter island. Flores is eminently a volcanic island, with a volcanic soil; it contains several volcanic mountains, one of which—Lobetobie, 7200 feet—is situated near the east coast, and thus it carries on the chain from Java and Sumbawa to Ombay and Wetter; after which it turns northward, by way of Gunong Api,—not the Gunong Api previously mentioned, but a volcanic isle in lat. 6° S.,—to Banda.

A GROUP OF ISLANDS.

The islands or islets lying between Flores and Timor are—beginning from the west—Solor and Adenara; Loniblem, Pantar; and Ombay. Though we can say but little about them, yet a reference seems necessary to the completeness of our survey.

ADENARA, which belongs to the Dutch, is separated from Flores by a strait of the same name. It is about as large as the Isle of Wight, or thirty-five miles in length, and fifteen at its greatest breadth; a romantic island, finely wooded, with beautiful verdant glades, groves haunted by birds of dazzling plumage, hills of considerable elevation, and pleasant valleys. It is well cultivated, and contains several large and thriving villages—Adenara, Carma, Labetan Laman, Lamabulor, and Trony. The Portuguese have a settlement named Woeri.

A little to the south of Adenara, and still to the east of Flores, lies SOLOR, so situated that it seems to

guard the southern entrance to the Flores Strait. It is somewhat smaller than Adenara, and very dissimilar in physical character; the soil being arid, and imperfectly cultivated. The inhabitants are of two classes: the inland aborigines, who frequent the mountains; and the Malays of the coast, who are expert and adventurous fishermen.

To the east of Adenara lies the bold rugged island of LONIBLEM, or Lomblem, with its steep coast washed by the waves of the Flores Sea. To the navigator it is well known as a welcome landmark,—or should we say, sea-mark?—its hilly ranges all leading up to a lofty conical peak at its north-west extremity, which is visible in clear weather for upwards of fifty miles. The island measures about fifty miles in length and sixteen in breadth; and on the north and south is difficult of access. Nothing seems to be known of its interior.

To the east of Lomblem, and separated from it by the deep channel of the Alloo Gut, lies PANTAR, which, in its turn, is separated from Ombay by a strait of the same name. The waves of the Flores Sea beat on its northern, and those of the Indian Ocean on its southern coast.

The Strait of Pantar extends N.N.E. and S.S.W. for about twenty-four miles, and being a difficult passage, blocked up by several islets, is not much frequented by navigators. It divides the island of Pantar from that of OMBAY, which, on the east, is bounded by the Ombay Passage, separating it from

Timor. The so-called Passage is a channel about eighteen to thirty-five miles wide, which affords the safest and best route for vessels from Europe to China.

Ombay is about fifty miles in length, E. by N., and W. by S. ; with bold, steep, inhospitable coasts, and a mountainous interior. It carries on the volcanic chain to Wetter, which lies to the east of it, and to the north of Timor. Its inhabitants are described as a fierce and treacherous race, wearing clothing of buffalo hide, adorned with rings and bracelets of cowry shells, pigs' teeth, and goats' tails. They are reputed to be addicted to cannibalism.

The principal products of the island are pepper, cocoa-nuts, rice, fowls, goats, and honey ; and edible birds'-nests are found in great quantities along its cavernous coasts.

All the islands we have been describing, from Java eastwards, have extended in a line nearly east by west. On reaching Timor, we find the direction changed ; that great and opulent island, the chief of the Timor group, lies S.W. and N.E., or *across* the line we have hitherto been tracing. And, consequently, we find that the "circle of fire," or volcanic chain, is not taken up in Timor, but through the island of Wetter, which is situated due north of it, is carried on to Banda and the north.

TIMOR.

Timor is separated from the island of Ombay on the west by the Ombay Passage, or Timor Strait ; on the north it is washed by the Banda Sea ; on the east and south by the Indian Ocean. Its length is about three

hundred miles, and its breadth about forty miles. High mountain-chains traverse its entire extent; and it has one volcano, Timor Peak, nearly in its centre, which was blown up during an eruption in 1638, and has since been extinct. No recent igneous rocks are anywhere to be found, and whatever may formerly have been the case, it seems now to lie outside the great volcanic chain of the Eastern Sea. Its mountains are chiefly composed of limestone, with red chalk near the base; clay-slate, porphyry, sienite, and greenstone also occur, but the characteristics of the scenery of the island are those which we generally associate with the limestone formation. The landscapes lack that abundance and prodigal beauty which we have noticed in the westward islands, and approximate to the Australian type; the vegetation is coarser and less varied; the hills are bare and rugged; the streams are small, and dry up in summer; there is no freshness in the valleys, and no magic in the plains. Here and there forests of considerable extent are found, but they are not numerous, and they do not exhibit the richness and exuberant life of those of Borneo. Not that the island is deficient in vegetable products,—it has its fertile oases, and yields good harvests of rice, maize, cotton, coffee, wheat, tobacco, sweet potatoes, indigo, pine-apples, mangoes, lemons, papaws, and the like,—but the *spirit* of the scene, as it were, has changed, and Nature seems to have grown more niggardly and reserved.

THE FLORA OF TIMOR.

In Timor the Polynesian flora seems to meet the Indian, for along with the sago-palm grow the cocoa-

nut and the breadfruit tree. The latter does not extend further to the west. True it is that a variety, with seeds, is a native of every part of the Archipelago; but that is not the *true* breadfruit, which constitutes the staple food of the inhabitants of the South Sea Islands. The true breadfruit tree, says



BREADFRUIT.

Crawford,* is found wild only in the eastern part of the Archipelago, and has been propagated but in recent times in the western. It may be strongly suspected, he adds, that the Malays and Javanese, in their trading voyages to Banda, to which they chiefly resorted for spices before the inter-

course with Europeans, brought it to the western islands. This supposition seems to be supported by the evidence of language. Throughout the Archipelago, the seeded variety is known by a distinct name in each language, as is usual in such cases. In Malay it is called *kälawi*, in Bali *timbul*, in Macassar *gomasi*, in one dialect of Amboyna *amakir*, in another *amare*, in Banda *sukun-utan*, or the wild *sukun*. Now, with the *true* breadfruit a very different rule prevails. Where it is indigenous and abundant, it is denominated in each language by a distinct name; but where exotic, by one general name—and that name, as will be seen, is borrowed from the language of Banda (and Timor), whence the western tribes, it is probable, brought it in the course of their commercial enterprise. In the languages of the western islands, such as the Javanese, the Malay, the Bali, the Madura, the Sunda,

* Crawford, "Iudian Archipelago," i. 414.

it is invariably the *sukun*; but in those of the countries of which it is a native, we find such variations as the following,—in the Bugis it is called *kakare*, in Ternati *goma*, in one dialect of Amboyna *soun*, in another *sun*i, and in Banda *sukun*.

We have dwelt upon this fact because it confirms the theory adopted in these pages of the division of the Archipelago into an Asiatic and an Australian section.

While insisting on the general approximation of the Timor flora and fauna to those of Australia and the Australian islands, we are well aware, however, that the former are richer and more various than the latter. This is particularly the case with the vegetation of Timor, which preserves a generally tropical character—owing, perhaps, to its insular formation, and consequently more abundant moisture. In Australia we do not meet with the delicious fruits and precious palms which lend so much beauty to the fertile districts of Timor. From the southern shores of Van Diemen's Land, in lat. 43°, to Cape York and the north-east coast of Australia, within 11° of the Equator, the gum-tree (*Eucalyptus*) communicates to the Australian woods everywhere the same dull olive-brown and monotonous tint. "In some of the valleys near Hobarton, indeed, and in Port Arthur," says Mr. Jukes,* "among groves of tree-ferns, which abound there under groves of immense size, there is a greater resemblance to rich tropical vegetation than can be found at Port Essington, in their stunted woods of eucalyptus, sprinkled only with a few small fan-palms, cabbage-palms, or pandanus trees. Here in

* Jukes, "Voyage of H.M.S. *Fly*," i. 380.



NATIVE OF TIMOR.

Timor, on the contrary, not a gum-tree is to be seen,* but even in the driest and most barren parts, on the summits of the rocky high land near the coast, some tokens of the Tropics might be observed. It would be difficult to get altogether out of sight of some noble palm, or group of cocoa-nuts or bananas."

Timor is distant from the Australian coast about two hundred and fifty miles, and may be regarded as a kind of "half-way house" between Australia and the Asiatic-Malay Islands; a

* Mr. Wallace, however, says that the lower ranges of the hills are everywhere covered with scrubby eucalypti (The *Malay Archipelago*, vol. i., p. 198).

sort of neutral ground, where the vegetation of both regions intermingles, and something of the tropical profusion and variety still happily lingers for the comfort and delectation of its inhabitants.

A GENERAL VIEW OF
THE ISLAND.

Resuming our general sketch, preparatory to a closer examination of the best-known parts, we may note that the woods are frequented by legions of apes, and that deer abound; and among birds, the cockatoos, the lories, and the so-called rhinoceros-birds. A remarkable division of the fauna seems to be made by the



NATIVE OF TIMOR, ARMED.

great mountain-chain which traverses the centre of the island. The animals found on the north-west side resemble, generally speaking, those of the western islands; the animals found on the south-east side, those of Australia.

The domestic animals are buffaloes, oxen, horses, sheep, swine, and fowls. Bees thrive in the lowlands, and yield an excellent honey. Pearl-oysters are found on the coast; and on the coral reefs trepang-fishing is vigorously conducted in the proper season. The shallow river-mouths are haunted by crocodiles; but, as a compensation, various kinds of turtles frequent the sandy shores. Serpents and scorpions infest the thickets and uncultivated plains. Insect life is abundant and various; and at noon the air seems to flash with the rich colours of myriads of wings.

Timor is surrounded by rocks, sand-banks, and coral reefs; but it has two excellent harbours: Coopang or Coupang, on the south, belonging to the Dutch; and Delli, on the north, belonging to the Portuguese. The natives are divided into the Timorese, inhabiting the western districts, who came originally from Ceram; the Belonese in the east, originally from Gilolo; and the independent aboriginal tribes in the interior. These last are allied to the Papuan type. The Timorese are subject to the Dutch; the Belonese to the Portuguese. The natives are described as warlike, cruel, and treacherous—a character generally given by civilized nations to the uncivilized; they are excellent marksmen, and with sword and spear successfully chase the wild buffaloes, horses, deer, and swine. Agriculture is everywhere neglected, and though the island contains small quantities of

gold, iron, and copper, very little is done to develop its resources. The principal work of the men is the building of proas, or the manufacture of bells and rings to ornament their horses. The women weave all the cloth that is required.

A VISIT TO A DUTCH-INDIAN TOWN.

Let us pay a visit to Coupang.

It is situated on the sloping shores of a bay which strikes about fifteen miles into the island in a northerly direction. A noble background is formed by the lofty mountains of the interior, many of them with sharp peaks and jagged, serrated outlines; while between them and the sea intervene some lower ranges, of smoother and more level form, but preserving a height of several hundred feet. Immediately in the rear of the town rise successive ridges of land to the height of about five hundred feet. These are partially covered with wood—chiefly plants of the families Apocynaceæ (Dogbanes) and Euphorbiaceæ (Spurge-worts), with clusters of fine fan-leaved palms (*Borassus flabelliformis*), and, in the lowlands, groves of stately cocoa-nut trees.

The sandy beach is broken by small rocky headlands, on one of which stands a somewhat dilapidated fort. Immediately beneath this inefficient citadel, to the east, a small stream or creek, navigable at high water by the prahus and native craft, opens into the sea; and beyond this inlet lies the town, with its low white red-tiled houses arranged in two principal parallel streets, crossed by two small irregular “thoroughfares.” Behind the town spreads an open space of grass, bordered by fine tamarind-trees; on one side

stands the house of the Dutch resident, on the other runs a small brook, much esteemed by the inhabitants. One or two roads run up the pleasant valley, which is watered not only by the brook, but by many small rills conducted from it in stone ducts or wooden troughs to supply the houses of the inhabitants and irrigate their gardens. The white walls and red roofs of the houses, the wooden or bamboo huts of the natives, the broad bay in front merging into the ocean wilderness, the lofty heights rearing their rugged brows against the deep blue sky, and the surrounding groves of cocoa-nuts, bananas, tamarinds, and palms, combine to form a scene which is as attractive as it is characteristic.

The inhabitants of Coupang—about 5000 in number—are partly Malays, partly Chinese, and partly Dutch, besides the native Timorese. The last-named predominate; and their tall stature, marked features, large aquiline noses, frizzly hair, and dusky brown skin, show that they belong to the Papuan type. The Chinese all wear their national dress, and are generally a plump, laughing, good-humoured people, carrying with them wherever they go their national peculiarities, and yet adapting themselves marvelously to new conditions. The Malays, at least in the outskirts, are scantily dressed—either in a tight wrapper round the loins, or at most with the usual sarong or petticoat from the waist to the knees, and a *kriss* stuck into the back of the dress. The women are all decently clothed from the neck to the ankles in a loose gown and petticoat. They cannot be praised for their good looks, their faces being much disfigured by the use of the *seri* or betel, and



Snake-Charmers in Timor.

their mouths are smeared all round with a dirty red colour.

The huts of the Malays are constructed chiefly of bamboo, thatched with palm-leaves; and consist of one or two apartments, the floors of which are level with the ground. Each stands in a small enclosure, gay with the verdure of plantain and cocoa-nut trees.

A RAISED CORAL REEF.

A remarkable physical feature not to be overlooked by the visitor to Coupang, is its raised coral reef, which rises like a vertical rampart between the beach and the town, and again behind the town, to a height of fully six hundred feet above the sea, spreading over all the adjacent high land, and giving it a comparatively smooth and level outline.

The coralline limestone of which this strange elevated tract consists is dark externally, frequently very hard, but white and comparatively soft when broken open. Its surface—both that of the beds and the face of its cliffs—is rugged and porous, having a honey-combed appearance, and with its embedded corals and shells reminding the observer of those portions of a coral reef which are generally or permanently above the reach of the water. The commonest corals are the beautiful *mæandrina*, *astræa*, and *porites*. Of the shells those most abundant are the *strombus* and *area*. The great fact taught by the existence of this “coral reef” is, that the central mountain-chain was formerly the only part of Timor raised above the waves, and that it was surrounded by a fringing coral reef. As the chain gradually rose, and the neighbouring sea consequently became shallower, this fringing reef was

extended on all sides, while portions were successively brought above the sea until the island attained its present condition.

INLAND : THE WOODS.

The interior of the country, when visited from Coupang, presents some features of interest. Through extensive rice-fields and carefully irrigated plantations, dotted with Malay huts, we ascend to the higher ground, where not only the intersecting valleys but the rocky heights bloom with magnificent woods of lofty umbrageous trees, of all tints and shades of green, out of which, here and there, springs a stately areca palm, lifting its plumed crest high into the soft clear sunlight. Nor is the borassus palm uncommon; the broad leaves of which are made into strong and durable water-buckets, or used for thatch, while the stem and fruit yield a species of sugar and palm-wine.

Here the woods are enlivened with the constant cries of the pigeons and the chattering of the parrots. Finches, flycatchers, and warblers arouse the echoes with their strains; and the air is often startled by the peculiar music of a thrush, which Dampier calls the "ringing-bird," because it had six notes, and always repeated all its notes twice, one after the other, beginning high and shrill and ending low. The *Tropidorhynchus Timorensis* is constantly met with, and is constantly noisy. The birds of Timor, we may add, are distinguished rather by their melodious songs than by their brilliant plumage.

THE BEE-HUNTERS.

A distinct species of wild bee, the *Apis dorsata*, is one of the curiosities of Timor.

These bees construct the most remarkable and colossal honeycombs, suspending them from the under side of the lofty branches of the highest trees. In shape they are semicircular, and their diameter is frequently three or four feet. Their wax is one of the principal exports of the island, and the natives gain possession of the honeycombs in the following manner:—

The tree, to a branch of which the prize is attached, may be straight, smooth-barked, and full seventy feet high up to the point of bifurcation. Nothing daunted, one of the honeycomb-hunters takes the tough fibrous stem of a small plant or creeper, splits it through in several directions, and wraps it in palm-leaves, twisting a slender creeper round the whole. Next he girds himself about the loins, and with another cloth covers his head, neck, and body, leaving only his face, arms, and legs bare. Slung to his girdle is a long thin coil of cord.

Meantime, his companions have cut a stout bush-rope or creeper, twenty-five to thirty feet in length, to one end of which the wood-torch is fastened; it is then lighted at the bottom, and emits "a steady stream of smoke." Just above the torch a short cord secures a chopping-knife.

The bee-hunter grasps the bush-rope, and twists it round the trunk of the tree. Next he takes one end in each hand; jerks the rope up a little higher than his head; firmly plants his foot against the trunk, and, leaning back, begins to ascend it. Up he goes, ten feet, twenty feet, sixty feet, as nimbly and as easily as if he were ascending a gentle incline, until he attains a point within about fifteen feet of the bees. Here he pauses, swinging the torch a little towards

those well-armed insects, that the smoke-cloud may go up between him and them. Resuming his progress, in a minute more he has reached the branch, and swung himself up on it.

The bees are now in a state of alarm, and gather about the intruder in a dense mass, buzzing loudly and angrily. He simply brings the torch close up to him, and brushes away the insects that settle on his arms or legs. Then, lying prostrate on the branch, he creeps towards the comb, and waves the torch just underneath it. Immediately it changes in colour from black to white, the bees that were settled upon it hastily taking to flight, and gathering in a dense cloud above and around. Any that may be clinging to the coveted spoil the bee-hunter sweeps aside with his hand; and drawing his knife, he cuts off the comb at a slice, coils his thin cord around it, and lowers it to his companions below. All this he does as calmly and composedly as if no angry bees were buzzing around him, and wounding him with their poisonous stings. And should there be other combs on the tree, he does not rest until they are captured; though, as the smoke from his torch is not sufficient to stupify the plundered swarms, he must suffer severely.

VEGETATION OF TIMOR.

Travellers describe the indigenous vegetation of Timor as poor and monotonous. The lower ranges of the hills, according to Mr. Wallace,* are everywhere covered with scrubby eucalypti, which only occasionally develop into lofty forest trees. Mingled with these, in smaller quantities, acacias hang out

* Wallace, "Malay Archipelago," i. 198.

their delicate bloom, and the sandal-wood exhales its precious fragrance. The higher mountains, however, which attain an elevation of six thousand or seven thousand feet, are covered only with coarse grass, or are barren naked rock. But in the valleys, and at a level of about two thousand feet, wheat will grow, and the coffee-plant thrives admirably. In the lower grounds a variety of weedy bushes abounds, and wild mint spreads its cheerful greenness over the open wastes, contrasting with the splendid blossoms of the beautiful crown lily, *Methonica* (or *Gloriosa superba*), which extends its climbing stems in every direction. A wild vine also occurs, bearing large irregular bunches of hairy grapes, coarse and yet luscious in flavour. In glens and combs where the vegetation is richer, the profusion of thorny shrubs and climbing plants renders the thickets impenetrable.

The soil, on the average, is poor, consisting chiefly of decomposed clay y shales; while almost everywhere the bare earth and rock reveal a monotonous nakedness. In the hot season the drought is so extreme, that most of the streams in the plains dry up before they reach the sea, and their channels can be traced only by the irregular stones and fragments of rock that mark their customary bed. What is wanted in Timor, to develop its capabilities, is a well-devised system of irrigation, and careful and scientific culture; for notwithstanding what we have said of the barrenness of the land, there are hundreds of square miles which would grow abundant crops of wheat, and, in fact, of all the varied products of temperate regions. At present, the chief exports of Timor, besides its fruits, are ponies, sandal-wood, and



ARMS AND UTENSILS OF THE INHABITANTS OF TIMOR.

bee's-wax. How should it be otherwise, when agriculture is unknown; when the interior of the island is absolutely undeveloped; when Dutch exclusiveness



ARMS AND UTENSILS OF THE INHABITANTS OF TIMOR.

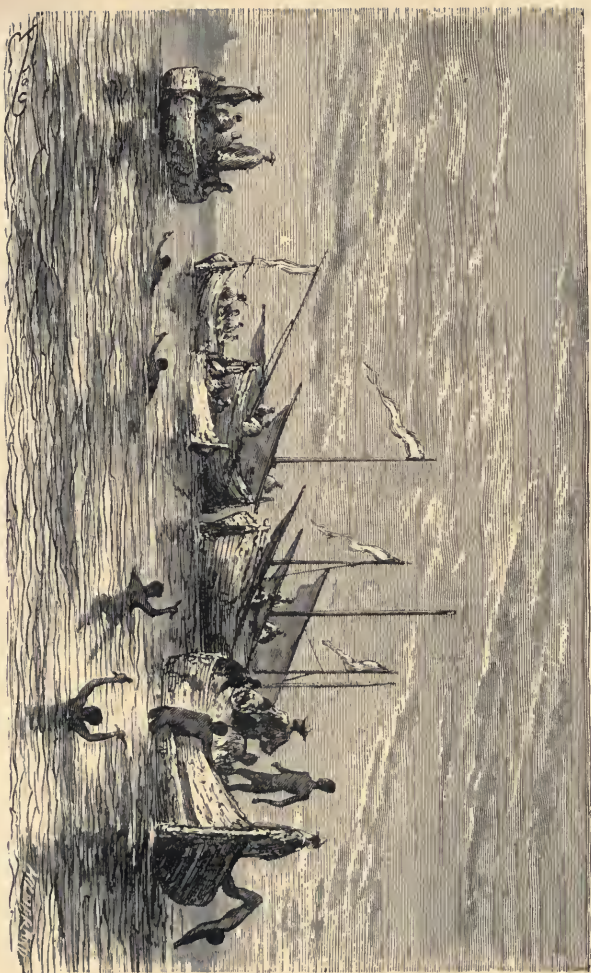
and Portuguese incapacity prevent the growth of a spirit of commercial enterprise; and when the only mode of communication between districts is a narrow

hill-track, or bridle-path, impracticable for wheeled conveyances ?

TREPANG-FISHING.

One of the "industries" of the island is trepang-fishing, which is carried on partly by the natives, and partly by Bugis from Macassar. The trepang, or sea-cucumber (holothuria) abounds in the bays and coves of the coast, and on the reefs and banks; and the boatmen collect it at low water, or dive for it at various depths, seldom exceeding eighteen to twenty feet. The species most common in the Timor waters is about six or eight inches long, in its contracted state, of a gray colour, dark above and whitish beneath.

At sunset the fishermen come in-shore with their cargoes, and having landed them, another company proceeds to cure them. A shed of bamboo is erected near the beach—about sixteen feet long and eight feet wide. The gable-shaped roof is covered with mats, or loose thatch, the eaves of which are about five feet from the ground, at which height a platform of split bamboo extends from one end of the shed to the other. Inside, the ground is excavated to the depth of two or three feet, in order that the fire, when kindled, may not catch the platform or the sides of the shed. Outside, a row of shallow iron pans is so arranged on supports of loose stones that a brisk fire may be maintained underneath from end to end. All these preparations being completed, each holothuria is cut open lengthwise, duly cleaned, and then, for a short time, plunged into boiling water. Afterwards, the whole is boiled in salt water in the iron pans, together with pieces of red mangrove bark. Eight to ten pans



TREPANG-FISHING.

will occupy the attention of a couple of men, stirring up the trepang with wooden ladles, adding water when requisite, and feeding the fires.

The boiling process lasts from eight to ten hours, after which the trepang is removed to the shed. Here it is spread out in a thin layer on the platform of split bamboo, and the fires being lighted below, is dried and smoked until it has acquired a dirty reddish hue. During this operation the shed is kept carefully covered in, the sole entrance being a small door at one corner, while each end of the gable is protected by a hanging mat.

When thoroughly dried and smoked, the trepang is packed in barrels for exportation.

CUSTOMS OF THE TIMORESE.

The native Timorese have a custom called “pomali,” which exactly resembles the “taboo” of the Polynesian islanders, and is very strictly maintained. It preserves intact any place or article to which it is applied. A few palm-leaves stuck outside a garden, to indicate that it is guarded by the “pomali,” are more effectual in preserving its produce than, among us, are spring-guns, man-traps, or warnings to “trespassers.” Rather as an ornament than for utility the mountaineers carry a curiously-wrought umbrella, made of an entire leaf of a fan-palm, carefully stitched at the fold of each leaflet to prevent splitting. They also use a wallet or knapsack, consisting of a square of stoutly-woven cloth, the four corners of which are connected by cords, and often gaily embellished with beads and tassels. They do not bury their dead immediately on their decease; but place them on a platform, raised

six or eight feet above the ground, where the body remains until the relatives find themselves in a condition to make a feast, when it is buried. The Timorese, in the opinion of Mr. Wallace, are great thieves, but not bloodthirsty. Among themselves hostilities are incessant, and they will seize upon the unprotected people of other tribes for slaves whenever they get the opportunity; but Europeans can traverse the country in safety. They retain their independence virtually, and appear to despise as well as dislike their would-be rulers, whether Portuguese or Dutch. Nor can it be said that the government of either Dutch or Portuguese is such as to command respect or secure esteem; and the best thing that could happen for Timor would be its conversion into a British colony.

A GROUP OF MAMMALS.

Turning to the animal life of Timor, we are surprised at the small number of forms by which it is represented. Bats, indeed, are abundant. Fifteen species have been recognized; nine of which are also found in Java, or the islands west of it; three in the Moluccas, which also inhabit Australia; while the rest are indigenous to the island.

The terrestrial mammals are seven in number:—An eastern opossum, found also in the Moluccas; a shrew mouse, peculiar to Timor; a wild pig, probably peculiar to the island; a deer, *Cervus Timorensis*; a tiger cat; a civet cat; and the common monkey, *Macacus cynomolgus*, which is found in all the Asiatic-Malay islands.

Of the civet cat we may note that the general tint of its fur is a yellowish black, but the hue varies



OPOSSUM OF TIMOR.

according as the light falls upon it. On each side of the spine run three rows of elongated spots, and other spots are scattered about the thighs and abdomen. But these, when the animal is seen from certain points of view, all merge into lines, while the spots on the breast altogether disappear. This is due to the manner in which the hairs are coloured, each being tipped with a darker hue, and some being totally black.

The paradoxure is a plantigrade animal. Its feet are armed with sharp claws, which it can draw in when walking on the ground, and keep sharp enough to assist it in tree-climbing. Its tail is not prehensile, though capable of being coiled into a tight spiral. It feeds upon rats and mice, and also on ripe fruit; while one species, the musang of Java, displays an extraordinary affection for the coffee-berries, and is a terrible nuisance in a coffee-plantation. On the other hand, if it destroys, it re-plants; for the berries are uninjured in their passage through its body, and being in ripe condition, quickly take root where they lie, germinate, and in due time spring up into new coffee-plantations.

BIRDS OF TIMOR.

From what we have said, the reader will have gathered that Timor does not contain a single Australian mammal. But if we come to its birds, we find that out of its ninety-five species, forty-eight are derived from Australia, and forty-seven from Java. This latter fact justifies an expression we have formerly employed, that Timor is a half-way house between Australia and Asia. At the same time, the absence of Australian mammals conclusively proves

that it can never have been united to Australia ; that a breadth of sea must always have intervened—not sufficient to prevent the migration of the winged species, but a constant obstacle to the passage of the land mammals.

In reference to this subject, we cannot do better than quote the explanations of Mr. Wallace, who has devoted considerable attention to it :*—

“ Nearly three hundred miles of open sea,” he says, “ now separate Australia from Timor; which island is connected with Java by a chain of broken land, divided by straits which are nowhere more than about twenty miles wide. Evidently there are now great facilities for the natural productions of Java to spread over and occupy the whole of these islands; while those of Australia would find very great difficulty in getting across. To account for the present state of things, we should naturally suppose that Australia was once much more closely connected with Timor than it is at present; and that this was the case is rendered highly probable by the fact of a submarine bank extending along all the north and west coast of Australia, and at one place approaching within twenty miles of the coast of Timor. This indicates a recent subsidence of North Australia, which probably once extended as far as the edge of this bank, between which and Timor there is an unfathomed depth of ocean.

“ I do not think that Timor was ever actually connected with Australia, because such a large number of very abundant and characteristic groups of Australian birds are quite absent, and not a single Australian

* Wallace, “ Malay Archipelago,” 1. 206, 207.

mammal has entered Timor; which would certainly not have been the case had the lands been actually united. Such groups as the bower-birds, the black and red cockatoos, the blue wrens, the crow-shrikes, the Australian shrikes, and many others, which abound all over Australia, would certainly have spread into Timor, if it had been united to that country, or even if for any long time it had approached nearer to it than twenty miles. Neither do any of the most characteristic groups of Australian insects occur in Timor; so that everything combines to indicate that a strait of the sea has always separated it from Australia, but that at one period this strait was reduced to a width of about twenty miles."

The view which such facts confirm of the great changes that have occurred in the distribution of land and water over the Eastern Archipelago—of alternate elevation and subsidence, of the disruption of continents and the formation of islands, and of the broadening and deepening of arms of the sea, as well as of the remarkable influence exercised by these changes upon the diffusion of animal life—is so interesting, that we think the reader will not begrudge the space we have devoted to its exposition.

CHAPTER II.

THE CELEBES ISLANDS.

CELEBES.



BETWEEN the parallels of latitude $1^{\circ} 45'$ N. and $5^{\circ} 52'$ S., and the meridians of longitude $118^{\circ} 45'$ and $125^{\circ} 17'$ E., lies an island of the most extraordinary configuration, which some writers compare to a tarantula spider, others to a couple of horse-shoes joined at the fore parts. Neither comparison is very accurate. It consists of four long peninsulas—the longest being the northernmost—of which two are directed eastward, with a deep gulf between them (the Tomini Gulf), and two others southward, with the Boni Gulf separating them from each other, while the first of the two is separated from the second of the other two by the Tolo Gulf. These four peninsulas project from a narrow neck of land which runs due north and south.

The peninsula of Menado, the first of the four peninsulas, sweeps north, then east, and lastly north-east, with a length of 400 miles, and a breadth of from 12 to 60 miles. That of Bulante, east, is 160 miles long, and from 30 to 95 miles broad. The south-east peninsula is about 150 miles by 30 to 90 miles. And the south-west—that of Macassar—forms a tolerably regu-



A SCENE IN CELEBES.

lar parallelogram, 200 miles long, and 65 miles broad. They are all formed of mountain-masses, and describe a kind of backbone, 150 miles long, and 105 miles broad.

The Gulf of Tomini or Gorontalo, on the north-east, is 240 miles long, and from 55 miles at its mouth broadens, as it strikes inland, to fully 100 miles; that of Tomaiki or Tolo, on the east, is of ample dimensions at its mouth, but narrows towards its upper extremity; and that of Macassar or Boni, on the south, is probably upwards of 200 miles in length, with a width varying from 35 to 80 miles.

Apart from these conspicuous indentations, the coast-line is broken up by numerous bays—such as those of Menado, Amoorang, Kwandang, and Tontoli, on the north; Palos and Paneparre, on the west; and Bulante, Tolowa, Nipa-nipa, and Staring, on the east.

To sum up: we have an island of Celebes, 150 miles long and 105 miles broad, throwing off four peninsulas of varying magnitude; the superficial area of the whole being estimated at 71,791 square miles.

We might conjecture that an island so exposed to the sea breezes would be visited by abundant moisture; and being included in the Tropic zone, and immediately under the Equator, would necessarily present a vegetation of remarkable richness and variety. Such, indeed, is the case; and Celebes has fair claims to be regarded as the loveliest and most bounteous of all the islands of the Eastern Archipelago. Its scenery combines every charm that can gratify an artist or inspire a poet: it has the immense forests of Borneo, and the meadows and vales of England; the exuberant wealth of the Tropics, and the gentleness and grace that distinguish the regions of the Temperate zone.

Broad rivers, lofty heights, far-spreading woods, deep bowery hollows, immense breadths of fragrant green-sward,—it has all these; mingled with rare and beautiful forms of vegetation, and enlivened by glorious displays of colour, which give to each bright strange landscape an individuality of its own. To all this add a fresh and healthy climate, which neither enfeebles the mind nor undermines the physical health, and it may be conceded that Celebes is an “enchanted land.”

THE MOUNTAINS OF CELEBES.

Before we attempt any description of the scenery of the island, we must gain some knowledge of its principal physical features. And, first, as to its mountains.*

Mount Sudara, or “The Sisters,” is a twin or double cone in the great range that dominates the northern peninsula. To the north of it rises Batu-Angus, or “The Hot Rock;” a large volcano, whose summit has been blown off, and in this way a great crater formed. From the crest of all these peaks, down to high-water mark on the shore, extends one dense continuous forest, the haunt of the wild ox, babyroussa, and antelope.

An eruption of Batu-Angus took place in 1806, when great quantities of sand, ashes, and pumice-stone were ejected. The ground in the plain beneath was covered with a layer one inch thick. For two days the sky was darkened by the clouds of these light materials which floated in the air; and so many stones were cast out as to form, at a distance of nearly three miles, a new cone, from which a long tongue of land jutted out into

* The loftiest peak in Celebes is Lampoo-Batang, estimated at upwards of 7000 feet. Mount Klabat is 6560 feet; Mount Sudara, 4390 feet; Mount Batu-Angus, 2290; Mount Lokon, 5140; Mount Massarang, 4150; Mount Tompasso, 3850; Mount Saputan, 5960; Mount Mahawat, 4170; Mount Sempo, 4900; Mount Katawak, 3970; Mount Kawin, 3480; and Lake of Tondano, 2272 feet.

the sea. Its crater is now six hundred feet in depth, and constantly emits thick white clouds of gas and vapour.

Mount Klabat is a great volcanic cone, rising above the village of Ayar-madidi, or "Hot Water;" which is so named from a neighbouring spring now devoid of any unusual warmth. Its ascent was partially accomplished by Mr. Bickmore in 1865, and his record of the journey is interesting, from the glimpses it affords of the character of the country.

When about twelve hundred feet above the sea, he says, he obtained a magnificent view of the Bay of Menado and the adjacent shore. Out in the bay rise several high islands; and among them the volcanic peak of Menado Tua, with its crest veiled by silvery wreaths of mist, and its feet bathed in the sapphire-shining sea. Near the shore the land is very low, and adorned with the feathery foliage of several species of palms. Further back it begins to rise, and soon swells up toward the lofty peak of Klabat.

Continuing the ascent, in company with Mr. Bickmore, we pass many places on the mountain-side where the natives are cultivating maize, and from far above and beneath us we catch the echoes of their merry songs; for, unlike the Javanese and Malays, the Celebians cheer their work with music. Upward still we climb, and upward, until, at three thousand feet above the sea, we come upon two small hamlets. Beyond, our road for a while is tolerably level, and in due time we reach the picturesque village of Saron-song. Here, in the centre, stands the chief's house; opposite to it, the *ruma négri*, or public hostelry; between the two, a charming garden blooming with roses. A glorious prospect now opens before us, on

the left, of the irregular high range which skirts the west shore of Lake Tondano; toward the north-west, of the sharp volcanic cone of Lohon; while in the north-east may be seen the three peaks of Gunong Api.

Further on we enter a little valley, and continue along the side of a small lake of dirty white muddy water, which fills the air with pungent fumes of sulphur—reminding us of Bunyan's Valley of the Shadow of Death, where the way was narrow, and on either hand ever and anon came up flame and smoke in great abundance, with sparks and hideous noises.

Near the next village we diverge to visit the remarkable Lake Linu. It fills the bottom of an old crater on the rugged side of Mount Klabat; is about half a mile in diameter; and has an outlet on the south-west, through a former gap in the crater-wall. In most parts the water has a blue colour, but here and there it is tinged with white, from gases that rise up through the bottom of its basin. On the north-east end is situated a large solfatara, which evolves sulphurous gas. Here the Italian traveller, Carlo de Vidua, who had seen many lands and many peoples, met with the accident that resulted in his untimely death. In spite of the warnings of the natives, he ventured too far upon the soft hot clay, and, sinking in, was so severely burned before he could be extricated that he died a few days afterwards.

Returning to the direct route, we push on to Sonder, and obtain quarters for the night in its *rumanégri*, which stands at the end of a long and beautifully-shaded avenue, showing clear signs of careful cultivation. A narrow belt of trimly-cut grass lines each side of the road, and the paths are laid down



TONDANO ROAD, CELEBES.

with a glittering white earth. Here we may observe that the roads are generally well-kept, and are carried with much ingenuity up steep ascents, and, by means of covered wooden bridges, across streams and ravines. All around the house stretches a grove of noble trees, including many *casuarines* or cassowary-trees, the long, needle-like leaves of which closely resemble the downy plumage of that strange bird. When the moon rises in the cloudless heavens, and pours its soft light on the dark and fanciful foliage, and lights up the swelling crests of the distant mountains, the traveller may be forgiven if he thinks himself suddenly transported to some realm of magical enchantment.

Next day we continue our journey, along the brink of a deep ravine, whose sides in several places form high precipices. A short distance beyond the native village of Tinchep is the beautiful waterfall Munte, to which we proceed to descend. It is about sixty feet high, and the stream of water nearly twenty feet wide. It leaps over a perpendicular wall of trachytic lava in the shadow of luxuriant foliage, throwing off millions of sparkling diamond drops, which glow with rainbows when the sunshine falls upon their prismatic shower.

Once more we ascend, and slowly make our way to the lovely village of Tompasso, where a somewhat rugged character is lent to the scenery by the numerous landslips, and their strange chaotic ruins. The village is laid out with a large square pond in the centre, while the highway crosses it on a broad embankment. A well-made street circles the pond, and the houses all face towards it. Each house stands in its own little plot of careful-ordered garden, which is fenced in with fragrant rose-bushes; while the pond itself

gleams with the large leaves and richly-coloured blossoms of the *Nymphæa lotus*, a water-lily which, both in India and Egypt, is held sacred as the symbol of Creation. Its white flowers are delicately tinged and shaded with pink; the leaves are strongly toothed or indented, and on the under surface the veins are very prominent. This is the white lotus of the Nile, and possesses the peculiar property of collapsing its petals and subsiding upon the surface of the wave, or even sinking below it during the night, to rise again and expand in the sunlight. As Moore sings:—

“ These virgin lilies, all the night
 Bathing their beauties in the lake,
 That they may rise more fresh and bright
 When their beloved sun’s awake.”

It is upon this glorious flower that Buddha sits enthroned in each of the great images which represent him as the Past, the Present, and the Future—the three colossal personifications to be seen in any of the thousand temples in the East dedicated to his worship. Do not confound it with the “lotus” or “lotos” of Northern Africa, the fruit of which was supposed to possess the marvellous power of rendering all who tasted of it forgetful of their “homes and friends and native shores.” Had the poet known only of this lovely mountain-side in fragrant Celebes, and of this sparkling little lake lying in the shadow of the rose-bushes, surely he would here have placed his lotus-eaters, to enjoy the rest their wave-worn souls desired!

EVIDENCES OF VOLCANIC ACTION.

Evidences of past volcanic action, or of latent igneous force, we have met with frequently in our



HOT SPRINGS NEAR TONDANO, CELEBES.

survey of Mount Klabat; and now, at a mile and a half from Tombasso, we hasten to inspect some celebrated hot springs, or "mud-wells," as they are called. They are situated on a gentle declivity, in an area about half a mile square; and their whereabouts may be told at a distance by the quantities of steam and gas which they evolve. The principal well measures about thirty feet in diameter. The bubbling, seething mud is of a leaden colour, nearly as thin as muddy water in the middle, but as thick as cream in some places near the brink, and as putty in others. It boils up like pitch; that is, rises up in small masses, which assume a spherical form, and then burst. "The distance between the centres of these ebullitions varies from six inches to two feet or more, so that the whole surface is covered with as many sets of concentric rings as there are separate boiling-points. Near each of the centres the rings have a circular form; but as they are pressed outward by the successive bubbling up of the material within them, they are pressed against each other, and become more or less irregular,—the corners always remaining round until they are pressed out against those which originated from another point. By that time the rings have expanded from small circles into irregular polygons. They therefore exactly represent the lines of concretionary structure frequently seen in schists, and represented in nearly every treatise on geology. If this bubbling action should cease, and in the course of time the clay become changed by heat and pressure into slates, the similarity of the two would perhaps be very close. Have, therefore, the particles now forming the old schists which show this structure

been subjected to such mechanical changing in their relative position to each other, before they were hardened into the schists they now form, as the particles of clay in this pool are undergoing at the present time? ”*

Supposing this conjecture to be well-founded, these springs acquire a peculiar interest as representing, in a certain degree, the actual work of creation.

Near this large well was a boiling spring, about three feet in diameter and two feet deep, with a temperature of 208°.4 F. It resembles an Icelandic geyser in some respects, but has no eruption. Others, however, are true geysers, and actively eruptive. The natives turn it to “base uses,” and wash their clothing in its ebullient waters. All around it the ground is bare, and not a trace of vegetation can be discerned wherever its splashes reach. At the foot of the hill lies a lake strongly impregnated with sulphur, and near it a pond of thick muddy water boils up at intervals. About twenty of these ponds are scattered up and down the hill-side, and in the low marshy land at its base, while from numerous fissures clouds of sulphurous vapour escape. If the crust of the hill could be removed to a certain depth, it seems as if we should come upon an immense lake of boiling, hissing, seething water, teeming with gases, and strongly charged with sulphur.†

* Bickmore, “Travels in the Eastern Archipelago,” p. 360.

† Mr. Wallace also visited these hot springs, and his account of them may be advantageously compared with the description given in the text. A picturesque path, he says, among plantations and ravines, leads to a beautiful circular basin, about forty feet in diameter, bordered by a calcareous ledge, so uniform and truly curved that it looked like a work of art. It was filled with clear water very near the boiling point, and emitted clouds of steam with a strong sulphurous odour. At one point it overflows and forms a little stream of hot water, which at a hundred yards’ distance is still too hot for the hand to endure it. A little further on, two other springs, in a continual state of active ebullition, appeared to be much hotter; and at intervals of a few minutes a great escape of gas or steam occurred, throwing up a column of water three or four feet high.

THE LAKE OF TONDANO.

We pass from Mount Klabat to the Lake of Tondano, which occupies the lower portion of a lofty plateau, at an elevation of 2272 feet above the sea-level. It measures about seventeen miles in length, from north to south, and in width varies from two miles to seven. Bold headlands projecting from either shore, and almost meeting one another, divide it nearly into two equal sections. On the south, south-west, and north the shore is low, and the land slowly rises from one to five miles, and then swells upward to the grand mountain-ridge that bounds the horizon on all sides. On the east and north-west the hills descend to the very marge of the basin, with steep and abrupt declivities. All the lowlands and the lower flanks of the mountains are richly cultivated. The air is delightfully cool and pure, while on the ocean-shore below it comes like the hot breath of a furnace. It is a curious fact that the only fish caught in this lake are three species found also in the sulphurous waters of Lake Linu,—the *Ophiocephalus striatus*, the *Arrabus scandens*, and an eel, *Anguilla Elphinstonei*. These

The mud-springs, continues Mr. Wallace, are still more curious. On a sloping tract of ground, in a slight hollow, lies a small lake of liquid mud, in patches of blue, red, or white, and in many places boiling and bubbling most furiously. All around on the indurated clay are small wells and craters full of boiling mud. These seem to be continually forming. First, a small hole appears, which emits jets of steam and boiling mud; next, the mud hardens, and forms a little cone with a crater in the middle. The ground for some distance is very unsafe, as it is evidently liquid at a small depth, and bends with pressure, like thin ice. "A short distance off was a flat bare surface of rock, as smooth and hot as an oven-floor, which was evidently an old mud-pool dried up and hardened. For hundreds of yards round where there were banks of reddish and white clay, used for whitewash, it was still so hot close to the surface that the hand could hardly bear to be held in cracks a few inches deep, from which arose a strong sulphurous vapour. I was informed that some years back a French gentleman who visited these springs ventured too near the liquid mud, when the crust gave way, and he was engulfed in the horrible caldron."—A. W. Wallace, "The Malay Archipelago," i. 259.

belong to the fresh-water basins of Java, Sumatra, and India. The overflow of the latter is carried off by a swift full river, which, near the village of Tondano, forms a noble fall—the water suddenly swooping over a ledge of rock, and descending into a valley clothed with exuberant vegetation.

WATER-SYSTEM OF CELEBES.

We have spoken of the Lakes of Tondano and Linu. The Celebians tell of another, supposed to be the largest in the island, which is situated far away in the interior, and, as yet, is unknown to Europeans. Another important lake is that of Tapara-Karuja, or Labaye, in the south-west, the basin of which appears to have been the cradle of an early native civilization, that extended its influence throughout the Archipelago. This lake communicates, through navigable streams, with the sea on the west, and the Gulf of Boni on the east. Of these, the largest is the Chinrana, accessible to ships of burden for some distance from its mouth.

The rivers of Celebes are little known, though they are numerous, and some of them navigable. The watershed would seem to be near the centre of the island. The Boli enters the sea at Boli, on the north.

INHABITANTS OF CELEBES.

Strictly speaking, it is only the eastern part of the island that should be called Celebes; the western is the Minahassa or Tanah-Mangkessa, contracted by Europeans into Macassar. The interior is inhabited by aboriginal tribes, called the Alfoories, who are of medium stature, fairer in complexion than the Malays, mild, intelligent, hospitable, and superstitious.



WATERFALL NEAR LAKE TONDANO

A far finer race, however, is the Bugis, who are supposed to have migrated from Borneo. They are a handsome and athletic people, remarkable for their capacity, truthfulness, and honesty. Their energy seems inexhaustible; they enter with amazing spirit into commercial enterprise; and do not hesitate to undertake even long and difficult voyages in their feeble prahus. They venture as far as the north coast of Australia to collect trepang. They have, moreover, a literature of their own,—consisting of legends and national chronicles, of translations of Malay and Javanese romances, and of works on law and religion from the Arabic. Their religion is Mohammedanism, though at one time they seem to have professed Hinduism. The first of their kings is said to have been *Batara Guru*, which is but a local name for *Siwa*.

The Macassars are scarcely inferior as a nation to the Bugis. Their principal seat is at Goa, as that of the Bugis is at Boni. Their records are not without interest, though dating no further back than the beginning of the sixteenth century, when the island was first seen and visited by the Portuguese. Soon afterwards, we are told, cannon were introduced, and the art of manufacturing gunpowder was acquired. Nearly a century later, Mohammedanism was successfully propagated by Malay missionaries from Sumatra and the peninsula, of whom the most celebrated was Khatib Tunggal, commonly known by the name of Datu Bandang. In 1605 the new faith was generally adopted by all the tribes speaking the Macassar language; and their victorious swords imposed it upon the Bugis. The missionary spirit of Islam inspired the Macassars to extend their conquests further, until at length they



NATIVE OF MINAHASSA, CELEBES.

came into contact with the Dutch, and experienced some severe defeats. An armada of seven hundred boats and vessels, carrying an armed force of twenty thousand men, which had attempted the subjugation of the Moluccas, was encountered at Batang by a Dutch fleet, under Admiral Speelman, and totally overthrown.* The Dutch, arrested by the Bugis, then established themselves in Celebes, and the Bugis, as their tributaries, assumed the place of the conquered Macassars, and virtually ruled the island. From 1813 to 1816 Celebes was occupied by

* Crawford, "History of the East Indian Archipelago," II. 388.

the British, but was surrendered to the Dutch on the conclusion of the great European war.

The three principal languages spoken in the island are those of the Bugis, the Macassars, and Mandhar. The first-named is the most ancient, the most copious in vocabulary, and the most scientific in construction. The inhabitants of Minahassa differ in many respects from the other peoples of the island. Their clear brown complexion frequently approaches the European tint; their body is somewhat too thick for their stature, but their limbs are well-made. When armed with javelin and buckler, their appearance is truly martial.

A SERIES OF LANDSCAPES.

We shall now endeavour to gather up from various travellers such particulars of the general scenery of Celebes as may assist the reader in realizing its aspects as in a series of pictures. He will bear in mind that the island lies under the Equator, and that it belongs partly to the Australian, and partly to the Asiatic divisions of the Archipelago, in the character of its vegetation. He must allow also for the modifications produced by local conditions. Few parts of Celebes are not exposed to the genial moisture induced by the sea-breezes, and the effect they have in moderating the Tropical temperature. And in reading or speaking of Tropical islands, we must remember that in the more elevated districts, and near the mountain-summits, the climate which prevails is really that of the Temperate zone, and that, consequently, the vegetation and fauna may be expected to depart from purely Tropical types. It is a common mistake to suppose that all Tropical countries are exposed to excessive heat and drought,

to seasons of great dryness followed by seasons of violent storms and tremendous rain; that everywhere the scenery exhibits the usual Tropical characteristics; and that a burning sun renders life almost insupportable. But there are "nooks and corners," valleys and dales, in Tropical countries, which enjoy an air as fresh and cool, and revel in a shade as delightful, as those of England,—though, unlike our English land, they never suffer from the inclemencies of a Northern winter.

AT MACASSAR.

We may begin our journeys with an inspection of the city of Macassar, a Dutch settlement of some importance, where the European and Asiatic elements come into immediate juxtaposition. It consists chiefly of one long narrow street, running parallel to the shore, and occupied by the offices and warehouses of the Dutch and Chinese, and the shops or bazaars of the natives, all as clean and radiant as fresh white-wash can make them. This extends northwards for about a mile, gradually merging into a row of native houses, of mean appearance, but redeemed from ugliness by the bloom and foliage of the fruit-trees in their gardens. The thoroughfare is generally alive with a busy throng of Bugis and Macassars, dressed in cotton trousers of scanty dimensions—extending from the hip to half-way down the thigh—and the universal Malay *sarong*, a bright-coloured check, folded round the waist or worn across the shoulders.

Parallel to this principal street run two short ones, forming the old Dutch town. These are enclosed within a wall, and entered by gates. At the southern end stand the fort and the Dutch church; and, in a

road at right angles to the beach, the houses of the governor and the principal officials.

From the town we pass into the country, which, for some miles around, is occupied by rice-fields, with here and there a clump of fruit-trees surrounding a native village. Further inland, we come on patches of woody ground, the remains of the once luxuriant virgin forest; but the trees, for the most part, have been replaced by fruit-trees or by bamboos, and the large arenga palm (*Sagubrus saccharifer*), the gomuti of the Malays. The horsehair-like fibre surrounding the leaf-stalks of this valuable palm makes an excellent cordage (*coir*), or is useful for thatching. By cutting off the flower-spikes, a large supply of toddy or palm-wine (*twak*) is obtained; which, when inspissated, affords an abundance of sugar, or, when fermented, of vinegar. The coarser fibres serve as pens or arrows, and the mass of small downy fibres interwoven with them makes a capital tinder.

The gomuti, or anau, is readily distinguished from all the other Celebian palms by its large leaves and its rough-looking trunk. The soft envelopes of the seeds, which are so numerous that in their ripe state a single bunch is frequently a load for two men, contain a poisonous juice, called by the Dutch "hell-water," in which the natives were accustomed to steep their arrows.

The Bird World, in such a locality as we have described, is well represented. Here are the beautiful cream-coloured pigeons (*Carpophaga luctuosa*), and the blue-headed roller (*Coracias Temmincki*): the latter has a curiously discordant voice, generally goes in pairs, and restlessly flies from tree to tree, as if always in quest of something it could not find. The crows must

not be forgotten, nor the twittering wood-swallow, nor the lyre-tailed drongo shrike, which sings ceaselessly, sings unmelodiously, and sings with an infinite variety of notes.

FOREST-SCENERY.

A continuance of our ramble brings us at last into the heart of some beautiful forest-scenery, which almost reminds us of that of Borneo. Here, as elsewhere in the Tropics, the gray trunks and spreading branches of the trees are covered with gigantic climbing bauhiniaë, starred all over with flowers, and rich in broad oval leaves; and with other immense parasitical creepers, which cling to the trees like monstrous serpents, and sometimes clasp them in so deadly an embrace as to stifle them. Huge *Lycopodiaceæ*, or club-mosses, rear their shapely crests from among the damp beds of decaying foliage; while the prostrate trunks are encrusted with strange lichens, that spread like quaint Eastern inscriptions over the loose bark; and on the shaded side, and often concealed by the tree, minute and delicately-formed fungi of the most fantastic forms live their brief life, to give place to successors not less ephemeral.

In some of the delightful silent glades bamboo thickets are not uncommon, and their slender branches and quivering leaves variegate the sward with the peculiar shifting shadows, swift in their changes as a child's dream, which we often see in dense forests,—where, as Shakespeare sings,

“ The green leaves quiver with the cooling wind,
And make a chequered shadow on the ground.”

Mr. Arthur Adams, a well-known naturalist,* has fre-

* A. Adams, in Belcher's "Voyage of H.M.S. *Samarang*," ii. 268-370.



A FOREST IN CELEBES.

quently seen the bamboo waving aloft its feathery sprays in groves upwards of forty feet high; and he adds that the appearance of the epiphytic or parasitic vegetation in the Celebian forests reminds him of the vineyards so picturesquely described by Dickens: *—
“The wild festoons; the elegant wreaths, and crowns, and garlands of all shapes; the fairy nets flung over great trees, and making them prisoners in sport; the tumbled heaps and mounds of exquisite shape upon the ground,—how rich and beautiful they are! And every now and then a long, long line of trees will be all bound and garlanded together, as if they had taken hold of one another, and were coming dancing down the field!”

The same naturalist remarks that the European observer, in Tropical forests like those of Celebes, cannot fail to be struck by the entire absence of any of the signs of vernal development or autumnal decay characteristic of climes more temperate. The eye is neither refreshed by the mellow tints of the later, nor by the young fresh greenness of the earlier season; no red withered leaves rustle from the quivering boughs as the sighs and moans of autumn creep through the pillared avenues; the work of dissolution and renovation, of life and death, is always going on; and at all times of the year you see the same masses of dark green foliage and the same mounds of rottenness and decay. In many parts, vast numbers of fungoid plants—those scavengers of the vegetable kingdom, which, despite their apparent insignificance, seize upon every fallen tree, and slowly but surely consume it—may be seen at their silent task. Yet in the midst of death is

* C. Dickens, “Pictures from Italy,” p. 90.

life, and out of decay come beauty and vigour. Though these tall trees, once the glory of the forest, are now dismantled of their pride, and, as Shelley says, "lie level with the earth, to moulder there;" yet in due time shall

"They fertilize the land they long deformed;
Till from the breathing lawn a forest springs
Of youth, integrity, and loveliness,"

to bloom awhile, and develop, and ripen, and then to share the common lot like their predecessors—

"Like that which gave it life, to spring and die."

The forests of Celebes offer a remarkable instance of natural adaptation and ingenuity on the part of a large species of bee, which frequents, in great numbers, a tree loaded with single-petalled corollas, attached to a long tube. The bee's slender proboscis is all too short to reach the honied sweets treasured up in the nectary at the bottom; and, therefore, what Paley calls its "long, narrow pump," is of no avail. But, by persevering, it saws through the base of the corolla at the point of junction with the calyx, using its fore legs as tools; and then, thrusting it to the ground with its head, leisurely sucks up the honey. Paley says of the bee, "The harmless plunderer rifles the sweets, but leaves the flower uninjured;" the Celebian bee, however, not only plunders the blossom, but destroys it.

INSECT LIFE IN CELEBES.

We are prone to devote our attention too exclusively to what we consider the higher forms of Animal Life, such as the mammals and the birds, neglecting the members of the busy, toiling Insect World. Yet, in the forests of Celebes, the latter presents the naturalist

with numerous objects of interest. The family of the Coleoptera, or Beetles, is well represented. We notice—the reader must excuse the uncouth names which we are compelled to adopt from the language of the naturalists—a *Brentus*, with a body shining in coat of mail of a chestnut brown, and highly polished as steel; an *Anthruxia*, of a beautiful burnished emerald green, and remarkable for the activity of its motions; a curious genus of *Anthribidæ*, entirely covered, when alive, with a white mealy powder, which, if rubbed off, reveals elytra, or wing-cases, of a dark gray, traversed by lengthwise rows of alveoli, or pits; a *Languria*, with a reddish brown head, and dark, shining, metallic green elytra, which frequents the blades of the maize, in open sunny spots, and is very lively and rapid on the wing; a *Cicindela*, of a dull sap green, with yellow marks on the elytra; and a *Lucanus*, or stag-beetle, tawny yellow, with a reddish brown head, and three black marks on the thorax, and elytra bordered with a rim of black.

The *Papilionidæ*, or Butterflies, are not less numerous or beautiful. Among these may be noticed a remarkable species of *Ornithoptera*, whose ground colour is a rich shining bronzy black, the lower wings delicately grained with white, and margined by a row of large spots of the most brilliant satiny yellow. As if this combination of colours were not enough to attract and delight the eye, the insect's body is marked with shaded spots of white, yellow, and fiery orange, while the head and thorax are black as jet. On the under side, the lower wings are of a satiny white, with the marginal spots half black and half yellow. Then there are beautiful species of *Pieridæ*, such as

never haunt our English air ; one of a beautiful pale blue and black, and another with a belt of rich orange round its blackish body. In truth, in these rocky forests dwell some of the most beautiful butterflies in the world. The magnificent golden green papilio macedon ; ornithopteras, measuring seven or eight inches across the wings ; the tachyris zamida, with delicate gauzy pinions of a vivid orange and cinnabar red ; metallic blue amblypodias, hovering among the lower foliage ; butterflies red, and green, and orange, and yellow, or of a wonderful variety of hues and shades,—these invest with a brilliant charm the sombre glades of the Celebian woods.

For do not think, O reader, that these dense and mighty forests are as rich in bright blossoms and buds as the groves and copses of your own dear land. Notwithstanding the exuberant life, the creepers and climbers, and trailing, flowering parasites, their general aspect is one of gloom. When we think of a Tropical forest, we picture to ourselves masses of brilliant flowers, accumulated everywhere in boundless profusion, and filling the scene with an indescribable radiance. But what is the reality ? “ In vain,” says Mr. Wallace, who has carefully explored their recesses, “ in vain did I gaze over vast walls of verdure, among pendent creepers and bushy shrubs, all around the cascade, on the river’s bank, or in the deep caverns and gloomy fissures ; not one single spot of bright colour could be seen, not one single tree or bush or creeper bore a flower sufficiently conspicuous to form an object in the landscape. In every direction the eye rested on green foliage and mottled rock. There was infinite variety in the colour and aspect of the foliage,

there was grandeur in the rocky masses and in the exuberant luxuriance of the vegetation; but there was no brilliancy of colour, none of those bright flowers and gorgeous masses of blossom, so generally considered to be everywhere present in the Tropics." This is the testimony of all travellers who have visited the Tropical forests, whether in Asia or in South America. Whence, then, arises the popular conception? From the splendid Tropical flowering-plants which embellish our conservatories. These, however, have been gathered from many regions,—those of Mexico mingling with those of Borneo, and those of Peru and Brazil with those of India,—and give a most erroneous idea of their abundance in any *one* region.* Many of them are very rare, others confined to a very narrow range, while a considerable number inhabit the more arid regions of Africa and India, in which Tropical vegetation does not exhibit its usual profusion. "The result of my examinations," says Mr. Wallace, "has convinced me that the bright colours of flowers have a much greater influence on the general aspect of nature in Temperate than in Tropical climates. During twelve years spent amidst the grandest Tropical vegetation, I have seen nothing comparable to the effect produced on our landscapes by gorse, broom, heather, wild hyacinths, hawthorn, purple orchises, and buttercups."

CALLING CRABS.

Red ants swarm in the forests, and immense spiders, and huge millipeds, eight or ten inches long; but we may pass them over, and turn to those remarkable crustaceans, the *Galaxiini*, or calling crabs. In the

* Wallace, "The Malay Archipelago," i. 27, 28.

lower parts of the forest, near the river-banks, these are very plentiful, and of the most brilliant colours; and their appearance, as they stalk about, holding up their single huge claw with an air of ludicrous menace, never fails to excite the observer's amusement. They seem overweighted with their unwieldy member, yet they are by no means easy to capture; on the slightest alarm they scuttle away to the mouth of their burrows for protection. There they boldly wait to see if the enemy make any further movement in advance; should he do so, they quickly retreat, still holding aloft their pincer as a defensive weapon.

In many of the forests a characteristic feature is the abundance of ratan palms,* suspended from the trees, and winding, creeping, and twisting upon the ground in the most wonderful confusion. The variety of the fantastic shapes they assume is astonishing; but may be explained by the decay and fall of the trees up which they have first clambered, when they are left to crawl and grow along the ground until they find another trunk to ascend. A tangled heap of twisted living ratan is, therefore, a kind of memorial or monument, marking the site of some trunk which has disappeared. Its powers of growth seem almost inexhaustible, and as a single plant will climb several trees in succession, it is easy to conceive the enormous length to which it will attain. There can be no doubt that these climbers add to the picturesqueness of the forest-scenery; for they vary the otherwise monotonous tree-tops with "feathery crowns of leaves" springing clear above them, and each terminated by "an erect leafy spike like a lightning-conductor."

* "Ratan" is the commercial name for the long trailing stems of *Calamus Boyleanus*, *C. rudentum*, *C. rotang*, *C. Viminalis*, *Rhaphio flabelliformis*, and others.



VEGETATION OF CELEBES.

1. *Calamus rotang*.
 2. Bamboo.

3. *Borassus flabelliformis*.
 4. *Uropropyris ebenum*.

A very beautiful fan-leaved palm is found here—the *Livistona rotundifolia*. It rises to a height of one hundred or one hundred and twenty feet, with a stem perfectly smooth and cylindrical, but not more than eight or ten inches thick. This stem bears aloft a crown of fan-shaped leaves, which form almost complete circles of six or eight feet in diameter, supported on long and slender petioles, and finely toothed round the edge by the extremities of the leaflets, which are separated from the circumference for only a few inches. At the base the foot-stalks are sheathed in a mass of netted fibres. This is, indeed, one of the gracefulest of the graceful Palmaceæ.

We are reminded of Temperate climes by the raspberries, and blue and yellow compositæ, which grow freely in the thickets; of the sub-alpine vegetation by the smaller ferns and orchids, and the dwarf begonias which clothe each rocky acclivity. But then, again, we are carried back to the Tropics by the colossal tree-ferns, the noble pandani, and stately palms which everywhere surround us; by the festoons of orchids, bromelias, lycopods, and arads which twist about the trunks and stems of the forest-trees. The ordinary stemless ferns are very plentiful,—some with gigantic fronds, ten or twelve feet long, others scarcely an inch high; some with massive and entire leaves, others with elegant waving foliage, finely cut,—and all commanding attention by their peculiar beauty. Oranges of unparalleled lusciousness invite the traveller, by no means reluctant, to quench his thirst: and so he goes on his way, at every step discovering some new object of interest, beauty, or wonder.

A CELEBIAN VILLAGE.

We quit the silent glades of the forest, and turn aside to visit another Celebian village. "The main road, along which all the coffee is brought down from the interior in carts drawn by buffaloes, is always turned aside at the entrance of a village, so as to pass behind it, and thus allow the village street itself to be kept neat and clean. This is lined by neat hedges, often formed entirely of rose-trees, which are perpetually in blossom. There is a broad central path, with a border of fine turf, which is kept well swept and neatly cut. The houses are all of wood, raised about six feet on substantial posts neatly painted blue, while the walls are whitewashed. They all have a verandah enclosed with a neat balustrade, and are generally surrounded by orange-trees and flowering shrubs. The surrounding scenery is verdant and picturesque. Coffee plantations of extreme luxuriance, noble palms and tree-ferns, wooded hills and volcanic peaks, everywhere meet the eye."

TREES AND FRUITS.

To complete our survey of the vegetation of Celebes, we must add the oak, the teak, the cedar, and the upas. The clove and nutmeg trees; the sago-palm; sandal-wood; the pepper-vine; the silk cotton tree (*Bombyx ceiba*); the badcan, which yields a vegetable butter, known as

"Thine incomparable oil, Macassar;"

the ginger-plant, sumach or fustic-wood, ebony, and the betel-nut, are also among the island's vegetable riches. Nor must we forget the numerous fruits, bananas, mangosteens, oranges, shaddocks, and the like; or the

invaluable coffee-plant, cacao, sugar-cane, tobacco, benzoin, and manioc root,—all of which repay the labour of the husbandman with ample crops. Rice and maize are among the staple exports of Celebes, and European vegetables are successfully cultivated.

BIRDS OF CELEBES.

Let us now see what the island offers to the zoologist, beyond the birds and insects to which we have already directed the reader's attention.

Of land-birds one hundred and forty-four species have been distinguished,—one hundred and eight of which may be regarded as more especially characteristic of the island, while no fewer than eighty are entirely confined to the Celebesian fauna; “a degree of individuality,” it has been justly remarked, “which, considering the situation of the island, is hardly to be equalled in any other part of the world.”

Six species of the Hawk tribe are peculiar to Celebes; one of which, *Accipiter trinotatus*, is distinguished by elegant rows of large white spots on the tail. Three owls are also exclusively Celebesian; and of ten species of parrots, the same may be said of all but two. Here are found the curious racket-tailed parrots, characterized by the two long spoon-shaped feathers in the tail. Two allied species are found in the adjacent island of Mindanao, one of the Philippines; and this singular caudal appendage is possessed by no other parrots in the whole world.

There are three Celebesian woodpeckers, and the same number of indigenous cuckoos. Two of the latter are thus described:—

Phœnicophaus callirhynchus is the largest and

handsomest of its genus, and distinguished by the three colours of its beak,—bright yellow, red, and black.

Eudynamis melanorhynchus differs from all its allies in possessing a jet-black bill; whereas the other species of the genus have it always green, or yellow, or reddish.

Mr. Wallace speaks of the Celebes roller (*Coracias Temmincki*) as an interesting example of one species of a genus being cut off from the rest; for though there are species in Europe, Africa, and parts of Asia, there are none in the Malay Peninsula, Sumatra, Java, or Borneo. And the nearest kith and kin to the Celebes roller are the African species, between which and it “a dreary sea now flows between!” A similar circumstance renders one of the bee-eaters (*Meropogon Forsteni*) remarkable, for its only near ally was discovered by M. Du Chaillu—where? can the reader imagine?—in West Africa.

Celebes has also its hornbills, with their curious nests. The female selects the hollow of a tree for her breeding-place, and at the proper time retires to it, where she makes a kind of couch of her own feathers, lays her eggs, hatches them, and abides with her young until they are fully fledged. The male, meantime, plasters up the entrance to the nest, all except a narrow slit, adapted to the form of his beak, through which he feeds his mate. As a consequence, it is said, the voluntary prisoner grows quite fat, while the poor husband gets so lean and weak that any sudden change of temperature overcomes him.

Celebes has but a single species of thrush. It has several fly-catchers, however, and a couple of species



HORNBILL FEEDING HER YOUNG.

or genera—*Streptositta* and *Charitornis*—which are allied to the magpies, and yet seem to come more properly among the starlings. They are fine birds,

with long tails, black and white plumage, and with the feathers of the head "somewhat rigid and scale-like."

Our naturalist speaks of two very isolated and handsome birds, whose relationship to the starlings is very dubious,—the *Enodes erythrophrys*, with ashy and yellow plumage, ornamented above the eyes with broad stripes of orange-red; and the *Basilornis Celebensis*, a blue-black bird with a white patch on each side of the breast, and the head ornamented with a beautiful compressed scaly crest of feathers, resembling in form that of the cock-of-the-rock of South America.* The only ally to this bird is found in Ceram.

Reference must also be made to the *Scissirostrum pagei*, a member of the Starling family, but differing from all his kin in the form of the bill and nostrils. In general structure he seems closely allied to the African ox-pecker, that faithful friend of the rhinoceros. His plumage is almost entirely of a slaty colour, but the feathers of the rump and upper tail-coverts each terminate in a tuft or pencil of a gleaming glossy crimson. He is a sociable bird, and is always found in numerous flocks, feeding upon grain and fruit, and building their nests in the cavities of dead trees,—to the trunks of which they cling as easily as wood-peckers.

We need say nothing of the eighteen species of pigeons, eleven of which are peculiar to Celebes, because their organization and habits are everywhere the same. But we must dwell for a moment on the curious helmeted maleo (*Megacephalon rubripes*), whose nearest but still distant relatives are the brush-turkeys of Australia and New Guinea.

The maleo is a handsome bird: the glossy black and rosy white of his plumage, his feathery crest and elevated tail, give him a striking character, which is certainly not impaired by the stateliness and gravity of his walk. He marches along like a feathered Lord Burleigh! The difference between him and his mate is very slight; only the larger size of his crest or casaque and of the tubercles at the nostrils, and the deeper rosiness of colour in his plumage. He runs quickly, but when alarmed flies noisily and labouringly to the nearest tree, where he perches on a low branch.

The maleos deposit their eggs in the loose hot sand of the shore, to which they resort in the months of August and September. Here, just above high-water mark, they scratch holes three or four feet deep, and the female deposits a single large egg, which she covers over with about a foot of sand. At the end of ten or twelve days she comes again to the same spot, and lays another egg; a process which she repeats from six to eight times. The male escorts the female to and from the beach, and assists her in making the hole. Several birds will lay in the same receptacle.

When quite fresh, the eggs of the maleo are very delicious; richer than hens' eggs, and of a finer flavour; and the natives are quite justified in their partiality for them. A single egg fills an ordinary tea-cup, and with bread or rice makes a capital meal. The colour of the shell is sometimes pure white; more frequently a pale brick red. Size: from four to four and a half inches long by two and a quarter or two and a half wide. Shape: elongate, and very slightly smaller at one end than at the other.

“In the structure of the feet of this bird,” says

Wallace, "we may detect a cause for its departing from the habits of its nearest allies, the Megapodii and Talegalli, which heap up earth, stones, leaves, and sticks into a huge mound, in which they bury their eggs.* The feet of the maleo are not nearly so large or strong in proportion as in these birds; while its claws are short and straight, instead of being long and much curved. The toes are, however, strongly webbed at the base, forming a broad powerful foot, which, with the rather long leg, is well adapted to scratch away the loose sand (which flies away in a perfect shower when the birds are at work), but which could not without much labour accumulate the heaps of miscellaneous rubbish, which the large grasping feet of the megapodius bring together with ease."†

SOME MAMMALS.

The mammalia of Celebes are few in number, including only fourteen terrestrial species, and some bats. In this happy island the larger carnivores and the pachyderms are "conspicuous by their absence." It is not a Sportsman's Paradise; for it has neither elephant, rhinoceros, nor tapir; and not one of the Felidæ, from the tiger downwards.

Of the eleven terrestrial species which are peculiar to the island, we shall name the most characteristic. The other three, which are found in most of the islands of the Archipelago, are:—

1. The remarkable *Tarsius spectrum*, a lemur which ranges as far westward as Malacca;
2. The common Malay civet, *Viverra tangalunga*, which has a still wider range; and,

* See *ante*, p. 116.

† Wallace, "The Malay Archipelago," ii. 266.

3. A deer, identified with the *Rusa hippelaphus* of Java, which was probably introduced by man at an early period.

The *Tarsier*, or *Tarsius spectrum*, is so named in reference to the extraordinary length of its hands—which is caused by a considerable elongation of the bones composing the “tarsus,” or back of the hands and feet. This characteristic is more noticeable in the hind than in the front paws.

Its fur is of a grayish brown colour, shaded, as it were, with a slight uniform tint of olive. The face and forehead are of a warmer, almost of a ruddy brown; and a dark ring or circle surrounds the back of the head.

It is arboreal in its habits, and hops among the branches with a succession of short, quick movements like those of a frog. To enable it more firmly to cling to the boughs, the palms of its hands are furnished with several pads. The back of the hands is covered, like the tail, with a soft, downy kind of hair, which, on the body and limbs, gives place to a close, woolly fur.

It sleeps during the greater part of the day, but goes forth at nightfall in quest of food—pulpy fruits and flying insects. Its nest is made in the fork of a tree, of green leaves, dried moss, and similar substances.

The tangalung, or civet, bears a general resemblance to the zibeth of Asia, and the so-called civet-cat of Northern Africa. Its fur, however, is more distinctly marked with black spots, which so accumulate about the spine that the fur seems in that part *entirely*

black. Three black bands, like crescents, very broad in the middle and narrow at the extremities, are found on the lower part of the throat and neck—the central band being much wider than the others.

This handsome little creature measures about two feet and a half in length, and the tail takes eleven inches. The rounded fox-like head tapers suddenly towards the nose, so that the muzzle is rather short. The tail is nearly cylindrical, and, like the body, furnished with a warm close coat of soft hair next the skin.

Like the civet, it has a musk-secreting pouch. It feeds upon fruits, birds, and the smaller mammals; is nocturnal in its habits, and apparently of a lethargic disposition.

Of the *Rusine deer* no particular description is necessary. It resembles the Cervidæ in organization and habits, except that it is less active and restless, seldom goes abroad by day, and prefers the wooded lowlands, in the neighbourhood of a stream or pool. Water and shade seem to be indispensable to its existence.

Of the eleven species of mammals peculiar to Celebes, the following are of peculiar interest:—

The *Cynopithecus nigrescens*, which is found only in Celebes and the small island of Batchian, is described as “a curious baboon-like monkey, if not a true baboon.” It is about the size of a spaniel, of a jet-black colour, with the prominent dog-like muzzle and overhanging brows of the baboons. It has large red callosities; but the fleshy tail is scarcely an inch long, and barely visible. The cynopithecus roams abroad in

numerous companies, living chiefly in the trees, but descending at will, and depredating largely upon the orchards and gardens.

Does the *sapi-utan*, or "wild cow" (*Anoa depressicornis*) belong to the antelopes or the buffaloes? This was a question at one time much debated, but now answered in favour of its classification in the genus *Bubalus*. It is smaller, however, than most wild cattle, and bears some points of resemblance to the ox-like antelopes of South Africa. It has long straight horns, which are ringed at the back, and slope backwards over the neck. It loves the rocks and mountain-crags, and can be captured only with great difficulty. A very fierce animal, notwithstanding its small size.

Some of these creatures, which were kept in confinement, killed in one night fourteen stags imprudently shut up with them. We say imprudently, because it appears to possess a natural antipathy to the deer, and will never inhabit any locality where the latter are found.

In Celebes we meet with the *babyroussa*, or pig-deer—so called because in general appearance it resembles a pig, but has curved tusks like horns, and long and slender legs. Its tusks are disposed in a very remarkable manner, so that four of them project above the snout. Their sockets, instead of pointing downwards, are curved upwards; and the tooth, in filling the curvature of the socket, rises through a hole in the upper lip, and curves boldly over the face. The female is devoid of these appendages. The upper tusks are not intended for offensive weapons, and could not be so employed in most cases, being so strongly curved that the points nearly touch the forehead. But

the lower tusks are dangerous implements, and as the babyroussa is a strong and ferocious animal, it is by no means advisable to come to close quarters with it.

The babyroussa swims well, and apparently with much enjoyment. It is sometimes as large as an ordinary donkey; its smooth skin is scantily covered with short stiff hairs. It lives in numerous herds, frequent-



THE BABYROUSSA.

ing marshy localities and lightly-wooded ground, where it feeds on fallen fruit, roots, and young shrubs.

In its tusks it somewhat resembles the African bush hog or bosch vark; but otherwise it stands "completely isolated," with no affinity to the pigs of any other part of the world. It is found all over Celebes and in the Sulu Islands, and also in Bouru, the only spot beyond the Celebes group to which it ranges.

Of the five indigenous species of squirrels we need say nothing more than that Celebes marks their furthest *eastward* limit in the Tropics. There are two species of Eastern opossums—*Cuscus*; and Celebes marks the furthest *westward* extension of the Marsupial order. Of the cuscus, we may note that it is about the size of a large cat, or three feet in total length, with a prehensile tail, which it is constantly making use of; that to deceive its pursuer it counterfeits death with admirable skill; that it lives on vegetable food, insects, and the eggs of birds; and that it possesses a remarkably soft and silky fur.

The cameleon is also an inhabitant of Celebes; and the flying dragon, one of the Saurian tribe, may be seen at dusk winging its slow laborious way through the obscure shadows of the woods. Its sides are furnished with an expansible membrane, by means of which it springs with tolerable facility from tree to tree; and can even support itself for some time in the air. It loves to cling to the smooth trunk of the forest-trees, and bask there in the sun, motionless, though on the watch. Mr. Arthur Adams speaks of one he captured, which on any alarm would feign death, and lie perfectly immovable, with limbs doubled up, and drooping head, until it supposed the danger past; when it would cautiously resume its usual attitude, look warily around, and suddenly take to flight.

Snakes are numerous in the island, and range through all the grisly tribe, from the tiger-python, or *Boa castanea*, which measures thirty feet in length, but is not venomous, to the smaller but infinitely more

dangerous *cobra da capella*, of which so many terrible tales are told.

The mouths of the rivers, and the seas around Celebes, literally teem with fish; and it is said that in the markets of Macassar as many as three hundred different kinds are frequently offered for sale. The dugong is a frequent visitor, and the rocky coasts abound in turtle and the *biche-de-mer*, or holothuria, affording a valuable resource to the Malay fishermen.

ISLANDS OF THE CELEBES GROUP.

Of the numerous small islands which lie off the shores of Celebes little need be said. Their general features are identical with those of the larger island, though necessarily on a limited scale. To the south-east is Boutong, a high woody island, separated from Moena by the Boutong Strait; while Moena is divided by a very narrow arm of the sea from the south-eastern peninsula of Celebes. Off the south coast we find quite a cluster of small islands, forming part of the Dutch province of Macassar. These are Salayer, or Great Salayer, separated from Celebes by a strait of the same name, thirteen miles wide—mountainous, richly-wooded, populous, and well-cultivated; Kalaura, Boneratta, Hog Island, and the Boegerones.

To the east of the eastern peninsula, and almost forming an extension of it, are Peling, a considerable island, about fifty miles in length by fifteen miles in breadth; Balaling and the Xulla islands, of which Xulla (or Sulu) Mangera is the most important. It lies between Celebes and Ceram; measures sixty miles long and ten miles broad; and is divided, on the west, from Xulla-Talaybo by a narrow channel,

in which a dangerous whirlpool obstructs navigation.

To the north, across the Strait of Banka, are Siao (or Siau), an island of great fertility, with an active volcano at its northern extremity; and Sangir, which continues the chain of fire towards the Philippines. It measures about thirty miles in length by ten miles in breadth; and gradually rises from a moderate elevation in its southern districts to a mountainous mass in its northern, which culminates in the smoking volcano of Aboe.

As in most volcanic islands, the soil is fertile. The vegetation corresponds with that of Celebes, and exhibits a tropical luxuriance. The inhabitants speak a dialect of the Malayan; and attire themselves in a loose cotton gown hanging from the neck nearly to the feet.

The Sangir group includes forty-six small islands.

CHAPTER III.

THE MOLUCCAS, OR SPICE ISLANDS.

THE THREE GROUPS.



THE name Moluccas is employed in a restricted and also in a comprehensive or general sense. It is applied, in the first place, to a group of small islands, otherwise called the Royal Islands, lying off the western coast of Gilolo, and washed by the Moluccas Passage, which separates Gilolo from Celebes. In a wider sense, the name Moluccas is applied to all the islands, or groups of islands, lying between Celebes and New Guinea. They are commonly divided, according to the three Residencies, into the Ternate, Amboyna, and Banda groups, which contain, respectively, the following principal islands :—

1. The *Ternate Islands*, including the *Moluccas* proper,—comprehending Ternate, Gilolo, Batchian, Obi, Mortui, and the Kaivá Islands ;

2. The *Amboyna Islands*,—including Amboyna, Ceram, Bouru, Goram, Amblau, and some smaller isles ; and,

3. The *Banda Islands*,—including Great Banda or Lonthoir, Banda Neira, Pulo Run, Pulo Ai, Goenong Api, Rosengyn, Kapal, Pisang Sjethan, and Vrouwen.

These numerous islands are all mountainous, and mostly volcanic; and their forms of animal and vegetable life exhibit but few and unimportant differences. They may, therefore, be properly comprehended under the one general title of the Moluccas.

We shall visit them in the following order: Banda, and adjacent islands; Amboyna, Ceram, Bouru, Goram; and Ternate, Gilolo, Batchian, and adjacent islands. The inhabitants are Moluccan-Malays, and their religion is principally Mohammedanism.

IN THE BANDAS.

The Banda Islands are ten in number.

The largest, GREAT BANDA (or Lonthoir, or Lontar), is situated to the south of Ceram. It is a crescent-shaped island; or rather, its shape is that of a Turkish scimitar, with the handle to the east, the point to the west, and the outward curve of the blade to the south. Its length may be taken at about six miles, and its greatest width at about a mile and a half. By extending its eastern horn, we reach, in succession, Pulo Pisang (or Banana Island), two-thirds of a mile in length and somewhat more than six hundred yards in width; and Pulo Kapal (or Ship Island), so called because its rock, three hundred feet high, bears a questionable resemblance to the poop of a vessel. Within the circle of which these three islands form an arc lie three other islands, of which the loftiest and most romantic is the Gunong Api, or "Burning Mountain," a conical active volcano towering to an elevation of 5800 feet. Between this eternal "isle of fire" and the northern end of Lonthoir nestles the picturesque verdant gem of Banda Neira, two miles long

and less than a mile broad. North-east of the latter lies the small wave-worn rock of Pulo Krakka, or "Women's Island."

The *centre* of the circle of which Lonthoir forms an arc falls in a narrow passage called Sun Strait, which separates Gunong Api from Banda Neira. The diameter of this circle is about six miles. Beyond it may be drawn a second and wider circle, passing through Pulo Ai, or "Water Island," on the west, and Rosengyn in the south-west; and outside of this a third concentric circle, defined by Pulo Swangi, "Sorcery" or "Spirit Island," on the north-west, Pulo Run, "Chamber Island," on the west, and the reef of Rosengyn on the south-west. The total area thus comprised—that is, of the Banda group—is 17 $\frac{8}{10}$ geographical square miles.

A BRIEF HISTORICAL SKETCH.

So much for the position of these charming islands, which, escaping the dry winds that blow over the Australian deserts, are remarkable for their fresh greenery and the plentifulness of their vegetation.

They were first made known to Europeans by the Portuguese navigator D'Abreu, but the Chinese and Arabs, and probably the Hindus, had long previously included them in the range of their commercial enterprise. D'Abreu, according to the chronicler De Barros, had the assistance of "Javanese and Malay pilots who had made the voyage;" and De Barros adds, that every year Javanese and Malays repaired to Lulatom (that is, Great Banda) to load cloves, nutmegs, and mace; for it lay in the latitudes most easily navigated, and where ships were most secure, and as the cloves

of the Moluccas are brought thither by vessels belonging to those islands, it was unnecessary to go to the latter for the much-prized spices. "In the five islands," says De Barros—namely, Lonthoir, Rosengyn, Pulo Ai, Pulo Run, and Banda Neira—"grow all the nutmegs consumed in every part of the world." He gives the then population as 15,000—a very much larger number than at present; and he says of them:—"The people of these islands are robust, with lank hair and a tawny complexion, and are of the worst repute in these regions. They follow the sect of Mohammed, and are much addicted to trade, their women performing the labours of the field. They have neither king nor lord, and all their government depends on the advice of their elders; and as these are often at variance, they quarrel among themselves. The land has no other export than the nutmeg. This tree is in such abundance that the land is full of it, without its being planted by any one, for the earth yields without culture. The forests which produce it belong to no one by inheritance, but to the people in common."*

For about a century the Portuguese monopolized the commerce of these islands, and throughout this period maintained a friendly intercourse with the natives. In 1609, the Dutch, however, resolved to annex them to their Eastern possessions, and invaded Great Banda with a force of seven hundred soldiers; but falling into an ambuscade, were compelled to retreat with considerable loss. They then began a war of extermination, which was prolonged for eighteen years, and brought to a successful issue only through the efforts of a large expedition from Java, commanded

* Crauford, "Dictionary of the East Indian Islands," *in loco* "Banda."
(637)

by the governor-general in person. In this prolonged struggle, the natives, who fought with great courage and resolution, lost 3000 killed and 1000 prisoners. The survivors fled to the neighbouring islands, where they were merged in the general mass; so that scarcely a vestige of their language or customs is now known to exist.

Deprived of the assistance of a native population in cultivating the nutmeg-trees, the Dutch were compelled to resort to slave-labour; after the abolition of slavery, they had recourse to convicts, of whom about three thousand are now maintained on these islands. "They are a most villanous-looking set," says Mr. Bickmore,* "and have nearly all been guilty of the bloodiest crimes. They are obliged to wear around the neck a large iron ring, weighing a pound or a pound and a half. It is bent round, and then welded, so that it can only be taken off by means of a file. It is not so heavy that it is difficult for them to carry, but it is designed to show that they are common felons."

VISIT TO GREAT BANDA.

But we must now proceed to Great Banda. As we approach the island, which lies in the blue sea like a glorious emerald, we pass Pulo Ai on our right; an island of coral formation, rising from three hundred to five hundred feet in height. Further on, we sail in the shadow of the lofty and precipitous Gunong Api, or the "Burning Mountain." On its north-north-west side, about one-fourth of the distance from its summit to the encircling waves yawns a deep wide gulf; and out of this gulf thick white clouds evolve,

* Bickmore, "Travels in the Eastern Archipelago," p. 217.

which, in the calm clear air, roll upward and upward in one vast and constantly expanding column, like the pillar of smoke that went before the Israelite host. Its crest is wreathed around with fleecy clouds, which rapidly dissolve and pass away, to be succeeded by other clouds, even whiter and more vaporous. They are composed of steam and sulphurous acid gas, and indicate the incessant chemical action which is for ever taking place within the bowels of this island-peak of fire.

And we see before us the western curve of the moon-shaped Lonthoir. Here, against a coast varying from two to three hundred feet in height, and almost precipitous, the waters beat with a continuous roll and roar. Not bare or desolate these rocks, however, though exposed to wind and wave, but clothed with luxuriant vegetation which fills up every ravine, and stretches down to the very margin of the sea. Soon we are off the northern shore; a long line of steep and lofty wall, almost hidden beneath a dense, intertangled mass of vegetation, out of which spring erect the columnar stems of tall and shapely palms crowned with a capital of long, feathery leaves, gracefully waving like a maiden's tresses.

Now Banda Neira lies full in view, composed of green hills descending gradually to the shore of this little bay. On the summit is situated a strong fortress, forming a regular pentagon. Its white walls shine dazzlingly in the sunlight, and contrast agreeably with the glaxis, which is a broad, green, and gradually sloping lawn. Below this defence, which would avail but little against our "Woolwich infants," stands Fort Nassau, built by the Dutch on their arrival here in

1609. On either hand extends along the shore the principal town or village, Neira, shaded by rows of pleasant trees, and looking out upon a bright blue sea. In the offing are numerous praus from Ceram; quaintly-built vessels, high at the stern and low at the bow, with a tall tripod instead of a mast, which can be raised or lowered at pleasure. The wonder is that such frail craft can venture on any considerable voyage. At anchor in the roads lie some Bugis traders; "hermaphrodite schooners," which, with their foresail, fore-top-sail, and fore-royal, can run only before the wind. These visit the eastern end of Ceram, the south-western and western shores of New Guinea, the Arus, and most of the thousand isles between Banda, Timur, and Australia.*

Just opposite the town rises, in an almost perfect cone, the great volcano, with a slight chasm on the north side, whence issue two continuous columns of smoke, while nearer the summit vaporous clouds are thrown off in slowly-circling wreaths. A white efflorescence, probably of sulphur, encrusts the upper part of the mountain, which is furrowed by water gullies in narrow black vertical lines.

"It is only," remarks Mr. Wallace,† "when actually gazing on an active volcano that one can fully realize its awfulness and grandeur. Whence comes that inexhaustible fire whose dense and sulphurous smoke for ever issues from this bare and desolate peak? Whence the mighty forces that produced that peak, and still from time to time exhibit themselves in the earthquakes that always occur in the vicinity of volcanic

* Bickmore, "Travels in the Eastern Archipelago," pp. 219-222.

† Wallace, "The Malay Archipelago," i. 236.

vents? The knowledge from childhood of the fact that volcanoes and earthquakes exist, has taken away somewhat of the strange and exceptional character that really belongs to them. The inhabitant of most parts of northern Europe sees in the earth the emblem of stability and repose. His whole life-experience, and that of all his age and generation, teaches him that the earth is solid and firm; that its massive rocks may contain water in abundance, but never fire; and these essential characteristics of the earth are manifest in every mountain his country contains. A volcano is a fact opposed to all this mass of experience; a fact of so awful a character, that, if it were the rule instead of the exception, it would make the earth uninhabitable; a fact so strange and unaccountable, that we may be sure it would not be believed on any human testimony, if presented to us now for the first time, as a natural phenomenon happening in a distant country."

But from the contemplation of volcanic phenomena we are diverted by the extraordinary richness of the vegetation which clothes in one uniform and almost unbroken garb of verdure Lonthoir and its sister-islets. This little group, with a total superficial area of only seventeen miles, is the great nutmeg-garden of the world. It is a case of—nutmegs here, nutmegs there, nutmegs everywhere. Beneath the shade of the lofty kanary-trees, deriving their nourishment from the thin but warm volcanic soil, and fed by the constant moisture, the handsome, glossy-leaved nutmegs, twenty to thirty feet high, line the roads, and bloom in the gardens, and spread over all the open places. They are very fair to look upon, with their thick spreading branches, the tallest sprays of which are fifty feet

high. The flowers are small and yellowish. The fruit, before it is fully ripe, resembles a peach that



NUTMEG-TREE AND FRUIT.

has not yet been tinted with red; but this is only the epicarp, or outer rind, which is of a tough fleshy consistence, and on maturing splits open into two

equal parts, revealing a spherical, polished, dark brown nut, enveloped in crimson "mace." In this stage it may fairly be described as the most beautiful fruit in the cornucopia of Pomona!

It is now picked by means of a small basket fastened to the end of a long bamboo. The epicarp being removed, the mace is carefully taken off and dried in the sun, which changes its bright crimson to an obscure yellow. It is then ready to be packed in casks and shipped to market. Next the nuts are spread on a shallow tray of open basket-work, and exposed, for a period of three months, to the action of a slow fire. By the end of that time the actual, genuine nutmeg has so shrunk that it rattles in its dark brown shell. The shell is broken, and the nutmegs, after being sorted, are packed in large casks of teak-wood, which are duly branded with the year in which the fruit was gathered, and the name of the plantation where it was grown.

The kanary-tree (*Canarium commune*), which is also cultivated here, is the Java almond, and spreads over all the Moluccas. Its fruits are much esteemed by the Javanese, and yield an oil which, when fresh, is eaten at table, and is also employed for burning in lamps. The gum which exudes from its trunk is described as resembling balsam of copaiba.

The kanary-tree is planted as a protection for the nutmeg, which it shelters from the wind with its huge gnarled arms. Its roots are very remarkable. They spring off from the trunk above ground in "great vertical sheets," which, at their point of departure, are frequently four feet broad, and wind in and out, and twist to and fro, before they disappear under the

soil ; so that the lower part of one of these old trees might well suggest the idea of "a huge bundle of enormous snakes struggling to free themselves from a Titanic hand that held them firmly for ever."

AN ASCENT OF A VOLCANO.

An ascent of the volcano to which we have alluded was accomplished by Mr. Bickmore in 1865, and a sketch of what he saw and experienced may not be without interest to the reader.

The party who undertook the ascent consisted of Mr. Bickmore and three companions, a native "guide," and ten coolies, who carried a supply of fresh water in long bamboos.

The path at first was difficult and fatiguing, but not dangerous. The explorers reached the naked sides of the mountain, which is not mantled with vegetation for more than two-thirds of the distance from base to summit. This nakedness is due to the frequent occurrence of landslips, which plough the declivities as with iron shares, and to the abundance of sulphur washed down by heavy rains. Here they found themselves compelled to crawl on all-fours among small blocks of lava, and the ascent proved wearisome and discouraging, the mountain-top seeming to rise higher and higher as they advanced. When within about five hundred yards of it, they stood aghast to see before them an almost perpendicular stretch of loose, rough lava-stones, and it was not without peril they succeeded in crossing it. After this the way was smoother ; but a new source of danger called for their utmost vigilance, showers of lava-flakes rattling down the sides, and bounding over the heads of the

VOLCANO OF BANDA.



party—one of whom, unknown to the others, had gained the summit, and was amusing himself with testing the velocity of projectiles!

At last the adventurers stood on the “difficult mountain-crest,” and saw beneath them the summit-crater; an elliptical cavity about eighty feet deep, three hundred yards long, and two hundred wide. It is surrounded by hot rocks which scorch the spectator’s feet, and lined with sulphur-crusted blocks of lava, through whose fissures jets of steam and sulphurous acid gas are continually arising. This, however, is not the active crater, which lies on the north-west side, and sends up from its darkling depths immense volumes of steam and other gases. Everywhere around, both above and below, on the summit and on the sides, layers of yellow sulphur may be noticed.

The descent of a mountain is generally more arduous than its ascent, and so it proved in this case; and Mr. Bickmore met with an awkward adventure. Happily, no accident occurred, and the whole party safely reached the bottom before close of day.

VOLCANIC ERUPTIONS.

The height of this volcano does not exceed 2321 feet, and its base is less than two miles square. But the destructiveness of a volcano is by no means in proportion to its dimensions; and Gunong Api, though small, has been the theatre of many terrible eruptions. Outbreaks have taken place in 1586, 1598, 1609, 1615, 1632, 1690, 1696, 1712, 1765, 1775, 1778, 1820, and 1824.

One of the most violent of these occurred in June 1820. Just before noon, on the 11th, without the slightest warning or premonitory symptom, the phe-

nomenon began, and proved of so awful a character, that the people residing among the nutmeg-groves on the lower flanks of the mountain immediately took to their boats, and fled to Banda Neira. Masses of incandescent sand, and stones, and ashes were hurled from the crater, lighting up the air as with the reflection of a colossal furnace. It is said that the red-hot stones, falling in a rain of fire, ignited the woods, and converted the whole mountain into one immense cone of flame. As the catastrophe took place during the prevalence of the western monsoon, such quantities of sand and ashes were driven over to Banda Neira that the branches of the nutmeg-trees broke beneath the unusual burden, and all the plantations in the island were totally destroyed. Even the fountains and springs were temporarily spoiled, from the showers of light ashes that penetrated into every fissure.

For thirteen days the eruption was incessant, nor did it entirely cease for a period of six weeks. In the course of it the mountain seemed to be cloven right through in a north-north-west and south-south-east direction. It was at this time that the great crater on the north-west flank was formed; while a lava-stream rushed down the western side into a small bay, building up a kind of promontory one hundred and eighty feet in length. This was a very singular circumstance; as it is a characteristic of the volcanoes of the Indian Archipelago that they do not emit molten rock, but only hot stones, ashes, and sand.

EARTHQUAKES.

That Banda is one of the centres of volcanic or igneous activity is shown by the numerous and violent

earthquakes which have shaken it to its very foundations. Terrible shocks were experienced in 1629, 1683, 1710, 1767, 1816, and 1852; and the last of these has left its memorials in wide-spread ruin. Only those houses escaped destruction which had been built with special precautions; that is, with walls two or three feet thick, strongly supported by solid buttresses. The first indication of evil was the sudden outpouring of the waters of the bay, leaving a brig dry ashore, which, but a few minutes before, had been lying at anchor in eight or nine fathoms. Then came in a tremendous wave from ocean, refilling the bay, and overflowing the low shore to a depth of twenty-five or thirty feet. Some praus moored close in to the land were taken up by it like playthings, and dashed against Fort Nassau, which was so completely engulfed that one of the boats remained *within* its walls after the tide had subsided to its usual level. Nearly every house in the lower part of the village was swept clean away. The rapid outflow of the waters of the bay, which is simply an ancient crater, may have been produced by an elevation of its bottom, or else by such a subsidence of the ocean-bed beyond as to create a hollow or depression into which they were drained off. The land rising again in the latter case, or sinking in the former, accompanied probably by a sinking of the shore, would cause the following inrush, or deluge,—which, it is needless to say, was attended with great loss of life.

ANIMAL LIFE IN BANDA.

The population of Banda is exceedingly mixed, and at least three-fourths are a curious “cross” between Malays, Papuans, Arabs, Portuguese, and Dutch. The

two first-named elements predominate, as is shown by the dark skins, prominent features, and frizzled hair we meet with in every direction.

A volcano rising out of a mass of kanary-trees and nutmeg-groves, and surrounded by gleaming seas,—such is the Greater Banda. Hence it has little variety to offer us either in its animal or vegetable life. At dusk, several species of bats wheel around the houses and hunt for food in the neighbouring plantations. Pigs are numerous; but, like the deer, are probably importations. The groves are haunted by swarms of fruit-pigeons,—the *Carpophaga concinna*,—which feed upon the mace of the nutmeg, and are remarkable for their loud “booming” song. These birds are found also in the Ké and Matabello Islands; but, strange to say, not in Ceram or Amboyna, or any of the larger of the Molucca group. The limitation of the species is not easy to explain; but species alike in habits, and not very different in appearance, take their place.

We may refer, in conclusion, to the cuscus, or Eastern opossum,—a marsupial, or pouched animal, which ranges from Amboyna to New Guinea, but has not crossed the sea into Australia. Its Latin name is a modification of the native *couscous* or *cōescōes*; and the principal species is further designated *maculatus*, or “spotted,” in allusion to the patches of colour scattered over its whity-gray coat of fur. These patches are of a deep brown, shaded, as it were, with a tint of reddish chestnut. Sometimes, however, the ground colour is white, while the spots are black; or black spots speckle a dark gray coat; or the spots run into one another, and form a kind of fanciful pattern.

The average cuscus measures three feet in length,

of which the tail occupies fifteen or sixteen inches; in other words, it is about the size of a large cat. So much we have told the reader in a preceding chapter, and we have spoken of its arboreal habits; but here we shall venture to give a few additional particulars of its habits.

It has a long tail, as we have seen, and it makes constant use of it; twisting it round stem or branch of tree to obtain support, and, when alarmed, hanging by it to some lofty bough, and waving to and fro in the wind like a bunch of dead fruit—a stratagem which often deceives the pursuer. On the other hand, it is not infrequently the means of its being captured, if the hunter is acquainted with the animal's peculiarities. For the story runs, that, so long as the human eye rests on the tricky creature, it will continue to maintain its suspended position, until at last, the overwrought muscles being unable to endure the strain put upon them, it falls at the feet of its captor.

There is nothing of the squirrel's grace and agility about the cuscus. It moves slowly, it moves timidly, and it seldom ventures far without having recourse to the prehensile powers of its tail. Among the trees it finds its food,—leaves, and juicy young sprays, and buds, and fruit; also birds' eggs, and sometimes the birds themselves; insects, and perhaps mice. This diet renders its flesh not disagreeable eating, and it is described as succulent, well-flavoured, and not inferior in any respect to that of the kangaroo. We should think, however, that he who ventures upon it needs the sauce of a good appetite, and must have been cured of fastidiousness by a prolonged experience of "mixed diet;" for to most persons its strong odour

would be sufficiently repulsive. This odour proceeds from some small glands situated in the hinder part of the body.

The cuscus is hunted, however, for its fur, rather than as an addition to the hunter's bill of fare. Its coat is of a peculiarly soft and silky texture, and is much used "for conversion into articles of human attire or luxury, such as cloaks and mantles."

The genus is akin to those of the *Petaurists* and the *Phalangistines*, in the group of the *Macropidæ*, but differs from them in some important respects. The *Petaurists* and *Phalangistines* are very swift and nimble in their movements, and by means of a membranous appendage to their sides can take considerable flying leaps; while the cuscus is slow and timid, and has no power of flight. Altogether, it is an interesting and remarkable animal.

AMBOYNA.

To the north-west of Banda lies the most important, though not the largest, of the Moluccas—the island of Amboyna. On the north it is sheltered by a curious peninsula-like prolongation of Ceram; to the west is Bouru, or Booroo. It gives name to the Dutch residency, or government, of Amboyna, which also includes Ceram, Bouru, Amblau, Manipa, Kilung, Harookoo, and some smaller isles. Any of our readers who have visited the western district of the Isle of Wight, between Yarmouth and Freshwater, will readily understand its formation; for Amboyna consists, as that does, of two peninsulas united by a low and narrow isthmus. The isthmus, indeed, is not above a mile in length, and constitutes a mere strip of sand. To the south-east lies the peninsula of Leitimir; to the north-



SCENE IN AMBOYNA.

west, that of Hitu; and between them flows a deep boldly-curving bay, affording admirable anchorage for the largest ships. The island, as a whole, measures about thirty miles in length, and ten in breadth at its widest part; its average width does not exceed five or six miles.

Mountains, hills, rocks, forests, noisy burns, and rippling brooks, with well-wooded valleys running in among the highlands, and low fertile country stretching along the shore,—such is the general character of Amboyna. It is not one of the fairest or richest islands of the Archipelago; much of its surface is bare and barren; and it presents but little of that exuberant vegetation which we are accustomed to associate with the Tropics. In fact, it owes its celebrity and its wealth to one special vegetable product—the clove-tree (*Caryophyllus aromaticus*). Such being the case, and groves of clove-trees, with their bright green verdure, being the pleasantest objects in the island, before we go further it will be well for us to devote some attention to so remarkable a source of wealth.

THE CLOVE-TREE.

We first hear of cloves in Europe about A.D. 175–180, in the reign of the Emperor Aurelian, when they are mentioned as imported into Alexandria from India—the Isthmus of Suez and the Red Sea forming then, as now, the great highway along which flowed the traffic of the East. They were carried by the Javanese and Malays from the Moluccas to the peninsula of Malacca; thence the Telingas, or Klings, transported them to Calicut, the once famous capital of Malabar. From Calicut they passed to the western shores of

India, and, crossing the Arabian Sea, found their way up the Red Sea to the Egyptian port. When we consider how many hands were concerned in this succession of transfers, and how they were exposed to perils by sea and perils by hand, we shall not be surprised that they formed a costly luxury, and appeared only on the tables of the great. In England, as late as the fifteenth century, they realized thirty shillings—a much larger sum of money then than now—per pound, or £168 per cwt.; being about three hundred and sixty times their original price. A pound of cloves at one time cost more than a good fat sheep. That they might share in this enormous profit, was one of the reasons which induced the European maritime nations to search so anxiously for a sea-way to the East; and Western commerce owes as much to spices as it does to gold and silver. And when the Spice Islands *were* discovered, the same cause operated to perpetuate a monopoly of their products in the hands of a single nation, thus leading to a protracted struggle between the Dutch, the Spaniards, the Portuguese, and the English. Amboyna finally fell into the hands of the Dutch, who for a considerable period kept to themselves the lucrative trade; but, after a while, cloves were raised elsewhere, and the supply increasing more rapidly than the demand, their price was quickly reduced. And as the clove is an article of luxury and not of use, the demand is always likely to be inferior to the supply, and therefore we may be sure that the immense profits which it formerly yielded will never again be realized.

The native name for this fruit is *chenki*, which may be a corruption of the Chinese *theng-ki*, or “sweet-

smelling nails." The resemblance to a nail has also suggested the Dutch name, *krind-nagel*, or "hub-nail" (the trees are *nagelen-boomen*, or "nail-trees"), and the Spanish *clavos* (Latin *clavus*, a nail), whence comes our English "clove."

De Canto, who visited the Moluccas in 1540, says:—"The Persians call the clove *calafur*; and speaking on this matter, with permission of the physicians, it appears to us that the *carofilum* of the Latin is corrupted from the *calafur* of the Moors (that is, Arabs), for they have some resemblance. And as this drug passed into Europe through the hands of the Moors with the name *calafur*, it appears the Europeans did not change it. The Castilians (Spaniards) called cloves *gilope*, because they came from the island of Gilolo (probably one of the chief sources of this article at that time). The people of the Moluccas call them *chanqué*. The Brahmin physicians first called them *lavanga*, but afterwards gave them the Moorish name. Generally all nations give them a name of their own, as we have done; for the first of us (the Portuguese) that reached these islands (the Moluccas), taking them in their hands, and observing their resemblance to iron nails, called them *clavo*, by which they are now so well known in the world."

The reader may inquire, "What's in a name?" In this case, something; for the numerous designations bestowed on a fruit of such apparent insignificance must be regarded as a proof of the high estimation in which it was held by many nations. Undoubtedly, our ancestors valued it more highly and used it more extensively than we do. An orange stuck full of

* Bickmore, "Travels in the Eastern Archipelago," p. 156.

cloves, and carried in the hand, was considered a preventive against infection. Fowls were stuffed with cloves, which were also introduced into sauces and "made dishes."

The clove-tree belongs to the order of Myrtles, which includes the guava, the pomegranate, and the rose-apple. Its topmost branches are usually forty or fifty feet from the ground, and the full-grown trunk measures eight to twelve inches in diameter. It was originally confined, says Bickmore, to the five islands off the west coast of Gilolo, which then comprised the whole group known as "the Moluccas"—a name that has since been extended to Bouru, Amboyna, and the other islands off the south coast of Ceram, where the clove has been introduced and cultivated within a comparatively late period. On these five islands, he adds, it begins to bear in its seventh or eighth year, and sometimes continues to yield until it has reached an age of nearly one hundred and fifty years; the trees, therefore, are of very different sizes. Here at Amboyna it is not expected to bear fruit before its twelfth or fifteenth year, and to cease yielding when it is seventy-five years old.

Naturally, much attention has been directed to its limited range; and Rumphius, an old writer, the author of the "Hortus Amboiensis," who describes it as "the most beautiful, the most elegant, and the most precious of all known trees," remarks: "Hence it appears that the Great Disposer of things, allotting in his wisdom his gifts to the several regions of the world, placed cloves in the kingdom of the Moluccas, beyond which, by no human industry, can they be propagated or perfectly cultivated." Here, however, Rumphius was

greatly mistaken. The clove-tree is capable of transplantation, and now thrives in the West Indies and on the Guiana coast, in Bourbon and Zanzibar, in Sumatra, Penang, and on the shores of the Strait of Malacca.

A quaint description of this celebrated tree is given by Pigafetta, who accompanied Magellan in his voyage round the world. It attains, he says, a pretty considerable height; and its trunk is about as large as a man's body, varying more or less according to its age. Its branches extend very wide about the middle of the trunk, but at the summit terminate in a pyramid. Its leaf resembles that of the laurel, and the bark of it is of an olive colour. The cloves grow at the end of small branches, in clusters of from ten to twenty; and the tree, according to the season, sends forth more on one side than on the other. The cloves at first are white; as they ripen they become reddish, and they blacken as they dry. There are annually two crops gathered,—the one at Christmas, the other about St. John the Baptist's Day; that is to say, about the time of the two solstices—seasons in which the air is more temperate in this country than at the other periods of the year, though the hottest of the two is that of the winter solstice, when the sun is here at its zenith. When the year is hot, and the quantity of rain that falls is little, the amount of the crop of each island is from three to four hundred bahars. [That is, from fifty-five to seventy-three tons.] The clove-tree grows only on the mountains, and dies if transplanted to the plain. [This is an error; the Dutch cultivate it in the low grounds.] The leaf, the bark, and the woody part of the tree have as strong a flavour and as potent a smell as the fruit itself. If this last be not

gathered just at the proper season, it becomes so large and so hard that no part of it remains good but the rind. There are no clove-trees of prime quality but in the mountains of the five islands of *Malucho*; for though some grow in the island *Giailolo*, and on the islet *Maro*, between *Tadore* and *Mutir*, the fruit of them is inferior. It is said that fogs give them their superior degree of perfection in these islands; however this may be, we certainly did remark every day that a fog, resembling thin clouds, enveloped first one and then another of the mountains of these islands. Each inhabitant possesses some clove-trees, which he attends to himself, and the fruit of which he gathers; but he uses no species of culture.*

To this we may add that the buds when young are nearly white; afterwards they change to a light green, and finally to a bright red, when they must at once be gathered—which is done by picking them by hand, or beating them off with bamboos so that they drop in showers on cloths spread beneath the trees. When they have been dried in the sun—a process which changes them from red to black—they are ready for market. The gathering seasons are June and December. The soil best adapted to the tree seems a warm, loose, sandy loam.

SCENERY IN AMBOYNA.

The town of Amboyna has little in itself to attract the attention of the traveller, but its “surroundings” are by no means disagreeable. The roads are lined with hedges of flowering shrubs, and among groves of palms and enclosures of fruit-trees nestle the country-

* Pigafetta, in Pinkerton's “Voyages and Travels,” xi. 365, 366.

RIVER BATOUR-MERA, AMBOYNA.



houses of the Dutch merchants and the huts of the natives. In the farther country, hills and mountains offer an almost infinite variety of outline, and shady lanes strike through masses of verdure to blooming bowers haunted by the bright crimson-coloured lories. An interesting ramble is afforded by a broad road which runs across the island, through swamp, clearing, and forest, over hill and dale. In the hollows the forest vegetation assumes something like a tropical luxuriance; innumerable ratans coiling about the trees, twining round their trunks, and binding bough to bough. Here the Insect World is seen to great advantage; beautiful butterflies abound, and the beetles are large and radiant. So are snakes, unfortunately, and the explorer needs to be on his guard against them. They enter the huts, and Mr. Wallace relates a stirring incident in which one of the tribe figured conspicuously and alarmingly.

Mr. Wallace was sitting in his verandah, reading, about nine o'clock one evening, when he heard a curious stir and rustle overhead, as if some heavy animal were dragging its slow length over the thatch. As the noise soon ceased, however, he forgot the incident, and in due time retired to bed. Next day, just before dinner, he was lying on his couch with a book in his hand, when, accidentally looking upwards, he noticed a *something* above him which was certainly novel. Looking again, he discerned some blue and yellow marks, and concluded that a tortoise-shell had been stowed out of the way between the ridge-pole and the roof. But a more careful survey assured him that it was, in reality, a large snake, compactly coiled up in a kind of knot, with its bright eyes and head

discernible in the very centre of the coil. He now understood the cause of the noise on the previous evening: a python had climbed up one of the posts of the house, and, making its way under the thatch, had taken up a comfortable position in the roof, immediately above the head of the unsuspecting naturalist.

Mr. Wallace called to a couple of boys engaged below, and pointed out the locality of the big snake. Instantly they started out of the house, begging him to follow. Some of the men at work in an adjoining plantation were then summoned, and one, a native of snake-infested Bouru, undertook to dislodge the intruder. Accordingly, he made a strong noose of ratan, and with a long pole in the other hand thrust at the snake, which then began to uncoil itself slowly. Next he slipped the noose over its head, and getting it over the body, dragged the animal down. Great was the disturbance as the snake twisted its pliant body round chairs and posts in a spirited attempt at resistance; but at length its adversary seized its tail, rushed out of the house so quickly as to confuse its brains, and sought to dash its head against a tree. Missing his aim, however, he lost his hold, and the serpent slid under a dead trunk near at hand. It was again brought out; again its tail was grasped, and used as a lever; and at the second essay the Bouru native swung it against a tree with a blow that stunned it, after which it was easily killed. It proved to be twelve feet in length.

BIRDS.

Among the few species of birds found in Amboyna must be named the beautiful black lory, *Chalcopsitta*

atra, whose glossy plumage of jet gleams with luminous touches of yellow and purple; and the racquet-tailed kingfisher. Whoever has seen an English kingfisher—alas, that he should be so rare!—must know that the tail of this species of wader is short, or, at least, by no means of unusual dimensions. But the racquet-tailed boasts of two immensely long middle tail-feathers, narrowly webbed, and terminating in a spoon-shaped expansion, not at all unlike a battle-dore. These appendages, being blue and white, present a very handsome appearance.

The Amboynese kingfisher (or kinghunter) does not live on fish, like all others of his tribe, but on insects, snails, and slugs, which he darts upon and picks from the ground, just as his European congener darts upon fish in the water.

He is confined to a very limited range—Northern Australia, New Guinea, and the Moluccas; and there are about ten species in all. The Amboynese is a handsome bird; fully seventeen inches long to the tips of the tail-feathers; with a coral-red bill, back and wings of a deep purple, shoulders, head, and nape a glorious azure blue like that of the sky on a summer noon; and all the under part of the body as white as snow on an untrodden mountain-top.

EARTHQUAKES.

Amboyna is not a volcanic island—that is, it has neither active nor extinct volcanoes—but it feels the reflex of the great wave of volcanic disturbance which falls so heavily on Banda, and hence it is subject to violent earthquakes. A shock occurred in 1865,

during Mr. Bickmore's visit, and he describes it with much minuteness. He was roused from sleep, about half-past four in the morning, by a low, heavy rumbling deep down in the earth. It was not a roar, but rather a succession of quick, rattling reports, as if a long train of carts had been driven over a stony causeway. The next moment his bed was violently shaken to and fro, and almost simultaneously his host shouted to him, "Run out of the house! run for your life! There is a dreadful earthquake!"

Host and family and guest took refuge in a room built behind the house, surrounded by a low wall, and covered with a light roof. The host then explained that the shock which had frightened them from their propriety was the second, and a very severe one; and that it was the first, a comparatively light one, which had disturbed him in his sleep. Of course, none knew but that a heavier one might immediately follow, and lay all the buildings near and around them in a mass of ruins, if, indeed, the earth did not open and swallow them alive! The time between the premonitory sounds and the shock itself was about five seconds. Though, in the middle of a monsoon, the wind blows constantly day and night, such was the effect of the earthquake that, for a while, the air was free from the slightest movement. The insect life ceased its rapid hum, the tree-toad hushed its constant piping. "Dread silence reigned around;" an "awful pause," as if Nature were conscious of some coming catastrophe. But so terrible and sinister a stillness was more painful than the roar of the most violent tempest.

Meantime, lights became visible in the windows of

the neighbouring houses, the doors of which were flung open, that at the slightest warning everybody might rush into the street. Sounds were heard, in strange confusion, of the voices of Malay, Arab, and Chinese, all speaking together, and all labouring under the same pressure of anxiety and apprehension. In this way half an hour passed by, and then the wind began to blow as before. Nature seemed to shake off its panic; one after another the nocturnal animals resumed their various cries; the darkness disappeared; the welcome dawn lighted the tops of the eastern hills, and with the return of day, man, as is usual, recovered his energy and customary confidence.

An earthquake usually occurs at Amboyna every year; and when eight or ten months have passed without any such disturbance, a very violent shock is always looked for.

Mr. Bickmore records some particulars of calamities from which the island has suffered. Thus: on February 17, 1674, a severe earthquake shook it from east to west, and Mount Wawanu, in the peninsula of Hitu, poured out a torrent of boiling mud, which flowed into the sea.

In 1815, when an eruption of Mount Tomboro took place, an earthquake was felt in several parts of Amboyna.

In 1835, a series of shocks began on the 1st of November, and continued three weeks. The inhabitants of the capital were forced to abandon their houses, and shelter themselves in tents and bamboo huts on the common in the rear of the town. Up to that date, Amboyna had enjoyed a reputation for great healthiness, but immediately afterwards a gastric-

bilious fever broke out, and continued until March 1845. On the 20th of July, in the latter year, another severe earthquake occurred; and again on the 18th and 20th of March 1850. At present, remarks Mr. Bickmore, Amboyna is "one of the healthiest islands in these seas." He connects the outbreak of disease with the occurrence of the shocks, believing that it is connected with the quantities of poisonous gases which are then evolved.

OBJECTS OF INTEREST IN AMBOYNA.

Amboyna has long been celebrated for its shells, and the amateur conchologist would find on its shores and in its surrounding waters an inexhaustible variety of those treasures of the deep. It is needless to dwell upon their beauty; their exquisite delicacy of hue and wonderful blending of tints, and their rare gracefulness of outline, justify the admiration they never fail to excite. But here, beneath the Tropics, we meet with such marvels of form and colour as are never found in our colder main: the tubular turritellidæ, the piral littorinidæ, enamelled cypræidæ, the magnificent cassis, the curious ampullaria or apple-shell, gigantic tridacnas, and the elegant cytherea. These, and other sea-wonders, abound in the waters of Amboyna. "Passing up the harbour," writes Mr. Wallace, "the clearness of the water 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, actiniæ, 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



GIANT TRIDACNA USED AS A BATH.

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," exclaims Mr. Wallace, "the

reality exceeded the most glowing accounts I had ever read of the wonders of a coral sea. There is perhaps no spot in the world richer in marine productions, corals, shells, and fishes, than the harbour of Amboyna."

Mr. Bickmore tells us that he went to Amboyna as a shell-collector, and that he bought these curiosities of the sea and the shore "by the basketful." Among them were numerous specimens of the pearl nautilus, which seem to have rendered him peculiarly anxious to obtain the living animal. In this he fortunately succeeded; and who will not rejoice that his innocent ambition was gratified? It had been captured in this way. The natives of the Eastern Archipelago rarely fish with a line, as we do; but, where the water is too deep to build a weir, they employ a *bubu*, or barrel of open basket-work of bamboo. Each end of this barrel is an inverted cone, with a small opening at its apex. Pieces of fish and other bait are suspended inside, and the *bubu* is then sunk on the clear, sandy patches of a coral reef, or more commonly in a depth of twenty to fifty fathoms. No line is attached to the *bubus* sunk on a reef; they are taken up with a gaff. Those in deep water are buoyed by a cord and a long bamboo, to one end of which is fastened a stick in a vertical position, with a piece of palm-leaf for a flag, to render it more conspicuous. In the present instance it happened that one of these *bubus* was washed off into deeper water than usual, and the nautilus made its way through the opening in one of the cones to get at the bait within.

Rumphius, who is generally accurate in his descriptions of the tropical molluscs, affirms that the nau-

tilus* swims occasionally on the sea; but he was probably led astray by the natives, who themselves were deceived by the number of empty shells frequently found floating on the surface of the waves. When the animal dies, and is separated from its shell, the air or gas contained in its many-chambered shell floats it to the surface.

Everybody knows the beautiful but fanciful picture which Montgomery draws of the nautilus:—

“Light as a flake of foam upon the wind,
Keel upward, from the deep emerged a shell,
Shaped like the moon ere half her horn is filled;
F’raught with young life, it righted as it rose,
And moved at will along the yielding water.
The native pilot of this little bark
Put out a tier of oars on either side,
Spread to the wafting breeze a twofold sail,
And mounted up and glided down the billow
In happy freedom, pleased to feel the air,
And wander in the luxury of light.”

The Pelican Island.

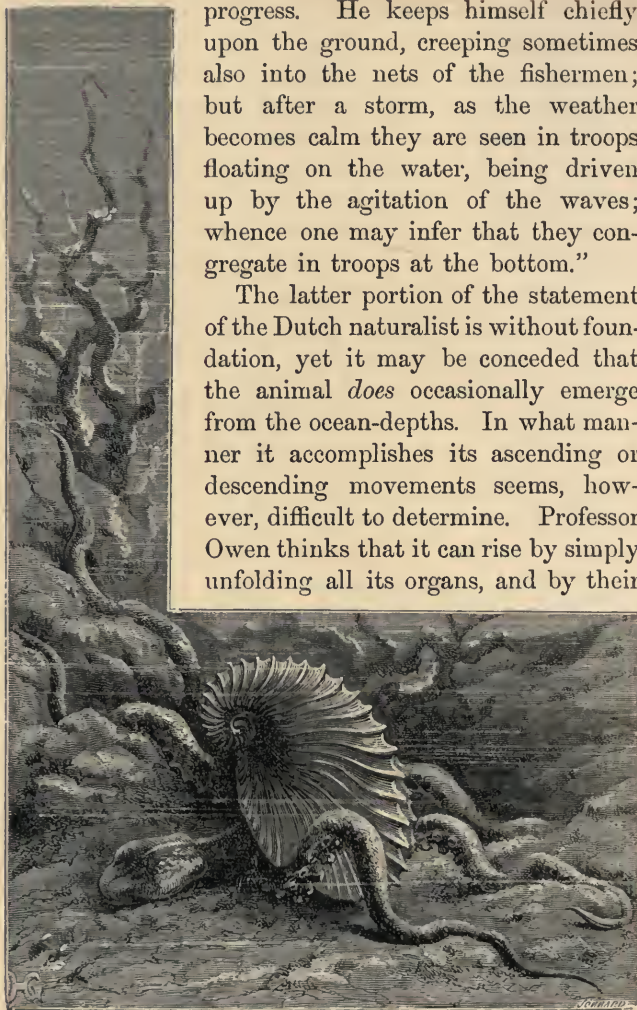
This is poetical, but inaccurate, whether applied to the paper nautilus† or to the pearl nautilus—both of which, by the way, are found in the Indian Seas. The latter, with which we are here concerned, creeps like a snail along the ocean-bed, at a depth of thirty to forty fathoms. Rumphius, to whom we have previously alluded, says:—“When he floats on the water, he puts out his head and all his barbs (tentacles), and spreads them upon the water, with the poop (of the shell) above water; but at the bottom he creeps in the reverse position, with his boat above him, and with his head and barbs upon the ground, making a tolerably quick

* *Nautilus pompilius*, a cephalopod of the order *Tetrapbranchiata*.

† *Argonauta-Argo* (or *Ocytha tuberculata*).

progress. He keeps himself chiefly upon the ground, creeping sometimes also into the nets of the fishermen; but after a storm, as the weather becomes calm they are seen in troops floating on the water, being driven up by the agitation of the waves; whence one may infer that they congregate in troops at the bottom."

The latter portion of the statement of the Dutch naturalist is without foundation, yet it may be conceded that the animal *does* occasionally emerge from the ocean-depths. In what manner it accomplishes its ascending or descending movements seems, however, difficult to determine. Professor Owen thinks that it can rise by simply unfolding all its organs, and by their



THE PEARL NAUTILUS.

protrusion from the shell. "I incline to the conclusion," he says, "that the sole function of the air-chambers is that of the balloon, and that the power which the animal enjoys of altering at will its specific gravity must be analogous to that possessed by the fresh-water testaceous gasteropods, and that it depends chiefly upon changes in the extent of the surface which the soft parts expose to the water, according as they may be expanded to the utmost, and spread abroad beyond the aperture of the shell, or be contracted into a dense mass within its cavity."

On the coast of Nicobar, one of the Andaman islands, the pearl nautilus is so common that the natives salt, dry, and eat its flesh. Its shell, which attains a maximum of eight inches in height, is used by the Hindu priests as a conch; and it yields a beautiful nacre, or mother-of-pearl, which is much valued for ornamental cabinet-work. The Easterns also manufacture drinking cups out of these elegant shells, engraving on their surface the most fanciful arabesques and figures.

From the sea we pass to the land, and from the brightly-tinted gardens of ocean to a cacao-garden or plantation. In Amboyna a hill-side is chosen for the cultivation of the cacao-tree; and to reach the garden the visitor climbs through groves of palms into the thick forest, and then out of the forest into the shade of the cacao-trees, which lift their slender, shapely trunks, like rows of spears, and spread abroad their green branches loaded with their long, red, cucumber-like fruit. No skill is required in growing the *Theobroma cacao*. Take care that the soil is suitable, and keep it free from grass and underwood. Yet it is not a

native of the East, but one of the few things which the Orient has borrowed from the West. The Spaniards discovered it in Mexico, and transplanted it to their settlements in South America and the West Indies. Thence it travelled to the Moluccas. It is also cultivated in Guiana and Brazil.



CACAO-TREE AND FRUIT.

It seldom exceeds twenty feet in height. Its leaves are large, oblong, and pointed; its flowers hang in pale red clusters, not only from its branches, but also from its trunk and roots. Hence a cacao-plantation has a singular and striking appearance, as Humboldt did not

fail to notice. "Never," he says, "shall I forget the profound impression made upon my mind by the luxuriance of tropical vegetation when I first saw a cacao-garden. After a damp night, large blossoms of the *Theobroma* ('drink for gods!') issue from the root at a considerable distance from the trunk, emerging from the deep black mould. A more striking example of the expansive powers of life could hardly be met with in organic nature."

The fruits are large, oval, pointed pods, about five or six inches long, and divided into five lobes or compartments, containing from twenty to forty seeds, the "cacao" of commerce, enveloped in a white pithy substance.

In localities well-sheltered from the wind the grower sows his seeds. In two years the plant attains a height of three feet, and throws off numerous branches; all of which are removed, with the exception of four or five. In the third year the fruits appear; but the tree does not yield fully until six or seven years old, after which it produces abundant crops for upwards of two decades.

When the pods are first picked they are remarkable for a peculiar pungency, which can be converted into the highly-valued aromatic principle only by a process of fermentation. Wherefore they are thrown into pits, covered with a thin layer of sand, stirred at intervals, and allowed to remain for three or four days. After which they are taken out, cleaned, dried in the sun, packed in cases or sacks, and despatched to the market. They are best known in Europe in the form of chocolate; being roasted, ground into a smooth paste, and flavoured with vanilla or other spices.

Here is a glimpse of a cacao-garden in Amboyna:—

"Large flocks of small birds, much like our blackbird,

hover about, alighting only on the tops of the tallest trees. As evening comes on, small green parrots utter their shrill, deafening screams as they dart to and fro through the thick foliage. In these tropical lands, when the sun sets it is high time for the hunter to forsake his fascinating sport and hurry home. There is no long, fading twilight, but darkness presses closely on the footsteps of retreating day, and at once it is night. In the evening a full moon sheds broad, oscillating bands of silver light through the large, polished leaves of the bananas around our dwelling, as they slowly wave to and fro in the cool, refreshing breeze. Then the low cooing of doves comes up out of the dark forest, and the tree-toads pipe out their long, shrill notes."

A VISIT TO A RAJAH.

The naturalist to whom we have already been indebted for many pleasant facts, has put on record a graphic account of a visit he paid to the rajah, or native prince, of Hitu (or Hitoo). We propose to avail ourselves of it, because it cannot fail to convey to the reader's mind a real and living picture of the insular scenery and native manners and customs.

The way to the rajah's residence passed through vegetation which would be strange enough to the eyes of a European. The crests of the hills were occupied with cocoa (or cacao) gardens. Afterwards the road on either side was lined with rows of pine-apples,* a third exotic from Tropical America, which flourishes so vigorously in every part of the Archipelago that one can hardly believe it is not an indigenous plant. But the native names all indicate its origin. The Malays

* *Ananassa sativa*



RAVINE OF BATON-GANTON, AMBOYNA.

and Javanese call it *nanas*, which is merely a corruption of the Portuguese *ananassa*. In Celebes it is sometimes called *pandang*, a corruption of *pandanus* (the screw-pine), from the marked similarity of the two fruits. In the Philippines it is known by the name of *piña*, the Spanish for pine-cone, which has the same derivation as our English pine-apple. Piña is also the name of a very strong, durable cloth, which the natives of the Philippine Islands manufacture from the fibres of its leaves.* It is strange that the Malays have never turned them to similarly useful account. The fruit of the Amboynese pine-apple is not equal to that grown in the West Indies or Brazil.

Our traveller was hospitably received by the rajah, and a private chamber was assigned to him. Large numbers of children quickly gathered, and were sent out to search for lizards. They quickly returned with a number of real "flying dragons;" not, indeed, the monsters which figure in heraldry and fiction, but the small lizards called *Draco volans*, each provided with a broad fold in the skin along either side of the body, similar to the membranous expansion of the "flying squirrel," and designed for a similar purpose,—that is, not for flight, but to act as a parachute to sustain the animal in the air while taking long leaps from branch to branch. If man be ever to achieve the mystery of aerial locomotion for short distances, must he not take a hint from the structure of these so-called winged dragons?

"As the tide receded," says Mr. Bickmore, "shells

* Excellent twine for rope is obtained from the leaves of several species of *Bromelia* (to which genus the pine-apple belongs). The inhabitants of the San Francisco valley in Brazil make their fishing-nets with the fibres of the *Caroa*, or *Bromelia variegata*.

began to come in"—for it was soon discovered that the stranger had a mania for collecting natural curiosities—"at first the more common species, and rarer ones as the ebbing ceased. My mode of trading with these people was exceedingly simple, my stock of Malay being very limited. A small table was placed on the verandah in front of the rajah's house, and I took a seat behind it. The natives then severally came up and placed their shells in a row on the table, and I placed opposite each shell, or each lot of shells, whatever I was willing to give for them; and then, pointing first to the money and next to the shells, remarked, *Ini atau itu*, 'This or that,' leaving them to make their own choice. In this way all disputing was avoided, and the purchasing went on rapidly. Whenever one man had a rare shell, and the sum I offered did not meet his expectations, another would be sure to accept it if no more was given; then the first would change his mind, and thus I never failed to obtain both specimens. It was a pleasure that no one but a naturalist can appreciate, to see such rare and beautiful shells coming in alive,—spotted cypræas, marble cones, long *Fusi*, and *Murices*, some spiny, and some richly ornamented with varices resembling compound leaves."

At sunset the rajah and his guest rambled along the curving shore of the great bay. Before them stretched the green hills of Ceram; or, as the rajah called it, *Ceram tuna biza*, "the great land of Ceram,"—for to him, indeed, it seemed a mighty continent, and not merely a *pulo*, or island. Magnitude, after all, is simply a question of comparison; a blade of grass to an ant bulks as largely as a conifer to a man. Behind the high, jagged peaks of the "great land" slowly sank the



WATERING-PLACE, AMBOYNA.

setting sun, and his last golden and purple shafts quivered like luminous arrows as they fell upon the wavy surface of the crystal bay; and the broad, deeply-fringed leaves of the cocoa-nut palms on the beach, seemed to change into ruby and emerald and amethyst in the glow of the wondrous light. It was a scene never to be forgotten; a scene every detail of which was engraved deeply on the spectator's memory. Its silence rendered it all the more impressive; and that silence was felt the more powerfully because sometimes broken by a dull, heavy boom from a small Mohammedan mosque, picturesquely situated on a narrow headland, and reflected on every side in the purpling sea. This was the roll of a large drum summoning the faithful to assemble in thank-offering to the Prophet at the close of so glorious a day.

While wandering through the island in company with the rajah, our traveller met with two specimens of an enormous hermit-crab—the *Birgus latro*—which forms a link, or transitional form, between the long-tailed and short-tailed crabs. It feeds upon cocoa-nuts, and is said to climb the palm-trees in order to procure them; but Mr. Darwin, who examined its habits attentively, asserts that it lives upon those that spontaneously fall from the tree. To extract its food from the hard case in which it is enclosed, it shows an ingenuity which rises above the standard of ordinary animal instinct. First of all, it must be remarked that its front pair of legs are terminated by very strong, heavy pincers; the last pair by pincers which are weak and narrow. After having selected a nut fit for its dinner, the crab begins operations by tearing off the dry husk until the end of the shell is laid bare on

which the three eye-holes are situated. Then upon one of these it hammers and hammers, until an opening is made; whereupon it turns round, and by means of a dexterous use of its hind-pincers extracts the oily, fattening food within.

The *Birgus latro* inhabits deep burrows, in which it accumulates immense quantities of picked fibres of cocoa-nut husks, to serve as a bed. Its habits are diurnal; but every night it pays (so it is said) a visit to the sea—for the purpose, probably, of moistening its branchiæ. Living on such choice and succulent food, it is necessarily excellent food in its turn—in fact, an Oriental luxury; and the mass of fat under the tail of a large crab will yield when melted as much as a quart of limpid oil.*

THE ULIASSERS.

Three islands, called the “Uliassers,” lie to the east of Amboyna. That which lies nearest is Haruku (Dutch, Haroekoe); also known to the natives as Oma, or *Buwang-bessi*—that is, “Ejecting iron.” Next in order comes Saparua, or Sapurba (“the Source”)—a name given to it by the Malay and Javanese merchants who resorted thither, centuries ago, to purchase cloves; and away to the eastward lies Nusalaut, or “Sea Island”—the island nearest the open sea. The islanders are distinguished from the Amboynese by their strange custom of clipping the hair short all over the head, except a narrow band across the forehead, which hangs down like a fringe, and gives them a “remarkably clownish appearance.”

Mr. Bickmore crossed from Amboyna to Saparua in a large prau, rowed by eighteen natives; one of whom,

* Hartwig, “The Sea and its Living Wonders,” p. 211.

as coxswain or captain, steered with a large paddle, while two others accompanied the movements of the rowers with melancholy music. The instrument employed was a huge *tifa*, or drum, that emitted a dull, heavy sound, such as would be produced by beating a hollow log; and two Chinese gongs, quite perfect in their exceeding discord. The *tifa* is beaten with a piece of wood held lightly in the right hand, while the left hand raises the note by pressing against the edge of the vibrating skin. Of course, the sounds thus created must be unpleasantly monotonous; nor was their monotony much relieved by the harsh notes of the two gongs, which were struck alternately.*

The Uliassers, or Uliasserians (which name is correct?), are very partial to the betel-nut, which, as some of our readers may know, is the fruit of a tall and shapely palm—the *Areca catechu*. While the trunk of this palm is seldom more than six or eight inches thick, it rises fully thirty to forty feet from the ground, exclusive of the capital of green foliage that gracefully crowns its slender column. All the palms are graceful, but the areca is of all the gracefullest, and might almost be taken as the standard of beauty in the Vegetable World. Its range is extensive, including all Hindustan, the Archipelago, and the Philippines. Its Malay name is *Penang*; and Pulo Penang means simply Betel-nut Island. Its flowers are distinguished by their delightful fragrance; and the inhabitants of Borneo make great use of them on festive occasions. They are also regarded as a necessary ingredient in magical charms and compounds, and in all medicines.

The fruit, of the size of a hen's egg, is of a warm.

* Bickmore, "Travels in the Eastern Archipelago," pp. 179, 180.

reddish yellow colour, with a thick fibrous rind enclosing the seed. The seed, known as areca or betel nut, may be about as large as a nutmeg, but conical in shape, flattened at the base, brownish externally, and mottled internally like a nutmeg. When intended for use, it is cut up into narrow pieces, which, with the addition of a little lime, are rolled up in leaves of the betel-pepper. The pellet is chewed, and it is hot and pungent; it tinges the saliva red, stains the teeth, and, notwithstanding its undoubted aromatic and astringent properties, produces intoxication, it is said, when the practice of chewing it is begun. But its effects are probably quite as much due to the ingredients taken with it—the leaf of the *siri*, or betel-pepper, and a piece of tobacco. “The leaf of the tobacco,” we are told, “is cut so fine that it exactly resembles the ‘fine cut’ of civilized lands; and long threads of the fibrous, oakum-like substance are always seen hanging out of the mouths of the natives, and completing their disgusting appearance. This revolting habit prevails not only among the men, but also among the women; and whenever a number come together to gossip, as in other countries, a box containing the necessary articles is always seen near by, and a tall, urn-shaped spittoon of brass is either in the midst of the circle or passing from one to another, that each may free her mouth from surplus saliva. Whenever one native calls on another, or a stranger is received from abroad, invariably the first article that is offered him is the siri-box.”

A NATIVE DANCE.

The three Uliassers closely resemble one another: each is surrounded by a coral reef, and overgrown with

groves of feathery palms. An equally close resemblance may be discerned between the inhabitants of each island; their habits and manners are identical. Their war-costume is remarkable for its simplicity: the warrior presents himself in almost absolute nakedness, brandishing in his right hand a large cleaver or sword (frequently made of wood), and carrying on his left arm a kind of shield, four feet long and about as many inches wide in the middle. A crown composed of sticks covered with hen-feathers adorns his head; and from his shoulders and elbows hang strips of bright red calico, producing a very comical effect.

Dancing appears to be their favourite pastime. The dance of the males has a military character about it; the performers arranging themselves in two lines, and advancing and retiring, with much springing and leaping, and many rotatory movements and considerable brandishing of swords. The dance of the females has a certain likeness to that of their lords; but their dress is happily more elaborate. They attire themselves in a bright red sarong and a low kabaya or bodice, over which is one of lace, glittering with silver spangles. Their long black hair is combed backwards, and fastened in a knot behind with numerous long, flexible pins of silver, which vibrate in harmony with the dancer's motions.

Thus attired, they form in two rows, and begin their *minuri*, or dance; slowly twisting their body to the right and left, and simultaneously moving the outstretched arms and open hands in circles in opposite directions, just as one does in swimming. At times they change the weight of the body from the heel to the toe, and the toe to the heel; but otherwise the

fect are not called into requisition. During the dance they chant a low, monotonous strain, accompanied by a tifa and several small gongs, which are suspended by a cord to a framework of *gabu-gabu*; that is, the dried midribs of palm-leaves. The gongs increase regularly in size, from one of five or six inches in diameter to one of twelve or fifteen inches. Each has a round central boss, or knob, which the performer strikes with a small stick, bringing forth a sound not unlike the tinkling of a small bell.

And here we may take our leave of the Uliasser Islands, which form a romantic and interesting group, but do not differ from the Moluccas generally in their physical or zoological characteristics.

IN CERAM.

The largest of the Moluccas is the island of Ceram, which lies in a direct line to the east of Bouru, and in point of size is second only to Celebes in this part of the Archipelago. It stretches from lat. $2^{\circ} 47'$ to $3^{\circ} 50'$ S., and long. $127^{\circ} 51'$ to $123^{\circ} 56'$ E.; or 162 geographical miles in length and 40 in breadth. Its entire area is estimated at 10,500 square miles, or nearly twice the size of Yorkshire.

The interior of the island, which the natives call Sirang, is not well known, the Dutch residents having devoted more attention to commercial profit than geographical research; but it may be regarded as forming a series of mountain-chains from 6000 to 8000, and even 9000 feet in height, which traverse a table-land of considerable elevation, and pour down into the sea, especially from the south, a number of large rivers and rapid streams. Exposed to sea-breezes, which cool the

air and supply abundant moisture, well-watered, broken up into sheltered valleys, and lying within the Tropics, it is necessarily clothed with a rich and various vegetation, and its forests are full of magnificent timber. Its landscapes, so far as they are known, seem to offer inexhaustible sources of inspiration to the artist, and might well be celebrated in the enthusiastic strains of some descriptive poet. It has been said that the two great features of all beautiful scenery are wood and water; and these are met with everywhere in Ceram: and not only the shadows of mighty forests and the gleam of many rivers, but the rugged and romantic outlines of rock and crag enter into the glowing picture, as well as the verdant glade, the dark and savage glen, and the deep "bowery hollows" of sequestered recesses.

One of the chief natural productions of Ceram is

THE SAGO-PALM,

which is not only more plentiful here than in any of the adjoining islands, but attains to greater perfection. It grows to the height of one hundred feet; and a single tree will sometimes yield 1200 pounds of starch, instead of 400 pounds, as at Amboyna. This tree in its early stage is very slow of growth; but when it has once formed its stem, it shoots upwards rapidly, and assumes its crown of far-spreading foliage and colossal efflorescence. Before the flowers ripen into fruit the tree must be felled; as otherwise the farina which man uses for his food would be exhausted.

The sago, which forms so important an article of commerce, is prepared from the soft inner portion of

the trunk ; the latter being cut into pieces about two feet long, which are then split in half, and the soft substance is scooped out and pounded in water till the starchy matter separates, when it is drained off with the water, allowed to settle, and afterwards purified by washing. The substance thus obtained is sago-meal ; but before being exported to the European markets, it is made into pearl-sago by a Chinese process chiefly carried on at Singapore. The rough meal is subjected to repeated washings and strainings ; then spread out to dry, and broken into small pieces ; which, when sufficiently hard, are pounded and sifted until they are tolerably uniform in size. Small quantities, finally, are placed in a large bag, which is suspended from the ceiling, and shaken backwards and forwards for about ten minutes, until the sago becomes pearled or granulated ; after which it is thoroughly dried, and packed for exportation.

The word *sagus* comes from the Papuan *sagu*, or *sago*, signifying “bread ;” which is applied to two similar species of palms, called by our botanists *Sagus lævis* and *Sagus Rumphii*. The former of these, known also as the Spineless Sago-Palm, generally grows from twenty-five to fifty feet high ; the latter, the Prickly Sago-Palm, is a smaller tree, and differs somewhat in its foliage.

The sago-palm is a sociable tree, growing in large forests, and particularly affecting moist and even swampy localities. The mouldering trunks are clothed with mushrooms of fine flavour ; and in the pith fatten the whitish grubs of a large beetle—the *Cossus saguarius*—which the natives regard as a great delicacy when roasted.

A TRIP INTO THE INTERIOR.

We shall gain the clearest idea of the character of the scenery in Ceram by accompanying Mr. Wallace on a trip into the interior, which he was enabled to accomplish through the courtesy of the Dutch officials.

From the village of Makariki, at the head of the Bay of Anabay, a native path strikes across the island to the north coast.

At first it runs through a dense tangled undergrowth, and traverses several streams; then it comes to the bank of the Ruatan—one of the largest rivers in Ceram—which, as it is both deep and rapid, offers a somewhat formidable obstruction. No canoes are at hand, and the traveller must ford it,—carrying his clothes upon his head, or keeping them out of the water as best he can.

This difficulty overcome, we again enter the forest, the path being choked with dead trees and rotten leaves, or overgrown in the more open parts with thickly matted vegetation. Following up the bank of a stream, which flows with crystal clearness over a wide gravelly bed, we strike into a mountain-glen—reminding us of the gorges in the Scottish Highlands—green with the foliage of hanging woods, and musical with the murmur of falling waters. Through the glen winds the obstinate stream, with so many meanders that we are compelled to cross and recross it fully thirty times in the course of a few miles; and we are glad when at last we leave it behind us, and begin the ascent of the mountain-country of the interior. All the way the paucity of animal life has been remarkable. The only birds that have cheered us by their occasional presence

are the Amboyna lory and the Molucca hornbill : even the Insect World has been scantily represented except by butterflies.

The virgin forest is, after all, a melancholy wilderness, and deficient in the charms which render so graceful and impressive our English woodlands. Where is the song of birds? Where the gleam of wild flowers? Where the soft, elastic sward, with its pleasant freshness and delicious odours? We cross from shore to shore in Ceram, and seem to pass through a monotonous desert, broken only by the shadows of the mountain-ravines and the sparkle of the mazy streams. The forest-growth, however, is luxuriant; and the mountain-sides are covered with large patches of sago-palms, where the soil is constantly supplied with moisture by the rains, and by the abundant rills trickling from the higher grounds.

* A curious species of cuscus is found in the forest; Mr. Wallace names it *Cuscus ornatus*. We have already described this genus of opossum-like animals, with their small heads, large eyes, dense woolly fur, and long prehensile tail. They live in trees, feeding on leaves and fruits, and moving about with much caution and apparent lethargy. The particular species to which we here refer is distinguished only by the character and arrangement of the spots which diversify its thick warm coat.

The small flying opossum, *Belideus ariel*, is also a native of Ceram. It is about the size of a rat, and of a light brown colour on the upper part of the body, blending into white on the under surface. The tail is nearly of the same hue as the body, except the tip, which is of a dark brown. Though exactly resem-

bling a flying squirrel in appearance, it belongs to the marsupials. Its name Ariel, referring to the "tricksy spirit" in Shakespeare's "Tempest," was doubtlessly suggested by the extreme grace and lightness of its movements.

Then there is the little shrew, *Sorex myosurus*, which may have been accidentally introduced from Sumatra or Java. It feeds upon worms, insects, and larvæ, which its long flexible nose enables it to root out among the densest herbage. Its habitation is a kind of underground tunnel, where it finds not only a home but a "hunting-ground." It is impatient of hunger, and wholly unable to endure a long fast. A pugnacious animal, it is constantly engaged in hostilities with its own kith and kin; and in these hostilities it makes effective use of the two rows of bristling teeth which arm its jaws.

Among the birds, a foremost place must be given to the cassowary, which inhabits the island of Ceram only. A stout and strong bird, it stands five to six feet in height, and its body is clothed with long, coarse, black, hair-like feathers. Its head is surmounted by a large horny helmet. The skin of the head and upper part of the neck is naked, of a deep blue and fiery red tint, with drooping wattles or caruncles like those of the turkey-cock. It is much inferior in size to the ostrich; and its wings consist simply of five long bristles, or horny spines, without any plumes, so that they are equally useless for running as for flying. It frequents the vast forest-depths of Ceram, feeding on fruit, eggs of birds, insects or crustacea, and is said to be as voracious as the ostrich. It runs with exceeding swiftness; strik-

ing out first one and then another of its stalwart legs, and throwing its body violently forward with a bounding motion exceeding the speed of the horse.



THE CASSOWARY.

The female lays from three to five large and beautifully shagreened green eggs upon a couch of leaves, the male and female sitting upon them alternately for about a month.

It was in the Moluccas that Mr. Wallace discovered some curious and highly interesting cases of "mimicry" among birds. The reader will wonder what we mean by "mimicry." Well, there are insects and butterflies which, when at rest, so closely resemble a dead leaf that

they thereby escape the attack of their enemies. This is aptly termed a "protective resemblance." But if the insect, being itself a dish which birds would certainly consider dainty, should closely resemble another insect which birds do not like, and therefore never eat, it would be as well protected as if it resembled a leaf; and this apparent identity has been named "mimicry" by Mr. Bates, who was the discoverer of these curious external imitations of one insect by another belonging to a distinct genus or family, and sometimes even to a distinct order. In our own country such an instance of "mimicry" is afforded by those clear-winged moths which resemble wasps and hornets.

Among the birds Mr. Wallace has discovered some interesting examples of this wonderful provision of Nature. There are two which closely resemble each other, and yet belong to two distinct and even distant families. One of these is a honey sucker, named, in the language of zoologists, *Tropidorhynchus Bournensis*; the other, an oriole, named *Mimeta Bournensis*. The oriole resembles the honey sucker in the following particulars: the upper and under surfaces of the two birds are exactly of the same tints of dark and light brown; the tropidorhynchus has a large bare black patch round the eyes; this, in the mimeta, is copied by a patch of black feathers. The top of the head of the former has a scaly appearance from the narrow scale-formed feathers, which are imitated in the latter by a dusky line running down each of its broader feathers. The honey sucker wears a pale ruff formed of curious recurved feathers on the nape (whence the genus to which it belongs has been called friar birds);

the oriole has a pale band in the same position. Lastly, the bill of the *tropidorhynchus* is raised into a protuberant keel at the base; and the same characteristic is found in the *mimeta*, though it is not a common one in the genus.

Now distinct species of both these genera are found in Ceram as well as in Bouru, and in Ceram as in Bouru the resemblance to one another is most remarkable. The *Tropidorhynchus subcornutus* is of an earthy brown colour, washed with ochreish yellow, with bare orbits, dusky cheek, and the usual recurved nape-ruff. The *Mimeta forsteni* which accompanies it is absolutely identical in the tints of every part of the body, and the details are copied just as closely as in the former species.

We have two kinds of evidence to tell us, says Mr. Wallace,* which bird in this case is the model, and which the copy. The honey suckers are coloured after a pattern which is very general in the whole family to which they belong; while the orioles seem to have departed from the bright yellow tints so common among their allies. Hence the natural conclusion is, that the latter mimic the former. But why should they do so unless some advantage results from the imitation? And what is the advantage? Well: observe that the *mimetas* are weak birds, with small feet and claws; while the honey suckers are strong active birds, with strong claws, and strong, sharp, and long beaks. They congregate together in groups and flocks, and when any danger impends summon their comrades by their loud clamorous cry. They are

* Wallace, "Malay Archipelago," ii. 87, 88. The foregoing paragraphs are founded on Mr. Wallace's statements.

pugnacious birds, and do not fear to attack crows, and even hawks, if they should chance to perch on their roosting tree. It is probable, therefore, that the smaller birds of prey have learned to respect the prowess of the tropidorhynchi, and not to molest them ; and it would, consequently, be a signal advantage for the feebler and less daring mimetas to be mistaken for them.

To explain how this curious resemblance has been brought about, would lead us into a discussion of remote natural laws alien to our object in the present volume ; and we have said enough, we trust, to open up to some of our readers a source of study with which they have hitherto been unacquainted, but which will well repay any labour they may devote to it.

The birds of Ceram, like its insects, show a decided affinity to the types common in New Guinea, and recede from those which prevail in the great western islands of the Archipelago. To quote Mr. Wallace once more : " Owing to the great preponderance among the birds, of parrots, pigeons, kingfishers, and sun-birds, almost all of gay or delicate colours, and many adorned with the most gorgeous plumage, and to the numbers of very large or showy butterflies which are almost everywhere to be met with, the forests of the Moluccas offer to the naturalist a very striking example of the luxuriance and beauty of animal life in the Tropics. Yet the almost entire absence of mammalia, and of such widespread groups of birds as woodpeckers, thrushes, jays, tits, and pheasants, must convince him that he is in a part of the world which has in reality but little in common with the great

Asiatic continent, although an unbroken chain of islands seems to link them to it."

THE INHABITANTS.

The inland districts of Ceram are inhabited by an aboriginal people, the Alfoories or Halafoorahs, who may be regarded as identical with the mountain-tribes of Celebes and the Philippines. Civilization has of late made some impression upon them, and they have abandoned the hideous custom of "head-hunting," though the inside of their huts is still decorated with human skulls. They are mostly idolaters; and their principal occupation is hunting the wild boar and deer, large serpents, and the like. Agricultural labour is carried on almost entirely by the women, and large quantities of maize are reared. They are described as simple in their manners, honest, and peaceable; and being brave and obedient, make good soldiers. They live in small tribes, each acknowledging the rule of a native prince, or rajah.

A Malay race of fishermen, bold, active, and enterprising, dwells on the coast; and these fearless sailors, in their large *prahus*, manned by thirty to forty rowers, dare the storms of the Eastern seas, and carry the spoils of their fishery as far as Singapore and the Sunda Islands, or the coast of north-west Australia.

VISIT TO GILOLO.

A cursory glance at the map will convince the reader of the strange resemblance in form between Celebes and Gilolo. In the latter case, as in the former, the island is composed of a backbone or central ridge, throwing off four peninsulas, which are

divided by large bays or gulfs; and it can be likened in appearance only to some monstrous star-fish, extending its tentacles in quest of prey. Its four peninsulas radiate successively to the north, the north-east, the east-south-east, and the south. The three bays which nestle between them are those of Chiawo, Bitjoli, and Weda:—

Chiawo, 68 miles long, from north to south, and 41 miles wide, narrowing to 15 miles;

Bitjoli, 40 miles long, from east to west, and 25 miles wide, narrowing to 14 miles; and,

Weda, 62 miles long, from south-east to north-east, and 52 miles wide, narrowing to 17 miles.

The extreme length of the island, as it lies north and south, has been computed at 197 miles. Its breadth nowhere exceeds, and seldom approaches, 90 miles. Its superficial area may be estimated at 6500 square miles; so that it is larger than Dorset, Devon, and Cornwall taken together. Gilolo is a volcanic island, and its extraordinary shape is undoubtedly the result of violent volcanic action. It contains one lofty and partially active volcano,—Mount Gammacanore, or Gamokonora, 6500 feet in height, of which an eruption took place in 1673; and its bold romantic coasts, with their strangely-broken outline, rise, sheer and abrupt, out of a sea of almost fathomless depth. They are skirted, moreover, by fringing coral reefs which render some parts virtually inaccessible, and are everywhere dangerous to navigation.

Gilolo (or Halmahera) is the largest of the Moluccas. It is separated from Celebes on the west by the Molucca Passage; from Papua and Waygiou on the east by the Gilolo Passage; and from Ceram and Bouru on the south by Pitt's Passage.

The principal productions of the island are coconuts, sago, spices, fruits, edible birds'-nests, which find a ready sale among the Chinese; pearls and gold-dust; horses, horned cattle, sheep, deer, and wild boars. Its interior is but little known: the character of the scenery, however, varies greatly; in some places the virgin forest displays all its exuberance of vegetation; in others, the hills are bare, and the valleys narrowed by projecting masses of limestone rock. The streams are numerous and deep, and those which descend from the high ground are remarkable for their rapidity.

A traveller thus describes the country in the neighbourhood of one of the principal villages,—Saloa:—Interminable tracts of reedy grass, eight or ten feet high, extend in every direction, and the narrow paths which strike across them are often rendered almost impassable by the tangled growth. Here and there some relief is afforded by clumps of fruit-trees, patches of low wood, young and thriving plantations, and swampy rice-grounds. The virgin forest survives only on the summits of the hills, and on the steep rocky sides of the distant mountains.

It is only in the northern peninsula that the aborigines of the island—formerly, in allusion to their love of warfare, called the “bloodhounds of Gilolo”—are now to be met with. They are described as differing wholly from all the Malay races. Their stature and features, as well as their habits and disposition, are almost the same as those of the Papuans; their hair, says Wallace, is “semi-Papuan,”—neither straight, smooth, and glossy, like that of the true Malays, nor so frizzly and woolly as that of the true Papuans, but always crisp, waved, and rough, such as frequently occurs

among the true Papuans, but never among the Malays. Their colour alone is often exactly that of the Malay, or even lighter. "Of course," says Wallace, "there has been intermixture, and there occur occasionally individuals which it is difficult to classify; but in most cases the large, somewhat aquiline nose, with elongated apex, the tall stature, the waved hair, the bearded face, and hairy body, as well as the less reserved manner and louder voice, unmistakably proclaim the Papuan type. Here, then, I had discovered the exact boundary-line between the Malay and Papuan races."

The rest of the island is inhabited by Malay tribes, who are distinguished by their affection for a seafaring life. The southern, northern, and north-eastern peninsulas are included in the territory of the Sultan of Ternate; the northern nominally belongs to the Sultan of Tidore.

ANIMAL LIFE IN GILOLO.

We find little to say about the animal life of Gilolo, other than we have said of that of Celebes and Ceram. It is poorer in mammals, however, even than Celebes; the baboon-monkey (*Cynopithecus nigrescens*) and the babyroussa of the latter not being natives of Gilolo. Birds are numerous,—belonging chiefly to the three groups of the parrots, pigeons, and kingfishers. Among the parrots we may name the large red-crested cockatoo, so well known in Europe as a drawing-room guest; the red parrot of the genus *Electus*; and the beautiful crimson-coloured lory. There are fully twenty different species of pigeons, including twelve of the handsome fruit-pigeons, with their glossy emerald plumage. What pen shall do justice to the splendid colours of the kingfishers, which flash among the low foliage

of the well-watered valleys like winged rainbows! Our English species cannot compare with them; they are "beautiful exceedingly," in their shining garb of many colours.

To Gilolo belongs a remarkable species of ground-thrush—*Pitta gigas*—remarkable for its size and its plumage. The upper part of the body is a fine velvety black; the breast is white as mountain-snow; a blue like that of the summer sky shines on its shoulders; and its belly is of a peculiarly vivid crimson. It has legs both long and strong; and as it frequents the thickets and the rocky recesses of the forest, it needs them.

In Gilolo also dwells a characteristic species of the mound-making birds, or *Megapodii*; a handsome bird, its back and wings being richly banded with reddish brown. From the other megapodii it differs strangely in its habits; for while they frequent the scrubby jungle, and scratch holes in the sand of the sea-shore for the reception of their eggs, over which they erect mounds of rubbish six to eight feet in height, the Gilolese bird inhabits the inland forests; and when it comes down to the beach to lay its eggs, it forms a burrow about three feet deep, and in an oblique direction, depositing its eggs at the bottom, and loosely covering the entrance with sand and stones so as to conceal it. Further, that the hole may not be discovered, it obliterates, or at least confuses, its foot-marks, by making all around a number of scratches and irregular tracks. It lays its eggs only at night; they are of a rusty colour, and fully three inches long by two or more inches wide. They are good eating, and much relished by the natives of Gilolo.

This megapodius is a nocturnal bird, and from night-fall till dawn arouses the forest-echoes with its harsh, loud, melancholy cries.

Off the north-east peninsula of Gilolo lies the low, sandy, coralline island of Morty; to which we refer simply for the purpose of noting that, small as it is, and separated from the nearest land by an arm of the sea twenty-five miles wide, it boasts of three species of birds peculiar to itself—a kingfisher, a honeysucker, and a large crow-like starling. Does not this fact convey a remarkable idea of the inexhaustible wealth of Nature?

BATCHIAN, AND BIRDS OF PARADISE.

None of the inhabitants of the Bird World approach the Paradiseidæ in elegance of shape and beauty of plumage; and there is something so superb, and at the same time so *unearthly*, in their appearance, that it is hardly to be wondered at if the fancy of the early voyagers supposed them to be fit denizens of the Garden of Eden. The most extraordinary legends at one time prevailed about them. It was said that they lived wholly upon dew, and passed their lives in long aerial voyages; that they so spurned the earth as never to touch it until the moment of death approached; that they never rested except when suspending themselves from the branches of trees by the shafts of their two tail-feathers; and it is still a belief of the Malays that for breeding purposes they retire to the untroubled groves of Paradise. These fables partly arose in their peculiar habits, and partly in the Papuan custom of tearing off their legs before sending them to market, which led the European navigators to suppose that

they were all wings and body.* Then, again, owing to the singular looseness of their plumage, they always fly against the wind. Add to this, that they dwell in the recesses of the vast virgin forests, afar from the haunts of men, and that their song or cry is very characteristic; and it is not difficult to understand how they came to be invested with so many fabulous attributes.

The Paradiseidæ are confined exclusively to the Australo-Malay Islands,—having probably their true habitat in Papua or New Guinea, whence they have found their way as far as Batchian. In the tropical forests of these islands they live in large troops; and as they fly on undulating wing, or perch on the summit of the tallest trees, they lend an additional beauty to the landscape by the rare splendour of their many-coloured plumage. They shun the noontide heat, and seek their food, which consists principally of fruit, in the morning and evening. They show a great partiality for the fruit of the fig and teak trees, but do not disdain an occasional meal of insects,—of which however, they reject the horny or scaly case, legs, and wings. They are polygamous; that is, the male has several mates, from whom he is easily distinguished by the superior bravery of his appearance. Moreover, they recognize a form of government; a flock of forty or fifty birds flying always under the direction of a single bird, which the Papuans call their chief. Their cries are very peculiar, and seem to differ according to the meaning they are intended to convey: their congratulatory note, on meeting one another, resembles the cawing of a raven, but is more diversified in its gradation, and may be expressed as *he, he, ho, haw*, frequently

* Hence the generic name, *Apoda*, or “without feet.”



EMERALD BIRD OF PARADISE.

repeated and rapidly. Sometimes they appear to issue a call or summons, the notes resembling the syllables *whock, whock, whock*, uttered in a kind of barking tone, and so loudly as to be audible at a considerable distance.

The best-known species is the emerald bird of paradise, of which it has been said that it possesses "plumage which in one part glitters with all the dazzling gem-like hues of the humming-bird, in another is soft, warm, and delicately tinted, and in another is

dyed with a rich intensity of colouring that needs a strong light to bring out its depth of tone; and yet the torrent of graceful and softly-tinted plumes that flow with such luxuriant redundance of changeful curves over the body, are in themselves sufficient to place the emerald bird of paradise in the first rank of beauty."

It has been asserted of this glorious creature, that it surpasses in beauty the whole of the feathered creation. This is a bold eulogium, but we are not disposed to quarrel with it; nor will the reader, if he succeeds in realizing to himself what manner of bird it applies to:—a throat of the brightest emerald; a canary-tinted neck shading its colour gradually into the fine chocolate of the other parts of the body; wings of a warm reddish brown, like the leaf of the chestnut in autumn, from which droops, as it were, a cloud of loose golden plumes, in graceful feathery tufts. The chocolate-coloured tail is short, but projecting from it are two very long shafts of the same hue, longer even than the silken plumes of the sides.

As we shall have occasion to dwell further upon the natural history of the Paradiseidæ, when our survey of the Archipelago brings us to New Guinea, we shall content ourselves here with reference to a fine species found only in the island of Batchian. It has been named *Semioptera Wallacei*, or "Wallace's Standard-wing," and differs most remarkably from any other known bird. We cannot do better than borrow the discoverer's description of it, which the reader, if he has the opportunity, may compare with the stuffed specimens in the British Museum:—The general plumage is very sober, being a pure ashy olive, with a

purplish tinge on the back ; the crown of the head is beautifully glossed with pale metallic violet, and the feathers of the front extend as much over the beak as in most of the family. The neck and breast are scaled with fine metallic green, and the feathers on the lower part are elongated on each side, so as to form a two-pointed gorget, which can be folded beneath the wings, or partially erected and spread out in the same way as the side plumes of most of the birds of paradise. The four long white plumes, which give the bird its almost unique character, spring from little tubercles close to the upper edge of the shoulder or bend of the wing ; they are narrow, gently curved, and equally webbed on both sides, of a pure creamy white colour. They are about six inches long, equalling the wing, and can be raised at right angles to it, or laid along the body at the pleasure of the bird. The bill is horn colour, the legs are yellow, and the iris is of a pale olive.*

Metallic blue, violet, olive green, creamy white : what a delicious blending of colours ! Surely, the fairy creature which is clothed in plumage of this bright and varied character must be "a thing of beauty" and "a joy for ever !" It would be worth a voyage to Batchian to see it fluttering through its leafy forest-haunts, and streaming its brilliant plumes against the wind ! But Batchian would seem to be a "paradise of birds ;" or, at all events, those of the feathered race which inhabit its glades are remarkable for their attractiveness. As, for instance, a rare goat-sucker, the Nicobar pigeon, a deep blue roller, a lovely sunbird, and a racquet-tailed kingfisher. Of these we need pause to notice only the Nicobar pigeon, as the

* Wallace, "Malay Archipelago," ii. 17, 18.

others exhibit the usual characters of the genera to which they belong, and are distinguished simply by some slight specific differences.

The Nicobar pigeon is one of the *Gourinæ*, or ground pigeons : so called because they live in the forests, and feed upon berries, seeds, and grain, which they seek on the ground. It forms its nest in the forked branch of a tree, and the female at each sitting lays two eggs. It is distributed throughout the Archipelago, from west to east ; frequenting chiefly the smaller islands, where it is safe from the attacks of carnivorous quadrupeds. Its wings are remarkable for strength, and it is able to fly for very long distances. With its glossy green plumage, tinged with coppery hues, its snow-white tail, and the fine pendent feathers of the neck, it is one of the handsomest of its tribe.

SOMETHING ABOUT THE SCENERY OF BATCHIAN.

Having said thus much about the birds of Batchian, we must say something about the island itself. As to its position : it lies to the west of the south peninsula of Gilolo, in lat. $0^{\circ} 37' N.$, and long. $117^{\circ} 36' E.$ As to its dimensions : it is about fifty-seven miles in length, and from five to twenty in breadth. It is a volcanic island, and consists in the main of a mountainous ridge about one thousand feet in elevation, sloping north and south down to the sea-level, with a boldly undulating surface. It has its shadowy valleys, its rocky eminences, its clear swift streams, and its patches of virgin forest, like the other Moluccas, from which it differs in details, rather than in the general character of its scenery.

In some parts its coast-line presents a remarkable

feature, the beach being continuously covered with clumps of Pandanaceæ or screw-pines. These are of various shapes, each more fantastic than the other. Some, forty or fifty feet in height, may be compared to gigantic branching candelabra, carrying at the end of each branch, instead of tapers, a tuft of immense sword-shaped leaves, six or eight feet long, and as many inches wide. Others are more like huge tangled bushes, about ten or fifteen feet in height. Their leaves, which are very long and narrow, leathery, tenacious, and equipped along the midrib and edges with sharp recurved prickles, are disposed in a three-fold spiral series towards the end of the branches, so as to form tufts or crowns, as in the larger species; and it is from the resemblance of these to the tufts of the pine-apple that the Pandanaceæ have obtained the name of Screw-pines. Other species there are with a single branchless stem, six or seven feet high, the upper part clothed with the spirally arranged leaves, and terminating in a single fruit as large as a swan's egg. Others of intermediate size are adorned with irregular clusters of rough red fruits, and all have ringed stems and leaves more or less spiny. In the young plants of the larger species, however, the leaves are smooth and glossy, and, being sometimes ten feet long and eight inches wide, are much used in the Moluccas and New Guinea for "cocoyas" or sleeping-mats.

Inland the background of dark dense forest exhibits some interesting objects: as, for example, the kanary, already described, the nut of which is pleasantly-flavoured, and enclosed in a succulent rind which furnishes the favourite food of the great green fruit-pigeon; the Moluccan fig, with vast aerial roots form-

ing a pyramid nearly one hundred feet in height, and throwing off from their point of junction a host of spreading branches; and the *Dammara orientalis*, or Amboyna pine, a noble conifer, with scattered leathery leaves, which rises one hundred feet in height, and yields the valuable Dammar resin. This is found attached to the trunk of the tree, or buried in the ground at its foot, in lumps of ten, fifteen, or twenty pounds weight. The Batchian natives pound it, and pack the powder into palm-leaf tubes, about a yard long, which, when ignited, burn with a bright and steady flame.

Palms and plantains also abound in the forests of Batchian; the lofty areca, with its clusters of red fruit, and the fan-leaved palm, whose leaves are used for water-buckets; true wild plantains, bearing an edible fruit an inch or two in length, and consisting of a mass of seeds just covered with pulp and skin; climbing ferns, with beautiful waving fronds; and screw-pines, tall of stature and fantastic in shape.

Besides its vegetable resources, Batchian is rich in gold, and copper, and coal, in hot springs and geysers; so that for the geologist as well as the botanist it offers a wide and interesting field of inquiry, while the artist would find abundant material in its varied scenery, in its lofty mountains lifting their peaks out of a belt of luxuriant forest, its bold abrupt hills, its well-watered valleys, and its open alluvial plains.

It is deficient, however, in animal life. Birds and insects are rare, and mammals are rarer. Bats abound, but they are chiefly small species; the flying opossum, the cuscus ornatus, and the civet cat frequent the wooded shades; and it is the easternmost point at which the naturalist discovers any of the quadrumana.

The particular species found here is the large black baboon-monkey (*Cynopithecus nigrescens*), which has bare red callosities, and a rudimentary tail about an inch in length. It may probably have been introduced by the wandering Malays, "who often carry about with them tame monkeys and other animals."

The fruit-eating bat, known as the "flying fox" to Europeans, the "kalong" of Java, is generally eaten by the natives of Batchian. Feeding as it does on figs, bananas, and other pulpy fruit, we may well believe that its flesh is white and delicate. At all events, the people of Batchian regard it as a dainty, and hunt it eagerly. Early in the year these bats assemble in large flocks to eat fruit, and during the day suspend themselves to the trees, and especially the dead ones, in thousands. They can then be easily caught or knocked down by sticks, and it is common enough to see the natives carrying them home by basketfuls. Their preparation for the table is necessarily a work of some art, on account of the rank and foxy odour of the skin and fur; they are therefore cooked with a plentiful allowance of spices and condiments, and when served up make a capital dish, not unlike hare.

INHABITANTS OF BATCHIAN.

The inland districts of Batchian are wholly uninhabited, and it cannot be said that the island possesses an indigenous population. Yet four distinct races of people may here be met with. First, the Batchian Malays,—tall, well-made, and dark-complexioned, probably the earliest colonists. They seem, from the peculiarities of their language, to have mixed with Papuans. Second, the so-called Orang-Sirani, who

may be described as Malays, with an admixture of Portuguese blood. Third, "Galela" men, who come from the north of Gilolo ; and, fourth, Tomōré settlers, from the eastern peninsula of Celebes. These are distinguished by their light complexion, open Tartar physiognomy, and low stature. Their language is akin to that of the Bugi Malays. They are industrious in their habits, fond of agricultural pursuits, honest, patient, and peaceable. They make large quantities of bark cloth, similar to the *tapa* of the Polynesians, by cutting down certain trees, and stripping off cylindrical pieces of bark, which is beaten with mallets till it easily parts from the wood. It is then soaked, and beaten out again and again, with much care and labour, until for thinness and toughness it may be compared to parchment. By staining it with the dye obtained from another kind of bark, it assumes a dark red colour, and becomes almost impervious to water. Then, sewn neatly together, it is used for jackets, or as wrappers for clothes, or for other domestic purposes.

VOLCANIC ISLAND OF MAKIAN.

We have referred to the volcanic character of Batchian. The surrounding region is one great theatre of volcanic phenomena ; and to the immediate north of it lies the isle of Makian, forming an ancient volcano of formidable character. An ancient volcano, but not extinct. In 1646 it broke out with terrible violence, and with showers of red-hot stones and ashes destroyed all the villages that had been planted on its abrupt but well-wooded sides. It is said that they contained at the time of this catastrophe a population of some seven thousand.

The whole mountainous mass was so completely cloven in twain in a north-east and south-west direction, that, when viewed from either of these points, it presented two distinct peaks.

After so awful an outburst, the subterranean forces remained quiescent for upwards of two centuries; and human industry once more set to work to repair the ravages of Nature. New villages sprang up; fresh fields were cultivated, vegetation reclothed the furrowed declivities; and a population of six thousand found subsistence on the island.

But in 1862 another eruption took place, and the unfortunate island was buried in universal ruin. Very few of its inhabitants escaped. The villages, and their gardens and fruitful fields, were buried deep beneath the enormous quantity of material ejected from the bowels of the mountain. Some idea of the fearful character of the calamity may be gathered from the fact that at Ternate, about forty miles distant, the volcanic showers covered the ground to a depth of nearly four inches, and withered and destroyed all the vegetation except the tall forest-trees.

A similar devastation was the cause of exceeding misery and prolonged scarcity within all that radius of forty miles.

We may therefore regard Makian as one of the principal foci of plutonic phenomena in this part of the Archipelago.

TERNATE :—ITS VOLCANO.

Another, and certainly a not less important, volcano is that of Ternate; a nearly circular island, or island-peak, about ten miles in circumference, which rises

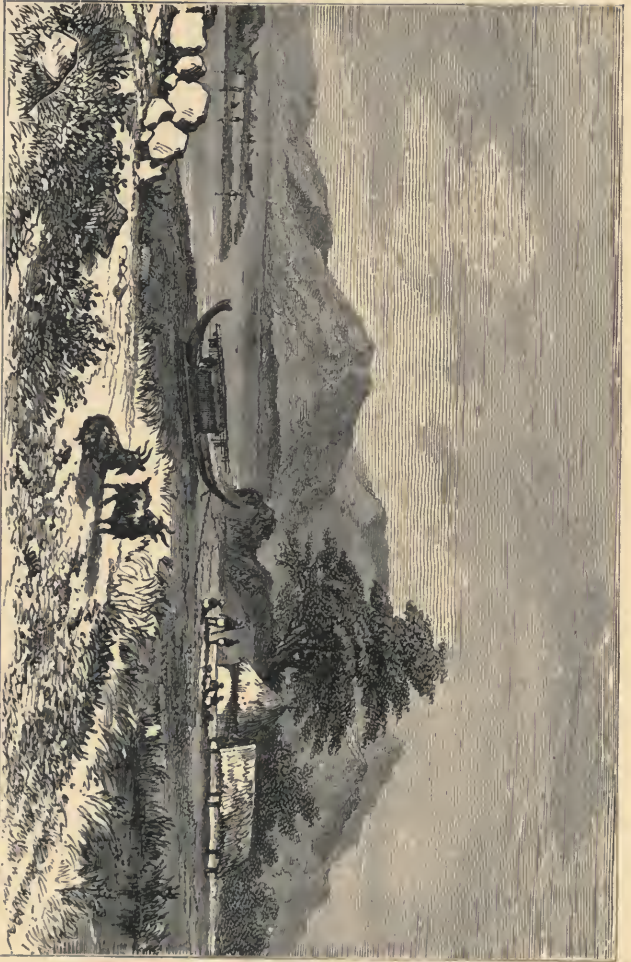
out of the blue sea on the west coast of Gilolo in one massive and richly-wooded cone, to a height of 5480 feet.

At its base lies the town of Ternate, the capital of the "Sultan," and a place of old historic memories, which figures largely in the pages of the early voyagers. No wonder that it produced a strong impression on their imagination! There is something romantically beautiful in its situation, which may well have charmed the fancy and delighted the wistful eyes of the wave-worn mariners, weary of the almost boundless, and to them unknown, waste of waters lying between the Old World and the New. Opposite to it is the rugged promontory and graceful volcanic cone of Tidore; to the east stretches the long mountainous coast of Gilolo, boldly terminated towards the north by three lofty volcanic peaks. In front of it shines a dark blue sea, studded with fairy islands of verdure; while in its rear looms the huge bulk of the mountain, its lower slopes brightened with thick groves of fruit-trees, its higher declivities more abrupt, but also enriched with vegetation,—ay, even to the very summit, where crowning wreaths of faint blue smoke are the only visible indications of the terrible fires that burn within the depths.

Numerous small ridges extend from its crest part way down its wooded sides, and then develop into open plateaus or table-lands, which the natives have seized upon, and cleared of their shrubbery, and converted into radiant gardens.

The contrast is strange between what we *know* of this great volcano and what it *seems*, as it lifts up its tremendous mass in the transparent air, now shining

ROADSTEAD OF TERNATE.



in the glory of the sunlight, now softened in every outline by the tender lustre of the moon. Calm and tranquil as it looks, its annals are annals of desolation and disaster. We are told by Valentyn, Reinwardt, and Junghabor, that severe and destructive eruptions occurred in 1608, 1635, 1653, and 1673, or at intervals of twenty to twenty-five years. On the last occasion showers of ashes were carried as far as Amboyna. For one hundred and sixty-five years the mountain was at rest, and gave no sign of its internal powers other than the usual clouds of vapour streaming from its summit.

But on the 26th of February 1838 this prolonged period of tranquillity was broken; and broken so suddenly,—so completely without premonitory symptoms,—that of a party of six natives engaged in collecting sulphur on the summit, four who had descended into the crater were unable to save themselves, and the two who had remained on its edge escaped only by a swift descent of the mountain, pursued as they went by showers of hot stones, and suffering greatly.

On the 25th of March 1839 a still more violent outbreak occurred. Beneath the surface the pent-up gases roared like thunder; the whole island was enveloped by “thick clouds of ashes;” and rivers of incandescent lava rolled down the mountain-sides, filling the sky with their reflected glare.

Again, in the following year, on the 2nd of February, and at nine o'clock in the morning, an eruption began which must be regarded as the climax of the previous perturbations of the volcano. The forces which had been so long restrained broke forth with incredible fury; the internal fires found at length the

outlet for which they had been contending. The air resounded with terrific peals, like the reports of hostile artillery ; columns of smoke rose high above the mountain-crest ; and hot stones and ashes fell in incessant showers, which ignited the surrounding forests, so that at night the island seemed wrapped, like a martyr, in "a sheet of flame." Simultaneously, a mass of molten lava boiled over the northern rim of the crater, and rushed down to the very margin of the sea. For twenty-four hours continued this elemental war, and then all was still.

For ten days clouds of black reeking smoke continued to ascend, it is true, but no other phenomena were visible ; and the terrified natives began to cherish the hope that the dread convulsion was at an end,—that Nature had exhausted her destructive energies.

But at midnight on the 14th the "unearthly thunderings" were renewed, and shocks of earthquake succeeded one another with such destructive violence, that before daybreak every house on the island was laid in ruins. The earth split open, it is said, with a clang that was distinctly audible even above the roaring voices of the volcano ! From innumerable fissures jets of boiling water momentarily escaped, and then the earth closed, to open again at another point. An educated gentleman, known, from his wealth and splendid liberality, as the "Prince of the Moluccas," assured a recent traveller that, when two men stood about a thousand yards apart, one would see the other lifted up until his feet rose as high as the head of the observer ; and then immediately he would sink, and the observer in his turn be lifted up until *he* seemed as much above his fellow as previously he had been

below him. The solid ground rolled and undulated like the liquid ocean, though the earthquake-wave did not reach its full intensity until ten o'clock on the 15th of February. The Dutch citadel, which had withstood the assaults of two centuries and a half, was shaken to its foundations, and completely buried beneath the ruins of the uprooted forests and the constantly descending masses of pumice-stone and scoriæ. Remember that, meanwhile, the air was filled with noisome odours, and the sky darkened by thick showers of ashes and reeking clouds of smoke, except when lightened up by the lurid reflections of the liquid lava; that strange sounds echoed in every direction—hisses, and groans, and detonations, and peals like the reverberation of thunder among rocky hills;—and then you will understand the fear that seized upon the hearts of all who saw and heard,—the great panic and overwhelming dread, as if “the day of the Lord” were at hand.

On what proved to be the last day of destruction, the 15th, the people betook themselves to their boats; for all the usual conditions of nature seemed to have been reversed, and while the earth heaved and rolled like a tempest-tossed sea, the sea was as placid and as smooth as an inland plain. It is a fact to be noted, that on this occasion the usual inroad of the waves—a well-known accompaniment of great earthquakes, as at Lisbon in 1755, and at Quito in 1859—did not take place; and the inhabitants were spared a fatal and most terrible addition to their calamities. As it was, when the convulsion finally ceased the survivors found themselves among the ruins of their houses and gardens; their fields desolated; their orchards laid

waste ; while they were called upon to mourn the loss of friends and relatives—scarcely a family having escaped the general doom, so far as the capital was concerned.

It has been estimated that this disaster entailed a destruction of property equal to “four hundred thousand Mexican dollars.” Yet, strange to say, like the Neapolitans at Mount Vesuvius, the attachment of both foreigners and natives to this particular spot was so strong, that they would not select a less dangerous locality on the neighbouring shores, but returned to the “old home,” and rebuilt their houses for another earthquake to level to the ground ; a striking illustration of the truth of the common remark, that “they are less afraid of fire than the Hollanders are of water.”

The present city of Ternate, however, is much smaller than the one it has replaced ; and all around it you may see signs both of the greater opulence of the ancient town, and of the destructive character of the earthquake of 1840, in the ruins of massive stone and brick buildings, gateways, and arches.

Further, in reference to the mountain we need only say, that its lower declivities are clothed with a forest of fruit-trees ; one vast continuous orchard, into which you may see, in the season, hundreds of men and women, boys and girls, ascending, to gather the ripe fruit. Specially abundant, and specially fine-flavoured, are the durians and mangoes, two of those delicious tropical fruits which almost compensate for the burden of tropical heat. Larsats and mangūstans (or “mangosteens”) are also plentiful, and of excellent quality. Above this orchard-belt we come to an area of clearings

and cultivated grounds, stretching up the mountain to an elevation of nearly three thousand feet, where the virgin forest begins; and thenceforward, nearly to the summit, a dense deep shade and luxuriant leafy growth prevail. On the northern side of the peak, a tract of black rugged lava, sprinkled with bushes, descends from the crater to the sea, and marks the course of the lava-flow in 1840. The natives call it "Batu-angas," or the Black Rock.

HISTORICAL NOTES ON TERNATE.

The reader of "Paradise Lost" will doubtlessly recall to mind the beautiful passage in which Milton refers to

"The isles
Of Ternate and Tidore, whence merchants bring
Their spicy drugs." *

These "spicy drugs" originally reached the nations of the West by an overland route,—the Malay seamen carrying them to the mainland, whence they were conveyed by the Indian merchants from market to market. A considerable trade was also conducted by the Arabs, who acquired great influence in the Archipelago, and converted the people of Ternate to Mohammedanism. In 1512, however, Francisco Serrano, whose vessel struck on the Turtle Islands when he was returning from Amboyna with the expedition of D'Abreu, induced the natives to assist him in getting her afloat, and to pilot him to Ternate. Thus he was the first European who reached the great centre of the clove-trade; the centre, too, of so many legends of barbaric wealth and Oriental power. Seven years later, the

* "Paradise Lost," book ii., lines 638-640.

fleet of Magellan sailed from Spain for the purpose of reaching the Spice Islands by a *western* passage, which, it was supposed, would be a more direct route than that discovered by Vasco di Gama round the "Cape of Storms,"—our more appropriately named "Cape of Good Hope." He himself reached only the Philippines, where he was murdered by the natives; but his lieutenant accomplished the circumnavigation of the globe, and returned to Spain in 1523. After leaving the Philippines, the Spanish ships touched at Tidore, an island separated from Ternate only by a narrow arm of the sea; and some interesting sketches of the manners and customs of the inhabitants of both islands are furnished by the chronicler of the expedition.

The king, says Pigafetta, may have as many wives as he pleases, but only one of them is regarded as his queen, the others being looked upon as slaves. Without the town was a large house in which lived two hundred of his handsomest women, with two hundred more to wait upon them. The king always ate by himself, or with his queen, on a kind of elevated platform, commanding a view of all his wives, who were seated round him. After he had dined, his wives, if he gave permission, all ate together; otherwise, each dined by herself.

Pigafetta also describes* the mode in which the visitors and the people conducted an exchange of commodities.

A shed having been raised to receive the merchandise, the Spaniards carried thither all they designed to barter, and set some of their men to act as guards. The

* Pigafetta, in Pinkerton, xi. 361-363.

value of the goods to be exchanged for cloves was then estimated; for two yards of red cloth of fine quality a bahar of cloves was to be demanded—a bahar being equal to about four hundred and twelve pounds. They likewise were to have in barter the same quantity of cloves for fifteen yards of inferior cloth, for fifteen axes, or thirty-five glass goblets. At this rate they disposed of all their glass to the king. Moreover, a bahar of cloves was the price given for seventeen cathils of cinnabar, for a similar weight of quicksilver, for twenty-six yards of linen, or twenty-five of a finer quality, for a hundred and fifty pairs of scizzors, or as many knives, for ten yards of Guzerat cloth, for three gongs, or a hundred-weight of copper.

“We should have made great profit of our looking-glasses,” says Pigafetta, “but most of them were broke by the way, and the residue were almost wholly appropriated to himself by the king. We thus carried on a highly advantageous traffic.” No doubt they did; yet the chronicler adds, with a sigh, that it might have been infinitely more lucrative if they had not been so eager to return to Spain! “Besides cloves,” he continues, “we every day laid in a considerable stock of provisions; the Indians constantly repairing to us in their barks, bringing goats, poultry, coconuts, bananas, and other edibles, which they gave us for things of little value. We at the same time laid in a large quantity of an extremely hot water, which after an hour’s exposure to the air becomes very cold.” This would be obtained from a thermal or hot spring, a natural curiosity of which the Moluccas contain several examples.

Throughout the East the Sultans or Kings of Ternate

and Tidore were famous for their magnificence; and stories of their barbaric pomp abound in the narratives of the old voyagers. Sir Francis Drake visited Ternate in 1579, and seems to have been more than usually impressed by the splendid ostentation of its sovereign. "He had a very rich canopy, with embossings of gold, borne over him, and was guarded with twelve lances. From the waist to the ground was all cloth of gold, and that very rich; in the attire of his head were finely wreathed diverse rings of plaited gold, of an inch or more in breadth, which made a fair and princely show, somewhat resembling a crown in form; about his neck he had a chain of perfect gold, the links very great, and one fold double; on his left hand were a diamond, an emerald, a ruby, and a turquoise; on his right hand, in one ring, a big and perfect turquoise, and in another ring many diamonds of a smaller size."

His court consisted of at least a thousand persons, forty of whom were courtiers or councillors; and, besides, there were four grave persons, apparelled all in red down to the ground, and attired on their heads like the Turks; and these, the English were led to understand, were "Romans," and "ligiers" (ambassadors, we suppose) to keep "continual traffic." There were also two Turkish ligiers, and one Italian; but Drake does not say whether they, too, were apparelled all in red. The king, a handsome man, tall of stature, and of graceful manners, looking every inch a king, was guarded by twelve lances, as we have already said; while on the right hand of his chair of state stood a page cooling him with a fan two feet in length and one in breadth, embroidered and adorned with sapphires, and fastened to a staff three feet long, by which it was moved.

In this splendid court, which surely presented the very climax of barbaric pomp, a minute and punctilious ceremonial prevailed; and no one was allowed to address the monarch save with bated breath, and in a kneeling posture. When he visited Drake's ship, the famous *Golden Hind*, which afterwards inspired the muse of Cowley, the same splendid ostentation was observed. The royal equipment consisted of four gorgeous galleys, or "barges," filled with the most illustrious personages of the kingdom. They wore dresses of white muslin, "lawn of cloth of Calicut," loose and long. Over their heads extended a canopy or awning of perfumed mats, supported on a framework of reeds. Divers lords came first, who being of good age and gravity, did make "an ancient and fatherly show." Next to them stood a number of young men similarly attired; and beyond them ranks of warriors, armed with sword, target, and dagger; while the complement of the royal flotilla was made up by the rowers, seated in galleries, "which, being three on a side all along the canvas, did lie off from the side thereof three or four yards, one being orderly builded lower than another, in every of which galleries were the number of fourscore rowers." They paddled in cadence to the clash of cymbals, and moved forward in stately order, the king in the last barge; a very imposing and brilliant spectacle, to which Drake lent the accompaniments of frequent salvoes of artillery and a loud flourish of trumpets.

All this state and bravery, of which no relics now remain, were the result of the immense wealth which the Sultans, both of Ternate and Tidore, accumulated from their monopoly of the spice trade. Ternate, and

the cluster of small islands to the south of it, as far as Batchian, constitute the ancient Moluccas, the Malukhos of the early voyagers, and here alone was the clove-tree cultivated. Nutmegs and mace were imported from New Guinea and the Papuan group, where they grew wild; and the profits realized on spice cargoes were so enormous, that the European traders willingly gave in exchange gold and jewels, and the "finest manufactures of Europe or India."

Christianity was introduced by the Portuguese soon after their settlement at Ternate; and in 1535 the native king embraced the new creed, and repaired to Goa to be christened. Other native rulers followed his example, and Catholicism made rapid progress, until all the Christian converts were massacred by Moslem fanatics, led by one Cantalino—a terrible event, commemorated in Church History as the "Moluccan Vespers." In 1546, Ternate was visited by the great Jesuit missionary, Francis Xavier, who laboured for some months among the various islands; and in his Letters has left on record some interesting particulars both of what he saw and what he did. At Ternate he would appear to have been very successful. He went to work, we are told, with penance and prayer, constant preaching, catechizing, setting the children to sing the Christian creeds, waking up the streets at night with calls to prayer, and fearlessly denouncing sins and sinners. So far as the so-called Christian population was concerned, he wrought a mighty reformation; scandals were removed, old enmities given up, divine service was more regularly attended; and this example had so great an effect on the mind of the natives, that hundreds of them gladly embraced a re-

ligion, the true and earnest preaching of which could effect so great a change.

“I have very good reason,” he writes, “to thank God for the fruits which came of my work. The converts took up the practice of singing hymns in praise of God with so much ardour, that the native boys in the street, the young girls and the women in the houses, the labourers in the fields, the fishermen on the sea, instead of singing licentious and blasphemous songs, were always singing the elements of the Christian doctrine. And as all the songs had been put in the language of the country, they were understood equally well by the newly-made Christians and the heathens.” Of Ternate and its sister-isles he says:—
“All these isles are full of dangers, on account of the feuds which rage among the inhabitants, and their civil wars. The race is barbarous, totally ignorant of letters, devoid of any written monuments of the past, and without any notions of reading or writing. It is their practice to take away the lives of any whom they hate by poison, and in this way a great many are killed. The soil is rugged, and destitute of productions which support life. There is no corn nor wine; the natives scarcely know what fresh meat is; they have no herds nor flocks, nothing but a few swine, which are objects rather of curiosity than of food. Wild boars abound; good water is very rare; rice is plentiful; there are also trees in great numbers from which the natives procure a kind of bread and of wine; and others out of the woven bark of which the clothing which they all use is made.”

Xavier, in continuing his description, alludes to the volcanic character of Ternate. Almost constantly, he

says, throughout its length and breadth, it is shaken by earthquakes, and it sends up flames and ashes. The natives informed him that so great was the violence of the subterranean fire, that the strata of rocks on which a certain town is built were all incandescent. "What they say," he remarks, "seems credible; for it often happens that large red-hot stones, *as big as the largest trees*, are hurled into the air; and when a very strong wind blows, such a quantity of ashes is sent up from the cavities, that the men and women who have been at work in the country return so covered with reek that you can hardly see their eyes or nose or face. You would think they were rather demons than human beings. This is what the natives tell me," adds Xavier, honestly, "for I have not seen it myself."

But we must not linger on these picturesque associations of the Past. In 1578, the Dutch, under Admiral Houtman, first came into these seas; and in 1605, under valiant Stephen van der Hagen, they stormed Ternate and captured it, drove the beaten Portuguese out of the Moluccas, and speedily got into their own hands the monopoly of the spice trade. To increase its profit, they adopted the barbarous policy—for such we must call it, though it has found a defender in Mr. Wallace—of reducing the growth; and for this purpose they bribed the king of Ternate, by the offer of a yearly pension, to allow them to destroy all the clove-trees growing within his territory. For a long time, as Mr. Bickmore tells us, expeditions were annually despatched by the Dutch to search each island anew, and destroy all the trees which had

sprung up from seed planted by birds. All history records no similar example of intense selfishness. Nor has it proved successful. The clove is now cultivated in the West Indies and elsewhere; while, for a considerable number of years, the revenue of the Dutch government in the Moluccas has not equalled its expenditure, and Ternate and Tidore are no longer the centres of a flourishing and lucrative commerce.*

A GLANCE AT TIDORE.

We cannot leave Ternate without at least a passing glance at Tidore, which in the early voyages enjoys almost an equal reputation. Its sultan was then a powerful prince, whose sway extended over Gilolo and other of the Moluccas, and was more or less completely acknowledged by all the islands lying between Tidore and Papua. His capital, on the east coast, was a town

* The following brief but comprehensive sketch of green Ternate—which is truly what the poet would call a

“Summer-isle of Eden lying in dark purple spheres of sea”—

was contributed by Mr. Arthur Adams, the naturalist, to Captain Sir E. Belcher's “Narrative of the Voyage of H.M.S. *Samarang* (1843–1846).” “It resembles,” he says, “a huge green mountain, covered with dense forest, with here and there large patches of tall grass. In some parts, where man has been at work, you will see the durian and limes mixed up with the fantastically-formed stems of the screw-pine; the cocoa-nut tree will be seen towering above the mild nibon (or areca-palm); and the plantains mingling their broad green leaves with the dark feathery foliage of the bamboo. To these the jack and bread-fruit trees form a striking contrast, giving to the stranger a good idea of the splendour of tropical vegetation. Under the united foliage of these valuable trees I noticed more than one member of the parrot family, twisting themselves about the branches in every grotesque and awkward manner they could possibly devise. The black satin grackle was also common among the bamboo thickets. As I wandered along the shore I noticed several woolly-headed papoos busily engaged in collecting coral, and heaping it up in stacks for the purpose of burning it into lime or *chunam*, to be used along with the betel-nut and siri-leaf, the favourite masticatory of the Malays; while numbers of indolent natives sat fishing in small canoes under the shade of gigantic cone-shaped hats, made from the fan-shaped leaves of the palmyra-palm. Down the sides of the mountain ran numerous fresh-water rivulets, abounding in an endless variety of shells; while numbers of aquatic saurians play and skip along the surface, or rest with their bellies on the trunks of prostrate trees that lie across the streamlets.”—*Narrative of H.M.S. Samarang*, i. 133.

of some importance, and surrounded by a wall. His court displayed much of that barbaric magnificence which so astonished Drake and his followers at Ternate. The chronicler of Magellan's expedition describes a visit which he paid to the Spanish vessels.

He came in a "pirogue," or galley, and was met by the Spanish officers in their boats. After an exchange of courtesies on both sides, the latter entered the royal barge, and found the king seated under a parasol of silk, which completely shaded him. Before him stood one of his sons, bearing the royal sceptre; two men, each holding a vase of gold with water to wash his hands; and two others with small gilt boxes containing the indispensable betel-nut. He complimented the Spaniards on their arrival; informing them that long before he had dreamed some ships would arrive at "Malucho" from a distant country, and that to ascertain whether his dream was true he had consulted the moon, by which he knew the vessels would arrive; and, as he had expected, the fulfilment of his dream had come about.

Afterwards he visited the Spanish caravels, and the officers kissed his hand; a proceeding which, we think, must greatly have astonished the island-potentate. They conducted him towards the "hind-castle," or quarter-deck cabin; into which, that he might not be degraded by stooping, he refused to enter except through the opening on the deck. When this difficulty had been conquered, the Spaniards ceremoniously enthroned him in a chair of red velvet, and flung over him a Turkish robe of yellow velvet; while, the more strongly to show their respect, they seated themselves opposite to him on the ground. Here we may observe that the

deference, almost obsequious, with which they treated this ignorant heathen prince, contrasts strongly with the cruelty they displayed in all their dealings with the hapless Indian chiefs of the New World, and with the arrogant contempt of a Pizarro for the descendant of the Peruvian Incas.

The chronicler, continuing his narrative, informs us that the king, when he understood who they were, and the object of their voyage, informed them that he himself and all his people would feel happy in the friendship of the King of Spain, and delight to be considered his vassals; a statement which induces us to fear that the chronicler was not unwilling to indulge in an occasional flight of the imagination, or that he accepted too literally the Oriental hyperbolism of the ruler of Tidore. Further, that he, the king, would receive them in his own island as his own children; that they might come on shore and remain in as much security as on board their ships; and that, as a token of his affection for the king their sovereign, his island should no longer bear the name of Tidore, but be called Castile.

In return for such gracious professions, the Spaniards could not do less than present him with the chair in which he bore himself so royally, and the yellow velvet robe which adorned his person. They gave him also a piece of fine cloth, four yards of scarlet, a vest of rich brocade, a yellow damask cloth, Indian cloths of silk and gold, a "very fine piece of Cambayan chintz," two caps, six strings of beads, twelve knives, three large mirrors, six pair of scissors, a half a dozen of combs, some glass goblets gilt, and other things both "rich and rare." Nor was his son forgotten: he re-

ceived a piece of Indian cloth of silk and gold, a large mirror, two knives, and a cap. Gifts were likewise bestowed with a liberal hand on each of the nine grave personages who attended the king—a piece of silk, a cap, and two knives being presented to each. It is no wonder that the “sovereign majesty” of Tidore was overpowered by the generosity of the Spaniards, and desired them to cease such a shower of offerings, protesting that he had nothing to submit to the King of Spain that was worthy of his acceptance except—himself; a charming stroke of mingled humility and arrogant conceit. He recommended the Spaniards to moor their vessels near the houses; and authorized them, if any of his people attempted to rob them during the night, to fire at them: after which he departed in a state of intense gratification, but careful always not to bend his august head, in spite of the frequent obeisances of the Spaniards. As he went, the ships honoured him with a volley from all their ordnance.

Pigafetta describes his Eastern majesty as a Mohammedan, about forty-five years of age, tolerably well made, and of comely countenance. His dress consisted of a very fine shirt, the sleeves of which were embroidered with gold; loose drapery surrounded his figure from his waist to his feet; his head was covered by a silken veil, over which he wore a garland of flowers. His name was Rajah Sooltaun Manzon, and he was famous for his skill in reading the mysteries of the stars:

“Wandering ’twixt the poles
And heavenly hinges, ’mongst eccentricals,
Centres, concentrics, circles, and epicycles.”

We pass on to the account given by Pigafetta of the

products of the island and the manners of its inhabitants. Of the clove-tree, he says that it grew in five islands only,—Ternate, Tidore, Mutir, Muchian, and Batchian; and he describes it as attaining “a pretty considerable height,” with a trunk about as large as a man’s body, and branches terminating at the summit in a pyramid. Of Tidore he further states that it produced nutmeg-trees, which resemble our walnuts as well in the appearance of the fruit as in the leaves. Ginger also grew there; and the inhabitants ate it in its green state in the same manner as bread. It is not, properly speaking, the produce of a tree, but “of a sort of shrub, which shoots up suckers about a span in length, similar to the shoots of canes; the leaves, too, resembling those of the cane, except in their being more narrow.”

The houses of the islanders were built in the same manner as those of the neighbouring islands, but were not raised so high above the ground, and were surrounded with canes so as to form a hedge.

Pigafetta speaks of the women of Tidore in a very uncomplimentary manner: they were ugly, and they wore as little clothing as was consistent with the vaguest notions of modesty. The men wore less; and far from owning the ugliness of their wives and daughters, showed an extreme jealousy regarding them.

They made their cloths from the bark of trees by soaking the bark in water until thoroughly softened; then beating it with sticks until it stretched to the length and breadth required; after which it resembled a piece of raw silk, with the membrane interlaced beneath as if it had been woven. Their bread they obtained from “the wood” (that is, the pith) of a tree

like the palm (namely, the sago-palm); clearing it from certain black and long thorns, and pounding it.

All the Malucho islands, adds Pigafetta, produce cloves, ginger, sago, rice, cocoa-nuts, figs, bananas, almonds, pomegranates, sugar-canes, melons, cucumbers, pumpkins, a fruit called comilieai (a species of pineapple), guava; besides goats, fowls, and a kind of bee which builds its hive in the trunks of trees: reading which comprehensive summary, the reader may well feel his appetite gently stirred, and come to be of opinion that the Moluccas were the true "Happy Islands" of ancient song and fable!

A TRIP TO BOURU.

It is but right that the East, like the West, should have its Fountain of Youth, though in the East no Ponce de Leon has spent years of pain and suffering in seeking after it. What an enchanting vision it is! A crystal spring, in the bright waters of which let but the aged bathe, and, like Æson in Medea's caldron, they leave behind them all their physical infirmitics, and all the furrows and wrinkles of mind and heart as well as of body! To such a source of new life and motion an old Mohammedan tradition refers, which Moore has immortalized in "Lalla Rookh," delighting men's minds with the dream of

"Youth's radiant fountain,
Springing in some desolate mountain."

And Bouru would seem to be the birthplace of the legend; for its natives tell of a pool or lake lying among the lonely hills—far away in the middle of the isle—on the green shores of which thrives a wondrous

plant, gifted with the property of restoring the youth of any person who holds it in his hand, even though his locks should be white with the snows of many winters, and his hand palsied with the weakness of old age.

We shall now visit Bouru ; not, indeed, for the sake of its marvellous fountain or lake, which no European has ever seen, but for objects not less curious or interesting. It is a bright green island, rich in vegetation, rich in romantic landscapes, rich in beautiful birds ; and it offers a wide and varied field of investigation to the lover of Nature.

It lies to the west of Ceram and the south of Gilolo : an oval island, with its major axis east and west ; a large island—in fact, the third largest of the Moluccas—measuring ninety-two miles in length by fifty-eight miles in breadth. Unlike its sister-islands, its shores are not broken up by gulfs or inlets, but run with a regular and almost perfect line, except at the north-west, where a bold and ample curve encloses the beautiful bay of Kayéli (or Cajeli).

Two lofty headlands, three or four miles apart, guard the entrance to this bay, which lies open to the north-east. Within these headlands the shore rapidly decreases in elevation, until on the south-west it forms an extensive morass. The total length of the bay is about seven miles. On the low southern strand is situated the Dutch port of Kayéli.

Through the morass of which we have spoken flows a considerable stream, deep enough for a large canoe to navigate it some sixty or seventy miles from its mouth. Its banks are fringed with a dense forest, the branches of which meet together so as to form a series

of leafy arcades, traversed by sluggish streams. Here gather kingfishers of gorgeous plumage; and ever and anon from the lower boughs they dart downwards with arrowy speed to secure their prey in the still waters beneath. It is pleasant in the glare of a tropical noon to seek these delightful haunts, where wood and water combine to afford a luxurious coolness; and to glide along each shady canal as it tracks its winding course for miles through a maze of profuse and brilliant vegetation. At the mouth of the river, to which the various streams converge, lie long shallow banks of sand: these are exposed at low tide, and accumulate the uprooted trees and broken boughs carried down by the force of the water. Here, too, when the tide begins to flow, assemble winged battalions of gulls, plovers, sandpipers, and curlews, making the echoes hideous with their discordant cries, and rising when alarmed with such a mass of wings as to form a thick, dark cloud.

The naturalist will find abundant material for study in the neighbouring forest. In the early morning flocks of bright red lories and other parrakeets, with blue heads, red and green breasts, and the under surface of the wings coloured a warm and brilliant yellow, arrive to feed on the nectared sweets of the blossoms or on the insect life that swarms in every direction. Then what a din arises! How the leafy glades resound with the loud, incessant screeching and chattering, as if some Babel of the Bird World had suddenly been overthrown, and a "dispersion of tongues" had thereupon taken place! It is a charming sight to see the great trees, in all their fulness of bloom and foliage, shining with the brightly-coloured plumage of

these handsome birds ; and it is a source of constant interest to watch their movements as they flutter from bough to bough, or hover above the honied flowers, or dart across the chequered sward:—

“ Gay, sparkling lories, such as gleam between
The crimson flowers of the coral-tree,
In the warm isles of India’s sunny sea.”

When the dusk Twilight drops her shadowy veil over the wooded scene, the huge bats come forth in pairs, and sail to and fro on lazy flapping wings in quest of the fruit which constitutes their daily food. These are the “flying foxes” of the Dutch, with wings which measure four feet and a half from tip to tip—eëry creatures, which, as they hang by the claws of their hind limbs to the branches, might well be mistaken for monsters of the antediluvian world.

Sometimes the only cleared way through the forest-depths is the stony bed of a torrent, and the traveller makes his way up the summer-dry channel towards the mountains, or down it towards the sea. One such is described by Mr. Bickmore. It is not paved, indeed, with blocks all carefully cut down to one precise model, and so exactly uniform as to be absolutely painful to the eye, like the granite highway of a great city ; but Nature herself has paved it in her own inimitable fashion. Observe how every stone has been rounded by the boiling torrent which pours down from the heights in the rainy season. Some are almost perfect ellipsoids or spheres ; but most are disc-shaped, because made from their slaty fragments that had sharp corners when first loosened from their parent mountains. And, always averse to a dull

monotony of colour, Nature has scattered here and there "rounded boulders of opaque milk-white quartz," broken off or torn away from beds of that rock which are frequently interstratified with the slate. Here and there occur deeper places, where we can see that the troubled stream was wont to rest, and, as it were, recover its strength, before it again burst forth in a flood of waters to pursue its course to the "multitudinous sea." *

One of the commonest plants of the forest is the red pepper, which furnishes the Malays with an indispensable condiment. There is scarcely a dish in use among them to which they do not apply this pungent seasoning. The red pepper thrives everywhere, and requires no cultivation. The Malays gather its fruit when it assumes a bright pink colour, which is an unmistakable sign of its ripeness. The Malay name is *lombok*, but the Javanese *chubé* is more frequently on the lips of the people. †

Tobacco is largely grown in Bouru. Its cultivators clear a patch of forest about an acre in extent, and here, between the blackened stumps of the trees, which have been destroyed by fire, they sow the seed. As soon as the leaves are fully grown they are plucked off, and the petiole, or foot-stalk, and a part of the midrib are cut away. Each leaf is then cut transversely into slips about a sixteenth of an inch in width, and these are dried in the sun until they come to look like "a bunch of oakum."

The tobacco-plant, according to Mr. Crawford, was introduced into Java in the year 1601, † probably by

* Bickmore, "Travels in the Eastern Archipelago," p. 262.

† That is, fifteen years after its introduction into England.

the Portuguese, and has now spread into almost every island in the Archipelago.

In the forest we also meet with the jati, or teak-tree, but it does not here attain to the colossal stature which it reaches in Java. It is seldom found to exceed twelve or fifteen inches in diameter, and forty feet in height; dimensions which, in Java, it acquires in twenty-five or thirty years, though it does not mature in less than a century.

The teak is much frequented by flocks of large green parrots, which love to feed on its ripened fruit. These birds are so wary that it is not easy to approach them, especially as the large dry leaves of the teak-tree cover the ground, and continually crack and rustle beneath the hunter's tread with that sharp, crisp sound so familiar to the dweller in woods. "To see these magnificent birds," says Bickmore, "flying back and forth in the highest glee, while they remain unconscious of danger, is a grand sight; and it seems little less than absolute wickedness to shoot one, even when it is to be made the subject, not of idle gazing, but of careful study; and it requires still greater resolution to put an end to one's admiration and pull the fatal trigger. When one of these birds has been wounded, its mate, and sometimes the whole flock, hearing its cries, at once comes back, as if hoping to relieve its misery."

Among the kanary-trees flutter flocks of cream-coloured doves, beautiful enough to draw the car of Juno, or to receive the caresses of some island-Lesbia. The long-tailed doves frequent the boughs of the lower trees; and in the bamboo clumps may be seen the robin-like tropidorynchus, a bird of merry note;

the nimble flycatcher; and the splendid *Monarcha loricata*, a slender bird about as large as a martin, of a blue above and a pure silvery white beneath, except on the throat, which gleams with scale-like feathers of a rich metallic blue-black. This handsome member of the feathered tribe is peculiar to Bouru.

NATIVES OF BOURU.

We turn now to the human population of this "summer-isle of Eden." The aborigines, or Alfoories, resemble the Malays in stature and general appearance, but their skin is darker, and their hair is "frizzly;" neither lank, like that of the Malays, nor woolly, like that of the Papuans. In the interior they exhibit an extraordinary ignorance of the comforts and luxuries of civilization. Mr. Wallace informs us that many of those he met with in his excursions across the island had never seen a pin; and the better-informed, few in number, took a pride in teaching their less fortunate companions the peculiarities and uses of that strange European production, a needle *with* a head and *without* an eye! Even paper was a curiosity; and they might be seen picking up the scraps which Mr. Wallace had scattered, and carefully treasuring them up in their betel-pouch. Such articles as tea-pots, tea-cups, and tea-spoons were a source of constant inquiry and admiration; and to most of them the properties of tea, sugar, biscuit, and butter were unknown, at least in the European form. Thus: one would ask if that "whitish powder" were *gula passir* (sand-sugar), so called to distinguish it from the coarse lump palm-sugar or molasses produced by the native sugar-makers; and another would speak

of the biscuit as a kind of imitation sago-cake, which the benighted inhabitants of Europe were compelled to use for want of the genuine article! In fact, the Bournese were as completely unacquainted with civilized life as the Indians of the Rocky Mountains, or the savages of Central Africa,—though a steamship, “that highest triumph of human ingenuity, with its little floating epitome of European civilization,” touches monthly at Kayéli; while at Amboyna, which is not above sixty miles distant, a European population and government have been established for upwards of three centuries!*

The houses of the Alfoories, as might be expected from this almost pathetic account of their ignorance of the comforts of civilized life, are wretched hovels; consisting of little more than a roof of palm-leaves supported upon four poles, with a kind of platform raised a foot or two above the ground, on which its inmates sit, and take their meals, and sleep. Except for the abundant provision made by a bounteous Nature, and but for the fact that they are free men, the life of the Bournese would appear to be sufficiently miserable. Yet their condition has of late years improved. They are divided into *fennas*, or tribes, each with its proper chief; but instead of recognizing the advantages of association, and living together in villages, they are scattered over the interior like the shepherds of the Scottish Highlands. Some of the chiefs are independent, others acknowledge the superiority of the Mohammedan “regents” (as the Dutch call them), or rajahs of Kayéli. Formerly each tribe was compelled to send one young maiden annu-

* Wallace, “Malay Archipelago,” il. 77.

ally to its "regent" for a bride; but from this degrading exaction the natives have been relieved by the Dutch. At one time, too, they were compelled to pay their regent a certain amount of rice and sago, and provide men to row his prahu, or carry his chair if he proceeded by land; but from this onerous service they have also been released, and it has devolved upon the Malay villagers. In regard to marriage, each man buys his wife for a price which is regulated by the rank of her father; but he is not required, as is the cruel custom among the Alfoories of Ceram, to cut off a human head before he can marry. Instead, therefore, of being bloodthirsty and ferocious "head-hunters," they are a mild, peaceable, pastoral people. According to Mr. Miller, they believe in one Supreme Being, who created all things, and is the fountain both of good and evil. They believe also in malignant spirits. Prayer, they think, results in prosperity; adversity is the natural consequence of the neglect of so solemn a duty. Through the Supreme Being's infinite love of man, He was induced to send him a teacher, Nabiata, who dwelt among the mountains, and delivered the will of his Divine Master in seven commandments:—

" 1. Thou shalt not kill nor wound.

" 2. Thou shalt not steal.

" 3. Thou shalt not commit adultery.

" 4. Thou shalt not set thyself up against thy *fenna*.

" 5. A man shall not set himself up against the chief of his tribe.

" 6. A chief shall not set himself up against him that is over his or other tribes.

" 7. The chief over more than one tribe shall not

set himself up against him who is placed over all the tribes."

Nabiata also taught that though the body perishes, the soul will live for ever; that those who keep the foregoing commandments (and all the acts of men are registered by the Supreme Being) shall dwell in His presence far above the firmament; while those who act wickedly shall never rise to the abode of the happy, nor shall they remain on earth, but for ever and ever, lonely and in sorrow, wander among the clouds, yearning with a yearning never to be gratified to join their brethren in the heaven above or on the earth beneath.

Nabiata also instituted circumcision, which was performed on children of both sexes when they attained the age of eight or ten years.

The introduction of this rite, and the general tenor of the Bournese faith, would seem to show that Nabiata was a Mohammedan teacher; but when or how he arrived in Bouru it is impossible to ascertain, and useless to conjecture.

The rajahs and inhabitants of Kayéli are Mohammedans, after the Arab pattern. We glean from Mr. Bickmore's pages a few details of some of their peculiar customs. A ceremony of no little importance is the shaving of a child's head, which takes place on the first birthday, or thereabouts, and has a religious significance. The rite begins by the priest's repetition of a prayer in a slow, monotonous, nasal chant, which at times swells into a chorus through the accession of other voices. This being ended, a servant brings in the child, followed by another servant carrying a large plate partly filled with water, in which may be

observed two parts of the blossom of a cocoa-nut palm, a razor, and a pair of shears. The chief priest dips his fingers in the water, places them on the head of the wondering infant, and clips off a lock of hair with the large shears. The lock of hair is then thrown into the water, along with a piece of money ; the example, so far as the money is concerned, being followed by every person present. Tea and small rice-cakes are afterwards handed round, and the ceremony is concluded.

When the child reaches the age of eight or nine, it is subjected to the painful and disfiguring operation of filing the teeth. Neither sex is exempt from the custom, nor any class of the population. It is done with a flat stone, a fragment of slate, or even a piece of bamboo; the object being to make the teeth short, and the front ones concave on the outer side, so as to contain the abominable black dye that renders a native's mouth nauseous as a charnel! But the old adage, *De gustibus non disputandum*, holds good in Bouru as elsewhere. The Mohammedans are proud of their filed and blackened teeth, and make it a favourite reproach against the Christian natives, who do not adopt the custom, that their teeth are as the teeth of dogs, because they are so white and so long.

A Mohammedan marriage is attended with no inconsiderable display; and the reader may be willing to accompany us to a spectacle marked by features so strange to the eye of a European. We set out on foot to the house of the happy bridegroom; for in the islands of the East, as in those of the West, all bridegrooms are reputed "happy." It is dusk, and the verandah and the adjoining lane are brilliantly illuminated by large Chinese lanterns.

After paying our respects to the bridegroom, we visit the house where the bride awaits his coming. The piazza, which is embellished with trailing bud and blossom, opens into a large room, while on one side of it a red curtain partly conceals the entrance to another but smaller apartment, in which the veiled beauty is tranquilly seated. Into this, however, none but lady guests may enter; and we content ourselves with passing into the larger room, where the tables are burdened with confections and delicacies, mostly the product of the art of Chinese cooks. Taking a seat, we accept the cup of boiling tea presented to us, and as we sip it take note of the assembled guests. A table in the opposite corner is surrounded with Malay ladies. At first it is covered, like the rest, with sweetmeats, but room is soon found for the indispensable siri-box; a liberal portion of lime, pepper-leaf, and betel-nut is handed to each; and, further to assist in the discomfiture of the European visitors, an urn-shaped spittoon makes its appearance, and is passed from one to another when wanted.

And now our attention is arrested by a shrill piping down the street. Everybody abandons the sweetmeats and the siri-box, and hastens into the verandah to watch the coming procession. First, the soft light of wax tapers borne by gaily-dressed boys attracts our eager gaze; then a similar cortége brings up the presents which bride and bridegroom have received. The bridegroom follows, supported by his friends, and surrounded by tiers of candles arranged on a rude triangular framework. Very brilliant he looks in his Malay garb of bright red, with a gilded chain suspended from his neck. On some occasions the old theory of marriage,

that the bride must be won by the strong hand, is carried out; but to-day the women make way for the conquering hero, and allow him to enter the bridal-chamber as quickly as possible. You and we, reader, as the only white persons present, may enter with him.

On one side of the room stands a small table covered with a red cloth, and upon it are two gigantic red wax-candles. The bride sits behind it, attired in a scarlet dress,—red of some shade or other being the predominant colour in all the arrangements,—and with a cloud of delicate lace falling over her face and shoulders. The bridegroom approaches; she rises slowly. Placing the palms of his hands together, *he* bows thrice with great gravity and deference. *She* salutes him in the same manner, except that she does not raise her hands. And now the critical moment has arrived. She remains standing, tremulous yet seemingly tranquil, while he steps forward and pulls at the pins that hold fast the veil which screens her charms from his ardent gaze. Naturally, he shows some awkwardness in the operation, but a couple of the attendant maidens assist him, and by degrees the countenance of the bride is revealed. He then passes round the table, and both sit down together, while the guests look on with a feeling of lethargic contentment, until the time comes for the “happy pair” to be left alone.

OPIUM-SMOKING.

Another but less pleasing sight in Bouru, at once more novel and more disgusting to the European, is that of an opium-smoker in the enjoyment of his deadly luxury.

Of opium itself it is needless to say much. We con-

clude that everybody knows what it is—the thickened juice obtained from the capsule of the white poppy; and what are its effects, when it is consumed regularly and in considerable quantities—emaciation, mental decay, death. Its Malay name is *copyun*, which is derived evidently from the Arabic *afyun*, and thus indicates the channel through which it was introduced into the Archipelago. But, as Crawford remarks,* though the islanders may have been taught the use, or abuse, of it by the Arabs, their present extensive and pernicious consumption of it must be ascribed to the commerce of the Europeans, and to the debauching influence of Chinese manners and example. It is now imported from Hindustan, and the poppy is cultivated nowhere in the Archipelago. It comes in balls or cakes, usually about five or six inches in diameter; soft, and of a reddish-brown colour, but growing harder and blacker the longer it is kept. Its odour is pungent and disagreeable; its taste acrid, nauseous, and persistent. The method of preparing it for use is as follows: †—

First, the raw opium is boiled or seethed in a copper vessel, until it assumes the viscosity of tar. Then it is strained through a cloth to free it from impurities, and a second time boiled. The leaf of the *tambaka*, or siri, shred fine, is mixed with it, in a quantity sufficient to absorb the whole; and afterwards it is made up into small pills about the size of a pea for smoking. One of these being placed in a small tube that projects from the bowl of the opium pipe, the tube is applied to a lamp; and the pill being lighted, the smoke which it throws off is inhaled with one or two long breaths,

* Crawford, "History of the Indian Archipelago," 1. 105.

† Marsden, "Sumatra," pp. 277, 278.

attended with a whistling noise. This preparation of the opium is sometimes called *mandat*, and not infrequently it is adulterated in the process—*jaggari*, or pine sugar, being mixed with it, just as the fruit of the *pisang*, or plantain, is often mixed with the raw drug.

The immediate effect of opium-smoking is to produce a state of dreamy passiveness, a kind of lethargy, which absorbs and possesses the individual both in mind and body. Its after-effects are much more serious; and the worst of it is, that when once the habit has been contracted, reform is almost impossible. Therefore it is no uncommon occurrence to meet with men in the prime of life whom this fatal vice has reduced to living skeletons; men with lack-lustre eyes, palsied limbs, and shattered nerves, incapable of action, of continuous thought, hope, energy, or aspiration.

THE NATURALIST IN BOURU.

Before we take our leave of Bouru, we must direct the attention of the student of natural history to some objects of interest connected with his special pursuits. He will probably remember Southey's picturesque description of a garden beneath the sea, of the sub-aqueous region which Nature has planted with living forms of grace and beauty that rival those of the flowers and foliage of earth :*—

“ It was a garden still beyond all price,
 Even yet it was a place of Paradise.....
 And here were coral bowers,
 And grots of madrepores,
 And banks of sponge, as soft and fair to eye
 As e'er was mossy bed
 Whereon the wood-nymphs lie
 With languid limbs in summer's sultry hours.

* Southey, “Curse of Kehama,” xvi. § 5.

Here, too, were *living flowers*
 Which, like a bud compacted,
 Their purple cups contracted,
 And now in open blossom spread,
 Stretched like green anthers many a seeking head.
 And arborets of jointed stone were there,
 And plants of fibre fine, as silkworm's thread;
 Yea, beautiful as mermaid's golden hair
 Upon the waves dispread.
 Others that, like the broad banana growing,
 Raised their long wrinkled leaves of purple hue,
 Like streamers wide outflowing."

Off the coral reef that fringes the eastern coast of Kayéli Bay, the bright clear waters reveal even fairer scenes than the poet has so accurately painted in this



MEANDRINA, OR "BRAIN CORAL."

glowing passage; and similar scenes are common in the seas of the Eastern Archipelago. Observe the wonderful ramifications of the Meandrinas, or "brain corals,"

whose surface, when the soft polyps are removed, is found to be traced all over with fissures and slight ridges presenting a marvellous resemblance to the convolutions of the human brain. Other corals there are which mimic the appearance of a tangled forest, extend-



CORAL.

ing their branches in a hundred different directions ; others which seem to expand into rosy blossoms on the summit of strangely twisted stems. Others again, which do not attach themselves to their neighbours ; are circular, as seen from above, but have horizontal under surfaces, while their upper sides are slightly convex. Remove the

soft living pulp, and numerous radiating partitions are seen, so that the whole may be likened to a gigantic mushroom reversed; and hence the family of Actinozoa to which these strange forms belong has been aptly designated *Fungidæ*. Scattered among the stony corals are many *Gorgonias*. Some may be compared to broad sheets of foliage, and resemble the beautiful “sea fans” which inhabit the tropical waters of the West Indies. Others, says Mr. Bickmore, whose description we are closely following,* may be likened to hurdles of ratans; and when the soft polyps are taken off, discover a black horn-like axis-stem or rod. Others, when collected and dried, look like limbs cut from a small spruce-tree after it has faded and thrown off hundreds of its small acicular leaves.

Numbers of sponges are also seen, mostly of a spherical form, and provided with complex ramifying ducts or tubes that display a wonderful ingenuity of contrivance. But our space would not suffice us to particularize all these

“Trees of the deep, and shrubs, and fruits, and flowers;”

or the beautiful *Medusadæ* that float and hover above and among them; or the radiant fishes which dart through the coral bowers like flashes of rainbow-light; or all the marvels of form and colour that glitter in the ocean-world, and testify to the infinite resources and exuberant wealth of Nature. “The most accurate description possible,” says Bickmore, “must fail to convey any proper idea of the beauty and richness of these gardens beneath the sea, because, in reading or hearing a description, the various forms that are dis-

* Bickmore, “Travels in the Eastern Archipelago,” pp. 285–287.

tinctly seen at a single glance have to be mentioned one after another, and thus they pass along in a series or line before our mental vision, instead of being grouped into circular areas, where the charm consists not so much in the wonderful perfection of a few separate parts, as in the *harmonious relations*, or, as



CYANEA (MEDUSA).

architects say, the effect of the whole. The pleasure of viewing coral reefs never becomes wearisome, because the grouping is always new. No two places are just alike beneath all the wide sea; and no one can fail to be thrilled with pleasure, when, after a few strong strokes of the oars, his canoe is left to glide on by its own momentum, and the coral gardens pass in review

below with a magical effect like a panorama." This, however, is true of Nature generally, and is the reason why its study furnishes such an inexhaustible source of pleasure, of new emotions, new ideas, fresh suggestions, and constantly changing fancies. Not only does Nature never repeat herself, but she never wears the same aspect for any length of time. A passing cloud, a burst of sunshine, a rising mist, the dawn of day, the gathering in of the twilight,—each produces a different effect, and the landscape varies in tone and colour even while we gaze upon it. No two leaves upon the same stalk, no two buds on the same rose, are exactly alike; and hence the interest with which the student of Nature pursues his investigations knows no diminution, because satiety is impossible, and the mind is continually refreshed by the excitement that springs from novelty.

The "mound-building" birds, or Megapodidæ, which we have described in a previous chapter, are not uncommon in Bouru. The splendid "prince parrot," or *castori rajah*, may also be met with; and kingfishers and pigeons, with resplendent plumage, relieve the gloom of the monotonous forests. Insect life is very abundant; and the wit of man is continually on the alert to baffle the ravaging propensities of the ants, which, whether white or black, are equally pertinacious and equally destructive. They are a constant vexation and annoyance to both native and visitor. Nothing is safe from their inroads, and they possess a disagreeable faculty of making their appearance in localities where least expected and least welcome. Wood cannot stop them; they eat it up with remorseless powers of absorption, and force their way through

stout timber partitions as if these had been built of straw. Bread, and sugar, and everything eatable they will speedily consume, unless kept in glass-stoppered bottles; they insinuate into every nook and corner; search out every chink and cranny; and almost the only effectual barrier against them is glass or tar.

There are few mammals in Bouru—chiefly the deer and the deer-hog, or babyroussa—so that, having exhausted most of its interesting features, we may now take leave of its woods and streams, and hasten to other regions. The question may reasonably be put,—Whither shall we betake ourselves? Where shall we go? We have wandered among the valleys of Gilolo and the forests of Ceram; we have watched the birds of paradise in the groves of Batchian; we have ascended the wood-girdled volcanic peak of Ternate; the Moluccas have little else to tempt us, little that we have not seen. A group of islets lying off Ternate and Tidore might, indeed, detain us for a “flying visit,” for Marel and Motir and Makian belong to the great volcanic belt of the Archipelago.

Marel and Motir are not volcanoes, but volcanic islands. Both of them appear to be of comparatively recent origin, having been upraised in one of the great convulsions which, in the Quaternary period, shook the foundations of this part of the world. Their coasts are singularly picturesque, being surrounded by fringing reefs of coral, with beaches of “shining, white coral sand.” The island of Makian we have already described, and here we need say no more than that it is neither more nor less than a grand volcanic peak rising out of

the dark blue waters, abrupt and sheer, like a natural pyramid.

We shall now proceed to New Guinea, first visiting the *Matabello Islands*, a small but interesting group; and the *Aru Islands*, which are famous for their birds of paradise, and the inhabitants of which carry on a pearl-fishery of some importance.

CHAPTER IV.

THE MATABELLO AND ARU ISLANDS.

THE MATABELLO GROUP.



THE Matabello Islands lie about half-way between Ceram and New Guinea,—to the south-east of the former, and the south-west of the latter,—and, along with Goram, may virtually be included in the Banda Archipelago. Most of them are composed of coral reefs, raised from three to four hundred feet; and the principal feature of their vegetation is the cocoa-nut palm. Along with it, on the principal island, grows also the areca, or betel-nut palm, the nuts of which, as already described, are sliced, dried, and ground into a paste for the use of the betel-chewing Malays and Papuans.

The natives of Matabello are almost entirely occupied in making cocoa-nut oil, which they sell to the Bugis and Goram traders; and these dispose of it in Banda and Amboyna. Their chief sources of nourishment are cocoa-nuts, sweet potatoes, and sago, for the islands are not dowered with the abundance which is popularly supposed to prevail everywhere in the Tropics. Their villages, according to Mr. Wallace, are planted on high and rugged coral peaks, accessible

only by steep, narrow paths, which are carried over yawning chasms by ladders and bridges of the rudest description. They are filthy with rotten husks and oily refuse, and the huts of which they consist are lamentably dark, greasy, and dirty. They are not unworthy, however, of their tenants, of whom the same traveller gives a most unfavourable account. "The people," he says, "are wretched, ugly, dirty savages, clothed in unchanged rags, and living in the most miserable manner; and as every drop of fresh water has to be brought up from the beach, washing is never thought of." Yet this filthiness is not due to poverty; on the contrary, they are comparatively rich. Almost all of the women wear ear-rings of massive gold; and the chief men of each village parade in flowing robes of silk and flowered satin. What a contrast, remarks our traveller, between these people and such savages as the Hill Dyaks in Borneo, or the Indians of the Uapes in South America, living on the banks of clear streams, cleanly and decent in their persons and houses, living on plentiful and wholesome food, and exhibiting the effects of cleanliness and abundance in their healthy skins, well-made forms, and handsome features! The difference is almost as great between the various races of savage as of civilized peoples; and we may even venture to assert that the better specimens of the former are superior to the lower examples of the latter class.

Goram is more fortunate than Matabello, for it is brightened and refreshed by numerous small streams. Its vegetation is more varied and abundant, and the same may be said of its animal life; but neither presents any peculiarities to call for detailed notice. Its

inhabitants are an active and enterprising race of traders, who, in prahus made by the Ké Islanders—the “Ratseys” and “Fyfes” of the Archipelago—voyage to Tidore and Ternate, Banda and Amboyna, the Aru Islands, and the whole north-western coast of New Guinea, just as their ancestors did, centuries ago, before a European keel had ploughed the Eastern waters. They are called upon to endure much hardship and many dangers; running not only the risks of shipwreck and famine, but of murder by the treacherous and ferocious Papuans. They trade chiefly in trepang (the “sea-cucumber”), the medicinal mussoi bark, wild nutmegs, and tortoise-shell.

THE ARU GROUP.

A glance at the map will show the reader a group of small islands lying to the south of New Guinea, in the shallow waters which indicate the vicinity of the great Australian island-continent. It is difficult, in looking at them, to resist the conviction that one large island has, at some time or other, been rent into fragments by an internal explosion; they are situated so closely together, and resemble each other so exactly in their physical characteristics and general aspect. The true explanation of this singularity, however, is, undoubtedly, that they once formed a portion of New Guinea, and that their separation is due to the subsidence of the land which formerly connected them with it.

The Aru group consists of one considerable central island, surrounded by a number of smaller ones, or islets. The central island is called by the natives

and traders "Tanabusar" (mainland); is of an irregular oblong form, measuring about eighty miles from north to south, and forty or fifty from east to west. A curious feature of its physical condition is the existence of three narrow channels, or arms of the sea, which traverse it in the latter direction, and break it up into four portions. These channels are called "rivers" by the traders; and rivers they are, from a physical point of view, as the following description shows:—

The northern channel, or river of Watelai, measures about a quarter of a mile across at its western entrance, then narrows to about half that width, and broadens again at its eastern mouth. Its course of fifty miles is moderately winding; its banks are generally dry, often elevated, and in some places rise into low cliffs of coralline limestone, more or less worn by the action of water. Its depth is very regular, averaging from ten to fifteen fathoms; and thus it has all the signs of a true river, except that it has no current, and that its channel is filled with sea-water. The other two rivers—Vorkai and Muykor—resemble it in general character, but are somewhat larger, lie nearer together, and are connected by a number of cross channels, like the delta of the Po.

Now, how shall we account for these unusual physical features? At first, it might be thought that they were the result of the violent and irregular upheaval of the island at some not very distant date; but such an explanation would hardly account for the close resemblance of the three channels. Had the island been thus divided during the process of elevation, surely the streams, by the action of the tides and other

causes, would have been made to differ greatly in width and depth, and would never have assumed the character of true rivers. May we not more reasonably accept the theory to which we have previously referred—that the island was a portion of New Guinea? In that case, the three straits, or canals, will have been what they are still locally termed, “rivers,” having their sources in the mountain-districts of New Guinea, and flowing thence in an easterly direction across the level plain, which has since sunk some fifty fathoms below the sea.

This supposition is confirmed not only by geological indications, but by the correspondence between the fauna of New Guinea and that of Aru. Most of the land-birds found in the latter are found also in the former; and these include the great wingless cassowary and the heavy brush turkey, which certainly could not have crossed the fifty leagues of sea now intervening between the two lands.

Tanabusar is not a hilly island, but most of its surface is dry and rocky, rising frequently into abrupt hillocks, and intersected in various directions by steep and narrow ravines. Though not a hilly island, and nowhere attaining a greater elevation than two hundred feet, it has but little level ground, and that little mainly consists of “patches of swamp” at the mouths of most of the small rivers. The small islands surrounding Tanabusar are very numerous; but the majority lie on the east side. On the west there are very few—Wamma and Pulo Babi being the chief, with Ougia and Wassia at the north-west extremity. On the east the sea is everywhere shallow, and coral reefs and banks form a complete labyrinth, to the utter confusion of the navi-

gator. Here are found the pearl-oysters, which form the object, as we have said, of an extensive fishery.

All the islands lie in the shadow of an immense forest; a forest, moreover, which, owing to the absence of blossoms, wears a perennial aspect of gloom. How great a contrast between its dark and dreary avenues, relieved only by a few Convolvulacæ, or, in its deepest recesses, by some scarlet and purple Zingiberacæ, and our own fair English woods, with their masses of chestnut bloom, their bright clumps of hawthorn, their balmy honeysuckles, and the myriads of flowers which star their verdant sward! It is true that they fill the eye with majestic forms,—with the noble cycad, the lofty screw-pine, and the towering palm; but are these superior in majesty or grace to the stalwart oak, the drooping ash, to

“ Broad-leaved plane-trees in long colonnades,”

the beautiful pillar-like beech, or the lady birch? No; the two great characteristics of the tropical forest are its variety and its luxuriance. In the multiplicity of its forms, in their fantastic diversity, and in their marvellous luxuriance of growth, it as much excels the forest of the temperate regions, as the latter excels it in wealth of fragrance and brilliancy of colour.

SOMETHING MORE ABOUT BIRDS OF PARADISE.

The forests of Aru have, however, *one* element of beauty which our English or Scottish woods cannot pretend to rival. They are the haunt of birds of the most splendid plumage. It may very well be that their glowing hues shine all the more gloriously, and produce all the deeper impression, from the monotony of verdure,

the sombre green, that everywhere surrounds them. But in any circumstances, and under any conditions, these richly-attired denizens of the Bird World, these gorgeous magnates, and sultans and sultanas, of the feathered tribe, could not fail to inspire the observer with a boundless admiration.

Here is a small bird,—not so big as a garden-thrush,—yet Nature has seemingly lavished upon it her brightest and most enchanting hues. The prevailing colour of its plumage is of an intense cinnabar red, glossed over with a lustre like that of spun glass. The bill is of a brownish yellow, shading into rich orange. Velvet-like plumes encircle the base as well as the fore part of the head, the throat and upper portion of the breast glow with a deep purple-red, separated by a broad gold-green zone from the lower portion, which is of a soft, shining, silky white. Beneath the wings on either side is a set of dusky brown feathers, tipped with the richest golden green imaginable, each tip separated from the brown by a line of white. The quill-feathers are of a bright orange beneath; a spot of metallic green lies, like a jewel, above each eye; the feet and legs gleam with a brilliant cobalt blue.

It may well be said, that merely in arrangement of colours and texture of plumage this bird is a wonder and a thing of beauty; but there is something yet to be described, before the full charm of its appearance can be realized.

Springing from each side of the breast, those tufts of dusky brown feathers, emerald tipped, of which we have spoken, can be elevated at the will of the bird, and spread out into a pair of elegant fans.

Further: the two middle feathers of the tail are

fully five inches long, and form a pair of naked shafts or slender wires, each terminating in a graceful divergent curve, coloured by a fine metallic green; the general effect being that of a pair of elegant glittering spiral buttons, hanging five inches below the body, and the same distance apart. These two ornaments, as Mr. Wallace remarks,—the breast fans and the spiral tipped tail wires,—are altogether unique, not occurring on any other species of the eight thousand different birds that are known to exist upon earth; and, combined with the most exquisite beauty of plumage, render the creature we have been describing one of "the most perfectly lovely of the many lovely productions of Nature." Justly is it called the "Burong Raja,"—the Royal or King Bird of Paradise;* and we may be allowed to conjecture that no more beautiful member of the feathered tribes inhabited the happy groves of Eden!

It is strange that a creature of such exquisite grace and loveliness should be doomed to live out its little life in the sequestered recesses of an island-forest,—an island-forest far away in the bosom of a rarely-visited sea,—seldom beheld by eye of man, still more seldom by the eye of intelligent and cultivated man. To use an expressive phrase, this seems like "a waste of beauty." The lesson it teaches is, that we must not too readily conclude that everything has been created for the use or delight of man, and that the Divine power and wisdom are not to be limited and defined by earthly or human considerations. May we not be allowed to suppose that He who saw that all things were good has been pleased to fill the earth with grace and graciousness for the satisfaction of his own infinite intelligence?

* *Paradisæa regia.*

The king-bird, it is said, associates with no other birds of the same genus, but is a solitary bird, of active habits, frequenting shrubs and bushes, and feeding on fruits and berries, particularly on those of a red colour.

For generations the beautiful *Paradiseidæ* were unknown to Europeans, and great was the astonishment and admiration of the early voyagers when, on reaching the Moluccas in search of rare and precious spices, they were presented with the skins of those wonderful birds. The Malay traders gave them the name of *Manuk dewata*, or "God's birds;" and the Portuguese, finding all the specimens they obtained to be without feet or wings, called them *Passares de Sol*, or "Birds of the Sun,"—a designation not inappropriate, but afterwards superseded by the Latin name, *Aves Paradisei*, or "Birds of Paradise."

Pigafetta, the historian of Magellan's expedition, describes two beautiful dead birds which the king of Batchian gave him as a present for the king of Spain. "They were of the size of a thrush," he says, "with a small head, long beak, legs of the length of a span, and thick as a writing pen; the tail of these birds resembles that of the thrush also; and they have no wings like other birds, but, instead, long feathers like tufts of different colours: the whole of the feathers, those only excepted which are in lieu of wings, are of a dull colour. This bird never flies but when the wind blows. It is said to come from the terrestrial Paradise, and is called *Bolon-dilallah*, that is to say, the Bird of God."

John van Linschoten, who wrote in 1598, records a variety of fables told about these strangely beautiful

birds : how that no one had ever seen them alive, for they lived in the air, always turning towards the sun, and never touched earth until the moment of death arrived ; and how that they had neither legs nor feet, as, he adds, is shown by the birds carried to India, and sometimes to Holland, though, owing to their costliness, they were very seldom seen in Europe.

Upwards of a century later, Mr. William Fennel, a companion of Dampier, and the historian of his voyage, saw some specimens at Amboyna, and was informed that they came to Banda to eat nutmegs, which intoxicated them, so that they fell down senseless, and were killed by ants.

Down to 1760, when Linnæus named the largest species *Paradisea apoda*, or the "Footless Paradise Bird," no perfect specimen had reached Europe, and nothing was known of their habits or peculiarities. But, at a later date, Lesson and Latham collected many facts of interest to the naturalist; numerous specimens were obtained by European traders; the old fables vanished; and their true place in the Bird World was ascertained and defined. Recently, our knowledge of them has been considerably enlarged by the researches of Mr. Wallace, who lived for many months in the Aru Islands; and he has established the fact that, in a wild state, they are unknown beyond the Papuan Archipelago.

There are now eighteen known species. Of these eight are entirely confined to New Guinea and the contiguous island of Salwatty. One species belongs to Batchian and Gilolo; two to Waigiou; one each to North Australia, North-east Australia, and East Australia; and one to the Aru Islands. The reader

may not be displeased with a detailed enumeration of the different species, and their respective localities :—

The Great Paradise Bird.....	The Aru Islands.
The Lesser Paradise Bird.....	New Guinea, Mysol, Jobie.
The Red Paradise Bird.....	Waigiou.
The King Paradise Bird.....	New Guinea, Aru Islands, Mysol, Salwatty.
The Magnificent.....	New Guinea, Mysol, Salwatty.
The Red Magnificent.....	Waigiou.
The Superb.....	New Guinea.
The Golden Paradise Bird.....	New Guinea.
The Standard Wing.....	Batchian, Gilolo.
The Long-tailed Paradise Bird.....	New Guinea.
The Twelve-wired Paradise Bird...	New Guinea, Salwatty.
The Scale-breasted Paradise Bird...	New Guinea.
Prince Albert's Paradise Bird.....	North Australia.
The Rifle Bird.....	East Australia.
The Victorian Rifle Bird.....	North-East Australia.
The Paradise Pie.....	New Guinea.
The Carunculated Paradise Pie.....	New Guinea.
The Paradise Oriole.....	New Guinea, Salwatty.

In the course of our visit to Batchian, we took occasion to describe the great emerald paradise bird, and Mr. Wallace's new species, the standard wing.

We may add, however, to our account of the former, that it is a bird of remarkable vigour and activity, a restless bird, a bird all motion, and energy, and grace, to which, as it maintains its day-long flight, we might apply the words of Shelley,—

“ Like a cloud of fire,
The blue deep thou wingest.”

And again,—

“ In the golden lightning
Of the sunken sun,
O'er which clouds are bright'ning,
Thou dost float and run,
Like an embodied joy whose race is just begun.”

In the regions which it frequents, it is very abundant,

small flocks of females and young males being constantly met with; and though we do not see so many full-plumaged birds, their number may be inferred from their loud and constant cries. Mr. Wallace describes their note as “Wawk, wawk, wawk—Wök, wök, wök;” * and adds that, owing to its loudness and shrillness, it is audible at a great distance, and forms the most prominent and characteristic animal sound in the Aru Islands. In what way they build their nest is uncertain, and we are hardly disposed to accept the statement of an Aru Islander, that it is formed of leaves placed on an ant-hill, or on some projecting limb of a tall tree. It is a curious fact that the egg of this bird has never been seen.

The male birds—and it is only the males whose plumage is remarkable—are accustomed to assemble early on the May mornings for the purpose of holding what the natives call their *Sácaleli*, or “dancing-parties.” They select a tree with wide-spreading branches, and large but scattered leaves, and there they congregate, in companies of twelve or twenty, apparently with a view to exult in the magnificence of their plumage. Now they raise up their gleaming wings, and now they extend their jewelled necks; then they expand, and elevate, and shake their glistening wings, which quiver with glowing hues like the iris of a leaping fountain. The long plummy tufts of feathers beneath the wings are elevated, and spread out, until they form a couple of rich golden fans that overarch the shining body of the bird, like a golden halo, or an aureole round the head of a saint in an Italian picture. It is difficult to realize to one’s self the enchanting spectacle

which the bird presents in this moment of pride and ostentation.

It is on such occasions as these, however, that our birds expose themselves to the weapon of the hunter. When the natives discover the tree on which they have fixed for a rendezvous, they construct a kind of arbour of palm-leaves in the thickest part of its branches, and the hunter conceals himself therein shortly before daylight, armed with his bow and with a number of arrows terminating in a round knob or disc. At the foot of the tree a boy is stationed. The sun rises, and soon afterwards the birds repair to the trysting-place, gather on the lofty branch, expand their wings, and begin to dance, as if filled with a keen delight in their own beauty. Then the hunter discharges his blunt arrow at a selected victim, which, stunned but not wounded, falls to the ground, and is killed and secured by the boy without the slightest injury to its plumage. The fatal shot is repeated, and again and again, until the diminished company take alarm, and hasten away from the scene of death.

The birds thus captured are immediately preserved. The wings and feet are cut off, the skull is taken out, and the body skinned. A stout stick is then thrust through the body so as to come out at the mouth. "Round this," we are told by a recent traveller, "some leaves are stuffed; and the whole is wrapped up in a palm spathe, and dried in a smoky hut. By this plan the head, which is really large, is shrunk up almost to nothing, the body is much reduced and shortened, and the greatest prominence is given to the flowing plumage. Some of these native skins are very clean, and often have wings and feet left on; others are dreadfully



GOLDEN BIRD OF PARADISE.
(Male and Female.)

stained with smoke; and all give a most erroneous idea of the proportions of the living bird." But we have seen specimens stuffed and prepared after a more scientific fashion than is here described; and both at the British Museum and at the Edinburgh Museum of Science and Art, the reader who has no opportunity of visiting New Guinea or the Aru Islands may nevertheless see the great bird of paradise "in his habit as he lived,"—a dainty creature, rich in the very ecstasy of colour!

The golden, golden-breasted, or six-shafted paradise bird has been honoured with a place in the splendid gallery of Buffon. Yet nothing is known of it except what we learn from an examination of the specimens obtained from the natives of New Guinea. It has never been seen alive by the eye of European naturalist, and its mode of life in the dense Papuan forest can only be guessed at. From all other species of *Paradiseidæ* it is easily distinguished by the six long wire-like feathers which spring from its head, three on each side, with a small oval web at the extremity. The colour of the web and filament is black, glossed, so to speak, with purple and bronze; and all its velvety plumage is of the same colour, except on the throat and upper part of the breast, which are covered with scale-like feathers resplendent in changing tints and shades of copper, gold, and emerald. The white-tipped frontal plumes are raised, like a crest; and on each side of the breast grows a dense tuft of soft decomposed feathers, which apparently hide the wings. In this, as in all the species, the female is much less splendid than the male, and she lacks the six arrowy filaments which grace her spouse.

To the interior of the northern peninsula of New Guinea belongs the superb or black bird of paradise, another of the species described by Buffon. It measures about nine inches in length, and is characterized by a small tuft of black plumes springing from each nostril. The ground colour of its plumage is a deep black; but this, in different lights, is illuminated by the most splendid reflections of green and purple, so that you never think of black as the dominant colour. Its breast bears a kind of scutcheon or cuirass of imbricated feathers, hanging down in front, and much elongated towards the sides. King or knight never wore more glorious shield, for it shines with the most brilliant tints of bronzed green and violet. A similar but larger shield or scutcheon springs from the back of the neck; and this, too, is of a velvety black colour, but glossed with bronze and purple. It forms a sort of mantle; and when elevated, must, in conjunction with the breastplate, give the bird a very remarkable appearance.

Another of these "children of the sun" which calls for special notice is the lesser bird of paradise,—“le petit Emeraude” of the French,—which is much smaller than the *Paradisea apoda*, but closely resembles it in the colouring of its plumage. It is, however, of a less intense cinnabar red, and has no purple or dark reflections on its breast; the upper part of the back and the wing-coverts are all over yellow; and the wire-like middle feathers of the tail are comparatively short. The attire of the female is a coffee-brown colour on the upper part of the body, and a spotless snowy white on the under surface.

The feathers of this species are used in ladies' head-



MAGNIFICENT BIRD OF PARADISE.

dresses in this country, and in the East are the staple of a really important commerce. It feeds on figs and other fruits, on grasshoppers, locusts, cockroaches, and caterpillars.

Mr. Wallace, in 1862, purchased two adult males for £100 at Singapore, and resolved to carry them to England. On his way home he stayed a week at Bombay, to break the journey, and to obtain a fresh supply of bananas for his feathered guests. He had great difficulty, however, in furnishing them with insect-food, for in the well-appointed steamers of the Peninsular and Oriental Company cockroaches were scarce; and it was only by setting traps in the store-rooms, and by hunting an hour every night in the fore-castle, that he could secure a few dozens of these creatures—scarcely enough for a single meal.

At Malta, however, where he stayed for a fortnight, he obtained a plentiful supply from a bakehouse, and when he left he took with him "several biscuit-tins' full," as provision for the homeward voyage. It was in March that he crossed the Mediterranean; a cold wind blew; and the only place on board the mail-steamer where the large cage of the Oriental strangers could be accommodated was, unfortunately, exposed to a strong current of air from a hatchway standing open day and night. Yet the birds apparently suffered no inconvenience from the cold. They arrived in London in perfect health, and lived in the Zoological Gardens for nearly two years, as some of our readers may remember.

We come now to the twelve-wired paradise bird, and though it is not the most splendid of its family, we shall not find its equal for brilliancy and grace of

colouring except among the dazzling Trochilidæ. It measures about twelve inches in length, but one-sixth of this measurement is occupied by the curved, compressed beak. Here, too, we find a beautiful specimen of that velvety black plumage (on the breast and upper surface) which, when the light is thrown upon it, resolves into a variety of intense and shining tints. Thus: the head is found to be of a purplish bronze; the back and shoulders of a rich bronzy green; the wings and tail of a violet purple, which recalls the "purpureum lumen" of the Latin poet; while the whole has a gloss like that of some soft varnish upon it. The deepest colouring shades the breast, where the only lights are of a faint green and purple, relieved by the emerald green margin of each separate plume. The under surface is coloured of a rich warm brownish yellow, or orange, which would seem to have been designed to "show up" the wonderful gleams and glosses of the upper plumage.

So far we see that the bird, by right of splendour of attire, deserves to belong to the Paradiseidæ; but why is it called the "twelve-wired"?

Observe that from each side springs a tuft or aigrette of orange-hued plumes, the six innermost of which are lengthened into slender black wiry filaments, which bend at right angles, and then curve backwards to the length of about ten inches, forming an appendage as unique as it is fanciful.

All this beauty and magnificence belong to the male bird; the female bird is dressed in a much soberer garb. Black, the top of the head and back of the neck; a fine vermilion-tinted brown, the rest of the upper surface; yellowish ashy, or cinereous yellow

(if there be any difference), on the under surface, chequered with narrow undulating stripes of jet.

The twelve-wired bird inhabits Salwatty, and the north-western parts of New Guinea, where it haunts the palm groves and woods, feeding on the blossom-sweets of the screw-pines and the palms, and waging war against the swarming insect-life. It resembles the humming-birds in the swiftness of its motions and its extraordinary restlessness. Its curiously shrill cry of "Cáh, cáh, cáh, cáh, cáh," diminishing from forte to piano, and dropping from the top to the bottom of the gamut, is heard at one moment in this part of the forest,—the next, it comes from some distance off,—again, it is close beside you. The bird seems possessed with an uneasy and unresting spirit.

The Papuan hunters pursue the twelve-wired paradise bird at night,—climbing up into the low bushy trees which it frequents, and capturing it with a cloth, thrown hastily over it, or bringing it down with a blunted arrow. Sometimes snares are laid for it. One of the arums bears a red reticulated fruit, to which it is exceedingly partial. Aware of its weakness, the hunters fasten some of the dainty on a stout forked stick, and seeking out one of the roosting-trees in the forest, attach the baited stick to a branch, while they dispose some fine strong cord so as to form a noose. This noose is arranged with such ingenuity, that, when the bird perches on the stick to eat the fruit, its legs get entangled, and the hunter has only to pull the end of the cord which droops upon the ground, to bring down his victim.

In the forests of New Guinea lurks the paradise

pie, to which Le Vaillant gave the name of the "Incomparable," in the belief that it excelled all the other species of its family in beauty of plumage. Whether it really merits this title of superiority, we cannot determine. After a careful study of specimens of different species, we have come to the conclusion that each has its individual charm and peculiar excellence, and of each we feel inclined to say,—

"None but itself can be its parallel!"

The longer we study them, the greater is our wonder that such remarkable examples of the wisdom and power of the Creator should so long have lived their unknown life in the mountainous forests of an island lying far beyond the boundaries of civilization.

The body of the "incomparable" is about nine inches in length; but the middle plumes of its elongated tail are fully eighteen inches. They are rounded at the extremity, so that the apex of the tail exhibits a "strong notch;" and the remaining tail-feathers, which gradually diminish in length, being applied beneath them, the tail, to all appearance, consists only of the two projecting plumes. Another peculiarity consists in the arrangement of the long silken feathers of the sides and back of the head, which are carried back along the neck in such a manner as to form a double ruff or erectile crest. The back, and the nape of the neck, gleam with a resplendent greenish bronze, underlaid, so to speak, with gold, and lighted up with rich deep tints, like sea-waves in the glow of the sunset, when viewed from different points: the firm imbricated feathers remind the spectator of the skin of a snake or the scales of a fish. Similar feathers, arranged in a kind of collar

or gorget, adorn the front of the neck; the centre is of a brilliant golden greenish bronze, like that of the back, but is surrounded by a wonderful ring of ruby red, golden orange, and celestial violet. The colour of the head is black, with a greenish gloss. All the lower part of the body shines with a deep lustrous green; and the wings and tail are violet-black, like a favourite pansy, except that the feathers of the latter are relieved beneath by transverse bands of brown. The bill is jet black; the feet are yellow. Altogether, the incomparable is surely not unworthy of its name.

Together with an allied species, distinguished by its bare carunculated head, this bird inhabits the unknown mountain-woods of New Guinea. We are wholly unacquainted with its habits and its nidification; and no specimens of the female have as yet been obtained for any European collection.

The next species to which our attention must be directed is the red paradise bird; a species closely allied to the greater and lesser birds of paradise, but restricted in its range to the small island of Waigiou.

The red bird measures about thirteen to fourteen inches in length. Its side plumes are of a brilliant crimson, stretching four inches, but not more, beyond the end of the tail; they curve inwards and downwards, are slightly rigid, and tipped with white. In this species the two middle feathers of the tail are not thin elongated wiry filaments, but stiff black ribbons, a quarter of an inch wide, and curved "like a split quill." They resemble, says Wallace, thin half cylinders of horn or whalebone. "When a dead bird is laid on its back, it is seen that these ribbons take a curve

or set, which brings them round so as to meet in a double circle on the neck of the bird; but when they hang downwards, during life, they assume a spiral twist, and form an exceedingly graceful double curve. They are about twenty-two inches long, and always attract attention as the most conspicuous and extraordinary feature of the species."

The throat is clothed in a rich lustrous green; and the same colour spreads over the front of the head, to a point behind the eyes, where it blends into the warm reddish brown of the upper part of the body. A little double aigrette of scaly feathers on the forehead gives the bird a pert, vivacious aspect. The bill is yellow; the iris, blackish olive.

As in all the species, the plumage of the female does not equal that of her mate in beauty of colouring. It is of a darkish brown, shading almost into black on the head, and on the nape, neck, and shoulders verging into yellow,—indicating the exact position of the brightest hues of the male.

In the red bird, as in the other species, the same order of succession is observed in the change of plumage: the bright colours of the head and neck are first brought out, then the elongated filaments of the tail, and, lastly, the red side plumes. There is something noteworthy in the development of the black ribbon-like feathers of the tail. First, they appear as two ordinary feathers, but rather shorter than the rest of the tail; next, they are moderately lengthened, and the web is narrowed in the middle; in the third stage, part of the midrib is bare, and it terminates in a "spatulate web;" fourth, the bare midrib is somewhat dilated and semi-cylindrical, and the terminal web is very small; in a fifth is



RED BIRD OF PARADISE.

formed the perfect black horny ribbon, bearing at its extremity a brown spatulate web, or the ribbon bears, on one side only, a narrow brown web. It is not until this development has been wrought out that any signs of the lateral tufts become visible.

These successive stages, both in colour and plumage, are, as our distinguished naturalist remarks, of peculiar interest, from the manner in which they agree with the theory that represents them as produced by the simple action of "variation," and the cumulative "power of selection," by the females, of those male birds which were more than usually ornamental. "Variations of *colour*," it is rightly said, "are of all others the most frequent and the most striking, and are most easily modified and accumulated by man's selection of them. We should expect, therefore," he continues, "that the sexual differences of *colour* would be those most early accumulated and fixed, and would therefore appear soonest in the young birds; and this is exactly what occurs in the paradise birds. Of all variations in the *form* of birds' feathers, none are so frequent as those in the head and tail. These occur more or less in every family of birds, and are easily produced in many domesticated varieties, while unusual developments of the feathers of the body are rare in the whole class of birds, and have seldom or never occurred in domesticated species. In accordance with these facts, we find the scale-formed plumes of the throat, the crests of the head, and the long cirrhi of the tail, all fully developed before the plumes which spring from the side of the body begin to make their appearance. If, on the other hand, the male paradise birds have not acquired their distinctive plumage by successive variations, but have

been as they are now from the moment they first appeared upon the earth, this succession becomes at the least unintelligible to us, for we can see no reason why the changes should not take place simultaneously, or in a reverse order to that in which they actually occur."

We have no wish to involve the reader in an argument on the origin of species, or the Darwinian theory of natural selection, and are content, therefore, to put before him Mr. Wallace's argument, with the remark that, though forcible, it is not conclusive, and that because we can see "no reason" why things should have occurred in any other way than seems to us the most natural and legitimate, it does not follow that they actually *did* so occur. It may be suggested that men of science are too prone to lay down certain plans or systems as explanatory of the order of nature, and then to assume that the Creator must necessarily have worked upon those plans or systems, as if no other were possible. We may accept, however, Mr. Darwin's theory, as expounded by Mr. Wallace, and yet believe in the existence of a Great First Cause. It does not and it cannot dispense with an all-powerful and all-wise Creator, though it may profess to explain the manner in which He has developed life.

Is the reader weary of the Paradiseidæ? Well, we will call his attention to one more species only, the so-called (and not unjustly called) magnificent bird of paradise. This native of New Guinea measures about eight inches in length, and is characterized by the peculiarities of the plummy tufts on each side of its neck. The upper of these consists of small narrow feathers, each with a black spot at the tip, which project from the neck

almost at a right angle; the lower, which is larger, but less prominent, consists of long detached barbs, springing from short tubes: they are of a straw colour, and truncated at the extremity. Alternate transverse lines of bright green changing to blue, and of dark green, chequer the front of the neck and breast; the rest of the plumage is mostly brown, but brown of various shades, brightened with orange on the wings and back, but deepening into a dark bronze on the tail, and everywhere soft and shining like gloss of silk; while the whole under surface is of an intense green colour, "shot" with shifting gleams of purple. The tail is furnished with a couple of filaments about twelve inches long, terminating in a fine outward curve, and shining with brilliant tints of green and blue.

To sum up: We know but little of the habits of the *Paradiseidæ*, but they appear to frequent the forest glades, to live on fruit and insects, to associate in small companies, to be polygamous, and to be remarkable for activity and restlessness. Most naturalists place them between the crows and the starlings, but regard them as allied more closely to the former than the latter. Others place them with the *Epimachidæ*, or long-billed birds.

In the shape of the bill, the position of the nostrils, and the presence of a tuft of feathers concealing the latter, they resemble the crows: the sides of the upper mandible are notched towards the tip; long and strong the tarsi, and covered in front by a single long plate, followed by two or three smaller shields, or by three or four large plates of nearly equal size; the toes are well developed, and armed with long curved claws—the posterior toe being very long, and the inner an-

terior one shorter than the outer anterior. The distinguishing feature of these birds, however, is the remarkable development in the males of some portions of the plumage; usually the feathers of the sides of the body and neck, which frequently assume the most curious forms,—hemispheres, ruffs, mantles, scutcheons, crests,—and when expanded or elevated give the birds a very singular appearance.

ASPECTS OF THE ARU ISLANDS.

In our pursuit of the beautiful and enchanting *Paradiseidæ*, we have strayed as far as Waigiou and New Guinea; we must now return to the Aru Islands, which present several features worthy of examination. They are about eighty in number, and all of them are low, with sandy shores, and dense tropical forests spreading over their interior. They form a long chain, about fifty miles in breadth, but stretching from north-west to south-east nearly one hundred miles. To the voyager who approaches them from the west they appear to be one long, low, continuous island, like an elongated ridge of verdure; but on coming nearer they are seen to be separated by curious winding channels, through which the ocean-waters force their way in violent currents. The waves break with foam and ripple on their fringing reefs of coral, where an extensive trepang-fishery is carried on; and the dugong is an inhabitant of the surrounding waters.

THEIR INHABITANTS.

The Aru Islanders belong to the great Papuan family, though with much admixture of Malay, Chinese, and even Dutch blood. They are a well-made, stal-

wart race, and the men are handsome, according to the savage type. The women, however, except when very young, are by no means prepossessing, having degenerated through hard work, want of sufficient food, and early marriages. That they should have a semi-masculine air, that their features should be coarse and strongly-marked, and their figures deficient in the rounded outlines which Europeans regard as characteristic of feminine beauty, is not to be wondered at, when we remember that the burden of life devolves upon them, and that they are forced to toil both abroad and at home, while the men lounge about in idle ease, or occasionally seek amusement in fishing or in the chase. They are the helots of the Eastern World—drudges, slaves, and victims; and their forms and features bear witness to long years of oppression and servitude. Their costume is exceedingly simple, though not exactly *simplex munditiis*. It consists of an apron or mat of plaited strips of palm-leaves, drawn closely round the body, and dependent from the hips to the knees. As it is seldom washed, and is worn until in tatters, its dirty condition may easily be imagined. Their frizzly hair is made up into a bunch or knot at the back of the head; and one of their few amusements is to comb it, or, one might say, to rake it, for which purpose they use a large four-pronged wooden fork—and probably no lighter implement would be able to separate “the tangles” of an Aru “Neæra’s hair.” They show the usual feminine love of ornament, and are both dexterous and tasteful in the arrangement of their ear-rings and necklaces. Sometimes the ends of the necklace are looped up to the ear-rings, and then

carried on to the hair-knot at the back of the head, forming two graceful festoons, and presenting a really striking appearance. Or a couple of necklaces is worn,—each passing round one side of the neck and under the opposite arm, so as to intercross on the wearer's bosom. The ear-rings are formed of twisted bars of silver or copper; the necklaces, of kangaroo teeth or white beads.

The men are usually attired in the Malay *sarong*, and eclipse the women in their passion for personal adornment. They wear necklaces, ear-rings, and finger-rings; and just below the shoulder fasten a band of plaited grass, to which a tuft of gay feathers or a bunch of hair is attached. Bracelets of brass wire, or of teeth, or of beads black and white, are worn round the sinewy wrists; tight garters of plaited grass round the knee; rings of brass or shell round the ankles. In truth, there is more ornament than dress about the dusky body of the Aru Islander. He also carries a belt round his waist, or slung across his shoulder, with a little skin pouch and an ornamented bamboo attached, containing the indispensable betel-nut, tobacco, and lime. His equipment is complete when a small wooden-handled knife has been thrust between his waistcloth of bark and his bare skin. We must not forget the *cadjan*, or sleeping-mat, made of the broad leaves of a screw-pine, three layers thick, and closely sewed. It measures about four feet square, and when folded is stitched up at one end, so as to form a bag or sack, which can be carried on the head in case of a shower, like a coat and an umbrella in one, or into which the feet and legs may be inserted and kept comfortably warm at night. As it can be folded

into as small a compass as an English mackintosh, it is no inconvenient burden on a journey; while it answers a curious variety of purposes, serving in turn as house, umbrella, game-bag, clothing, furniture, bedding.

The food of the Aru Islanders is chiefly vegetable, and includes various kinds of fruits, sugar-canes, plantains, yams, raw sago, and Dutch potatoes. If he lives near the coast, he adds a plentiful supply of fish; if inland, the monotonous fare is occasionally relieved by wild pig or kangaroo, Eastern opossum, and game of all kinds. It is unfortunate for them that they do not possess any great staple or staff of life, such as wheat, barley, rice, or maize. Hence they are subject to skin diseases, and both males and females grow prematurely aged. Their only luxuries are betel, tobacco, and arrack (or Java rum), the last of which they obtain at cheap rates from the traders—a day's fishing or ratan-cutting enabling them to purchase a half-gallon bottle. In the trepang or birds'-nest season they buy large quantities of this deleterious drink, and indulge themselves in it day and night until they break out into a kind of drink-madness or frenzy.

Their houses are on the same scale of rudeness and savage simplicity as their clothing or their food. A rough shed is raised about seven feet from the ground, on posts. There are no walls, but the high-pitched roof slopes down to within a few inches of the flooring, as in the "Noah's ark" of our childish toy-treasures; this flooring consisting of bamboo laths. A large shutter in the roof can be propped up at need, to admit light or air. Inside, the chambers are parti-

tioned off by walls of thatch, so as to provide accommodation under the same roof for three or even four families. The furniture requires no elaborate inventory; it consists only of a few mats, baskets, and cooking-vessels, with some plates and basins purchased from the Malay traders. Against the walls are suspended the weapons of the head of the family,—spears and bows, and a shield made of ratans, and covered with cotton twist. In the middle of the shield is an arm-hole, with a flap or shutter over it; through this the arm can be thrust and the bow drawn, while the body and face, up to the eyes, remain protected.

In baskets hanging up under the eaves are some gaudy parrots,—green, red, and blue; and a few domestic fowl cackle and crow around the house; or a half-starved wolfish-looking dog disturbs the peace of the neighbourhood by his miserable whine.

But bare as an Aru house may appear from this description, an attempt is made to enliven it with the trophies of the chase,—jaws of wild pigs, heads and backbones of cassowaries, and plumes made from the feathers of the bird of paradise, cassowary, and domestic fowl. The weapons and utensils are embellished with fanciful designs, and the mats and boxes—the latter made of the pith of a palm-leaf pegged together, and lined inside and outside with leaves or plaited grass—are painted or plaited in neat patterns of different colours. The joints and angles of the boxes, we may add, are covered with strips of split ratan sewn on very neatly, and the lid with the brown, leathery, waterproof spathe of the areca palm. These ingenious boxes or cases, which are really marvels of dexterous workmanship, may be had of

almost any size, from six inches long to three feet. The smaller ones are used as receptacles for betel-nut or tobacco, and the larger ones as clothes-chests.

THE FORESTS OF ARU.

There is little to be said of the forests of Aru more than has been already said of the forests of these Eastern islands. Their tree-ferns, however, are a distinctive and very beautiful feature. They are so plentiful as to give a peculiar character to the vegetation, and, elevating their clusters of fronds upwards of thirty feet in the air, form objects of grace and majesty on which the eye dwells with a feeling of pleasure. The palms, too, are represented by some singularly noble species; and the glades, lined with their smooth slender stems fully a hundred feet in height, seem like pillared avenues leading to some mysteriously magnificent shrine. The noted exuberance of tropical vegetation displays itself in the white orchids and parasitic climbers, which hang in festoons and garlands from the drooping branches of the larger trees. And when it is remembered that these leafy tangles and mazy shades are brightened ever and anon by the flashing wings of the resplendent paradise birds, the reader may form to himself some conception of the emotions with which the unaccustomed traveller penetrates into the heart of the Aruan forest. Lories display their vivid plumage on the branches above his head; gleaming kingfishers dart like lightning into the current of the slow stream that creeps by his side; his ears are filled with the noisy cries of cockatoos and parroquets, rising in shrillest clamour above the more musical strains of the few song-birds that inhabit the green recesses.

One of the denizens of the forest is the great black cockatoo,—a bird which, to a small weak body, indifferently supported on long weak legs, adds a colossal head, ornamented with a superb crest, and armed with a portentous hooked bill, surpassing all other bills, one would think, in size and strength! Well may it be called the Goliath!* Surely it is the very Anak of cockatoos! Apart from the enormous dimensions of its head and bill, it is distinguished by some remarkable characteristics. Its cheeks are covered with a naked skin, as is the case in the macaw, and they are of a bright blood-red colour. The plumage is entirely black, yet assumes a greenish gray tint—from an abundant powdery white secretion scattered over the feathers. The tail is very short. The immense bill encloses a curiously small and slender tongue, unlike that of any parrot,—or, indeed, of any other bird; cylindrical in form, capable of being considerably protruded from the mouth, and terminated by a cloven horny extremity. Le Vaillant compares it to the trunk of an elephant, and hence has designated its owner *Ara à trompe*, or “Trunked Macaw.” According to Le Vaillant, it breaks up its food with its powerful beak, and then, protruding its cylindrical tongue, takes up a portion in the cleft at the extremity of the organ; the tongue is then retracted within the bill, and passed along the palate, where a small projection, coming in contact with the morsel of food, detaches it, and causes it to fall into the throat.

A more particular account of its mode of feeding, and of its habits generally, is furnished by Mr. Wallace, to whom we are indebted for so much valu-

* *Microglossum aterrimum*.

able information respecting the animal life of the Eastern Archipelago.

This bird, then, is found in the lower parts of the forest, generally by itself, sometimes with one or two of its kind. It flies slowly, and makes but little noise in flying. It lives upon seeds and fruits, but more particularly on the kernel of the kanary-nut; which we may conclude to be its special food, from the manner in which it gets at it. So exceedingly hard is the shell of the kanary-nut, that only a heavy hammer can crack it, and as it is nearly triangular in shape, with a perfectly smooth outside, it would seem to defy the efforts of any bird.

The cockatoo, however, takes one endways in its bill, and holding it firm by a pressure of the tongue, cuts a transverse notch by a lateral sawing motion of its keen-edged lower mandible. This done, it grasps the nut with its foot, and biting off a piece of leaf, retains it in the deep cleft of the upper jaw; and again seizing the nut, which is prevented from slipping by the elastic tissue of the leaf, fixes the edge of the lower jaw or mandible in the cleft, and by a powerful nip breaks off a piece of the shell. Again taking the nut in its claws, it inserts the elongated extremity of its sharp-pointed bill, and picks out the kernel, which, bit by bit, is then laid hold of by the extensible tongue. We see, then, that every detail of form and structure in this bird's remarkable bill has its special use—that everything is in its place, and that there is a place for everything; and we conclude that the black cockatoo has held its own against the rivalry, so to speak, of its more active and more numerous white allies, through its peculiar faculty of existing

on a kind of food that no other bird can extract from its almost adamantine shell.

A TOWN IN THE ISLAND OF WARUMA.

But we must no longer delay in these interesting islands, which, small as they are, offer so much attraction to the naturalist. Before we take leave of them, however, we may glance at their chief—and, indeed, only—town, that of Dobbo, which is the centre of a considerable commerce. It is situated on the small island of Waruma, on a spit of sand projecting northwards, and of sufficient width to contain three streets or rows of houses. In the season, when visited by the Bugi and Chinese traders, it presents a very animated aspect; and its soft sandy beach is then covered with prahus, hauled up in order to be prepared for their homeward voyage. The houses are of various sizes, and without the slightest pretension to architectural effect. In truth, they are simply large thatched sheds, raised upon posts, with a small portion partitioned off as a dwelling-place, and the rest appropriated as shop and storerooms. To this centre resort the islanders with their loads of stuffed birds, shells, trepang, pearls, and the produce of the forests; receiving in exchange various articles of utility or comfort, such as knives, tobacco, sago-cakes, and domestic utensils of Chinese manufacture. But a traffic is also carried on in fancy goods, looking-glasses, china ornaments, pipes, purses, razors, umbrellas, sugar, salt, biscuit, tea, swords, guns, and choppers. A stranger passing down the principal street of Dobbo is apt to think that he has wandered in a dream into some strange world, so curious is the spectacle that everywhere

meets his eyes—so unlike any scene that is to be found elsewhere even in the wonderful East. Sail-makers and carpenters busily ply their respective handicrafts; the prahus are being calked and coated with a thick layer of lime; Bugi traders tie up in bundles the glittering mother-of-pearl shells which they have purchased from the fishermen, or the black and hideous-looking trepang or *bêche-de-mer*, which may be compared to German sausages that have been rolled in mud; men are cutting and squaring timber, or piling up heaps of firewood; boats from Ceram and Goram sail into the bay, and begin to unload their cargoes of sago-cake; the air is rent with the shrill discords of the bright-plumaged cockatoos, lories, and parrots suspended in cages, or attached to bamboo perches, in front of the houses; in and among the busy crowd wanders a tame kangaroo, born in the green glades of the Aru forest, or young cassowaries disport themselves with ducks and fowls and goats and pigs in the warm sunshine; and a Babel of languages goes up to the blue sky of the Tropics, as Chinese and Malays, Javanese and Bugis, Macassar men and Aru men, carry on an incessant barter for their various wares.

In the evening business gives way to pleasure. The Malays indulge themselves for hours in songs which are dolefully enchanting; and groups of strangers and natives gather round a stray fiddler, or the Jews' harpist, or the monotonous tom-tom player. At times a fierce excitement is engendered by a cock-fight, and the spectators rave and yell and leap to and fro as they bet on the spurred and feathered combatants. In a few moments the cruel battle is at an end; the winner

seizes and caresses his triumphant fowl; while the owner of the defeated bird, which is generally dead or mortally wounded, consoles himself for his loss by plucking out its feathers, and preparing it for the cooking-pot.

A game at football is also one of the amusements of Dobbo, though it is not conducted, we need hardly say, on principles that would be accepted at Rugby or Harrow. The ball used is rather small, light, elastic, and hollow, being made of the ratan palm. The leader of the game balances it for a minute or two on his foot, or on his arm or thigh, as a preliminary exhibition of dexterity, and then suddenly sends it flying into the air with a smart blow from the hollow of his foot. A rival player runs to meet it, catches it as it nears the ground, and plays it in his turn. Others then join in the lively *mélée*; always remembering that the ball must not be touched with the hand, but that the arm, shoulder, knee, or thigh may be used at pleasure as a substitute for the foot. Considerable skill is shown in playing this exciting game, and generally it is conducted with tolerable good temper; but sometimes the fierce Eastern mood is aroused, and an affray takes place, in which knives or krisses would be used, but for the strange influence which an unwritten but tacitly acknowledged law exercises over this wild community.

The season at Dobbo ends when the east monsoon begins. During the season it is the theatre, as we have said, of a really considerable commerce. In the year that Mr. Wallace visited it, fifteen large prahus came in from Macassar, and a hundred small boats from Ceram, Goram, and the Ké Islands. The Macassar

cargoes are worth about £1000 each, and the other boats carry away about £3000 worth; so that the whole exports may be estimated at £18,000.* The principal articles exported are pearl-shell, trepang, edible birds'-nests, tortoise-shell, pearls, ornamental woods, timber, and birds of paradise. We have already indicated that a variety of goods are taken in exchange, and we may add to our previous enumeration gun-powder, guns, gongs, elephants' tusks, the strongest possible tobacco, and an altogether monstrous proportion of arrack; of which, it is said, forty-five thousand half-gallon bottles are annually consumed!

THE PEARL-FISHERY.

Nacre, or mother-of-pearl, is the name given to a hard, brilliant, diaphanous substance which lines the interior of certain shells, and is much valued on account of its iridescent properties. The purest white nacre is yielded by the *Meleagrina*, a bivalve better known as the *pintadine*, or mother-of-pearl shell. The *Meleagrina margaritifera*, or pearl-oyster, yields not only nacre, but the "orient gems" called *pearls*; and as these have always been held in high esteem for decorative purposes, the pearl-fishery has, from very early times, assumed extensive proportions.

The range of the pearl-oyster is very great. It is found in the Persian Gulf, on the coast of Arabia, on the shores of California, in Japan, and the islands of the South Sea; but nowhere more extensively than in the Bay of Bengal, the waters of Ceylon, and the Eastern Archipelago. Wherever it is carried on, much the same process is employed. The prahus engaged in

* Wallace, "Malay Archipelago," ii. 169.

it are manned by a crew of twenty men, generally Malays, one half of whom are rowers, the other half



PEARL-FISHING.

divers. These latter divide into two gangs of about five men each, who alternately rest and labour. The

usual depth of water in which they carry on their operations is forty to fifty feet, and seventy is the maximum; the pressure in the latter case being almost insupportable. Most divers cannot remain longer under water than thirty seconds, and the most skilful and the boldest not longer than eighty. In order to facilitate their descent, a large stone is attached to a rope, which is lowered from a kind of stage or platform. The diver places his feet on the stone, which weighs about half a hundredweight; in his left hand he holds the net intended to receive the bivalves; with his right he grasps a signal-cord; and thus equipped, with no other clothing than a band of calico about his loins, he is lowered into the deep. On reaching the bottom, he leaps from the stone; throws himself on his face; and sets to work to gather all the shells within his reach, and store them in his net. Then he pulls the signal-cord, and is drawn up with all possible speed.

After an interval of rest, he repeats the arduous operation; and frequently, if the weather be fair and the sea calm, will descend to the bottom fifteen or eighteen times in a day. The labour is severe; and blood and water sometimes flow from the poor wretch's mouth, nose, and ears. He runs the risk, moreover, of suffocation, if the crew in the boat do not immediately answer his signal; and not seldom does he find himself attacked by a shark, and, being worsted in the unequal combat, perishes miserably.

When the bivalves are landed, they are piled up on heaps of herbage, and allowed to decompose. In about ten days they are completely putrid, and are then thrown into basins of sea-water, opened, washed,

and prepared for exportation. The valves furnish the *nacre*; and the parenchym, the *pearls*, though sometimes these also adhere to the shell. The latter are more or less irregular in shape, and of inferior value. The former, or *virgin pearls*, are subjected to a cleansing or polishing process before being exposed for sale, and are sold separately, according to their size. To classify them, they are passed through a series of copper sieves. These sieves, twelve in number, are made to fit into one another, and are perforated with holes, which determine the size of the pearl, and its trade mark or commercial figure. Thus: sieve No. 20 is pierced with twenty holes; No. 50 with fifty holes; and so on up to No. 1000, which contains one thousand holes. Pearls retained in sieves 20 to 80 are pearls of the first class, or *milo*. Those which pass and are retained between Nos. 100 to 800 are *vadivoe*, or pearls of the second class; and those which, after passing through all the other sieves, are held fast by No. 1000, belong to the third class, —*tool*, or seed pearls.

Wrought in the laboratory of Nature, and owing nothing of its beauty to the skill or ingenuity of man, the pearl has justly been considered the most beautiful of jewels, and the fairest ornament which can enhance the loveliness of woman:—

“ Ocean’s gem, the purest
Of Nature’s works! what days of weary journeyings;
What sleepless nights, what toils on land and sea,
Are borne by men to gain thee!”

From remote antiquity it has been much coveted as an ornament; and pearls of unusual size and lustre have acquired historical importance. The Roman ladies

coveted them exceedingly, and became so extravagant in using them, that Seneca makes it a subject of reproach against a wealthy patrician that his wife carried in her ear-rings the greater part of his fortune. Every reader knows that Cleopatra, on the occasion of the celebrated banquet she gave to Mark Antony, dissolved a pearl in vinegar, and swallowed the costly draught; costly indeed, if the gem were really worth the value (£180,729) traditionally ascribed to it. It is said that Clodius, the son of the Roman tragedian, swallowed a pearl worth £8000;* and that Julius Cæsar presented one to the mother of Brutus valued at £48,000. But it is obvious that in these cases we have no means of checking or comparing the standard of value employed.

Coming down to later times, we read of a pearl from Panama, pear-shaped, and about as large as a pigeon's egg, presented in 1579 to Philip II. of Spain, which was valued at £4000; and Leo the Tenth paid to a Venetian jeweller £14,000 for one of these ocean-gems. A lady of Madrid, in 1605, was the fortunate owner of an American pearl valued at 31,000 ducats. The traveller Tavernier purchased a pearl at Califa which he sold to the Shah of Persia, it is said, for £180,000. We give the story as it is told, but readily admit that it makes a large demand on the credulity of the reader. At the Paris Exhibition, in 1855, Queen Victoria displayed some pearls of the finest water, worthy to hold comparison with any of the wonders of antiquity; and the late Emperor of the French, at the same time, revealed to admiring eyes a collection of four hundred and eight

* A similar story is recorded of Sir Thomas Gresham, the great London merchant-prince of Queen Elizabeth's time.

pearls, all perfect in form and of unblemished lustre, and each weighing about half an ounce.

What *is* a pearl ?

Not "a solidified drop of dew" as the Oriental poets term it,* but a product of several marine and fresh-water molluscs, such as oysters and mussels. The shells of these molluscs are provided with a fluid secretion, which, as it hardens, lines the valves with an exquisitely smooth surface, and saves the tender body of the animal from injurious friction. It is deposited in extremely thin semi-transparent layers, distinguished by their iridescence, and forming the nacre, or mother-of-pearl, to which we have alluded. When a grain of sand, or any other irritant substance, accidentally finds its way into the shell of the mollusc, the latter, in self-defence, being unable to expel it, covers it with this nacreous secretion, which necessarily increases proportionately with the increase in size of the animal that produces it. In this way the *pearl* is created ; it is identical in composition with nacre, or mother-of-pearl, and the only differences are its spherical form, and its greater translucency. The exact nature of the secretion, however, has not been ascertained ; but its iridescence is believed to be due to the irregular overlapping arrangement of its various fibres or layers.

The pearls and pearl-shells sold in the Aru Islands are not equal in value to the produce of the Ceylon fisheries ; nor are these to be compared with the splendid gems obtained in the Persian Gulf.

* Moore has embodied the Eastern fancy in two charming lines :—

"And precious the tear as that rain from the sky
Which turns into pearls as it falls into the sea."

CHAPTER V.

NEW GUINEA, OR PAPUA.

GENERAL DESCRIPTION.



THE large island, or islands, of New Guinea, or Papua, lies immediately south of the Equator, and north of Australia, with the waters of the Indian Ocean beating on its western, and those of the Pacific on its eastern shore. Its general direction is W.N.W. to E.S.E. Its northernmost point is the Cape of Good Hope; its westernmost, Cape Salu, opposite to Salwatty Island, from which it is separated by the Strait of Gallowa. It is now known to be divided into two islands by a narrow arm of the sea, discovered by Captain Moresby, which will afford a nearer route to China than the present for ships from Australia; but this channel is not wide enough to constitute any effectual division of the island, or to affect the distribution of animal and vegetable life, or even to modify the general aspect of the country.

The interior is wholly unknown to Europeans, and our acquaintance even with the coast-line cannot be described as complete. The island is, however, most irregular in form: on the west a deep basin called Geelvink Bay, sweeping inland from the north, almost meets the Gulf of M'Clure, entering from the west, and so forms a bold and extensive peninsula, connected with

the mainland by a very narrow isthmus. On the south another peninsula projects, but it is little else than a long and narrow mountain-ridge. Hence, though the length of the island, or islands, is 1200 miles, the breadth varies greatly, and though in the east it probably exceeds 300, between Geelvink and M'Clure Bays it barely reaches 20 miles. The former bay dips inland for about 200 miles, and at its mouth measures 260 miles across.

There is reason to believe that the island is very mountainous, with deep well-wooded valleys breaking up the various chains, and with meadow-lands extending from the base of the mountains to the sea. The summits of the southern peninsula attain a far loftier elevation than those of Australia; Mount Owen Stanley, for instance, is 13,205 feet high, and Mount Obru, 10,200 feet. A magnificent chain follows the line of the north coast with much faithfulness; forming the ranges of the Cyclops, which terminates in the island of Jobi, and, further west, of the Arfak and Amberbakin, with a maximum height of about 9000 to 9500 feet. On the south-west the limestone formation crops up in terraced heights, which rise one above another like the stages of an amphitheatre until they mount above the snow-line; the warm and humid forests of the Tropics lying at their base, their crests uprearing the icy, snowy pinnacles of an Arctic world. The Snow Mountains are 15,400 feet above the sea-level.

ANIMAL AND VEGETABLE LIFE.

Valley, and plain, and hill, ravine and mountain-steep, all are clothed with a vegetation that almost defies description by its luxuriance and variety. When

the island has been thoroughly explored, we may expect to hear that it is not inferior to Java or Borneo in fertility of soil. It is certain that it produces all the richest fruits and the most valuable growths of Tropical Nature; in the lowlands, breadfruit, cocoa-nut, banana, sago, betel, orange, and lemon, and a multitude of other luxuries; in the higher grounds, magnificent forest-trees, the kanary, the masool, the wild nutmeg-tree, ebony, and iron-wood. Sugar-cane, tobacco, and rice yield abundant crops. Maize and yams are also cultivated; and among the glories of the forest is the camphor-tree. Nor is the usual parasitical exuberance wanting; epiphytous plants overarch the wooded glades, and creepers of every description hang in festoons from bough to bough. Among this wealth of leaf and bloom the paradise birds build their sequestered nests, and the echoes ring with the shrill cries of parrots and lories, and the murmurs of carpophagous pigeons.

Animal life is not so abundant as vegetable. The mammals are few in number, and most of them are marsupials of the Australian type; though New Guinea possesses some indigenous species of kangaroos, and more particularly two species which are strictly arboreal in their habits. Wild swine are plentiful, as is also the koesi-koesi, or wood-cat. Of birds, about sixty species have been particularized. Insects astonish by their numbers, and dazzle by their brilliancy of colouring. The rivers swarm with fish, and so do the surrounding seas.

The tree-kangaroo claims a few words of special notice. Though it lives in the trees, it would seem, from its slow and hesitating movements, to be ill-adapted to an arboreal existence. On the other hand, it is without the muscular tail which the true kangaroo

finds of so much use in leaping, and is armed with powerful claws to assist in climbing.

The colouring of its fur, which is remarkable for glossiness, is a deep black along the whole of the back and the upper parts of the body; on the under parts it assumes a yellowish hue; while the breast is tinged with a warm chestnut shade. The hairs are rather coarse and long, and only of one kind; for the tree-kangaroo, unlike the Australian marsupial, possesses no inner coat, fine, close, and woolly, lying next to the skin. The tail is of the same colour as the body, and of great length, though deficient in muscular power.

To see a kangaroo on a tree, says a modern naturalist, —and we can easily agree with him,—is really a most remarkable sight. It looks so entirely out of place, and as if some malignant power had purposely dropped it into an embarrassing and unnatural position. But when the black-haired, long-legged creature suddenly hops from branch to branch, and chooses a temporary perch, with its long black tail dangling in the air, the spectator cannot conquer an emotion of surprise and apprehension.

A very great contrast to the mammalia of New Guinea is offered by its birds; for while the former are few and unimportant, the latter are “more numerous, more beautiful, and afford more new, curious, and elegant forms than those of any other island on the globe.” Of the Paradiseidæ it is needless to say more than we have already said; but it possesses other families which the ornithologist cannot regard without admiration. Emphatically, it is the land of cockatoos, for it contains no fewer than thirty species,—beginning with the great black cockatoo, and ending with the little nasiterwa, the Alpha and Omega, the giant and pigmy of the tribe.

One of the most charming of these birds is the Papuan lory, which rejoices in a livery of vivid scarlet, glossed here and there with emerald, yellow, and azure blue. Two spots of blue ornament the crown of the head, and all the lower part of the back and the legs are of the same colour. Two spots of rich yellow may be seen on either side, and the wings are of a bright full green. The tail is long and graduated, with two middle feathers which measure twelve inches, or double the length of the body. The tail feathers are all green at the base, and yellow at the extremity.

All the lories are distinguished by the comparative weakness of the bill, and the curious structure of the tongue, which, instead of terminating in "a soft fleshy cushion," as in the true parrots, is provided with elongated papillæ,—the latter sometimes even forming a kind of brush at the extremity. This structure is ingeniously adapted to the food on which the lories live,—namely, succulent fruits, and the nectared juices of honied flowers. The brilliant colouring of their plumage renders them conspicuous objects among the dark green leafiness of the Eastern forests, where they flutter from tree to tree, and bough to bough, in the liveliest manner possible. They may be classed among the gayest of birds, and even in captivity retain their blitheness.

The largest of the lories is the collared lory, so called from the broad yellow band, more or less tinged with red, which crosses the upper part of the breast, and nearly encircles the neck. This bird measures fully eleven inches in length. His body-colour is a bright scarlet, contrasting effectively with the emerald green of the wings, the blue-black of the crown of the head, and the blue of the legs and shoulders. When angry,



COCKATOOS.

he has a peculiar habit of inflating his throat, after the manner of a pigeon, and he utters a shrill cry, and makes a noise like a beaver.

The cockatoos are distinguished both from the lorries and the true parrots by the presence of a large crest, which they can raise or depress at pleasure. Their

habitat includes Australia, New Guinea, and the Moluccas. The localities in which they are found differ according to the species; for while some frequent the forest-glades, or the groves that border the large streams and rivers, others seek the more open woodlands and the thickets of the lower plains. They are timid birds, and not easily approached; but their vicinity is always known by their incessant clamour. Their cry, which is attempted to be expressed by their name, Cac-a-tu-a, or Ka-ka-toi, is shrill and unpleasant, especially when repeated by any considerable number. They feed exclusively on vegetable substances, such as tuberous and bulbous roots, nuts, and hard seeds.

One of the most singular species is the bare-headed dasyptilus, in which the hooked upper mandible and the straight lower mandible give the bill a form resembling that of the Raptores. The cere also is largely developed, and the nostril placed close to its margin, as in the predacious birds. But the distinctive character of the dasyptilus is the nakedness of the top of the head, the cheeks, and the upper part of the neck; these being as thinly sprinkled with setaceous feathers as a Chinaman's face with hair! The general colour of its plumage, which is coarse in texture, is black; but the greater wing-coverts, the outer webs of the secondary quills, the upper tail-coverts, and the whole lower surface below the breast, are of an intense crimson. It is a large bird, measuring fully twenty inches in length.

Papua is even richer in the Colymbidæ than in the Psittacidæ. It possesses at least forty distinct species of pigeons. These include the remarkable crowned pigeons, or Gourinæ, which are justly admired for their

size and beauty. It is difficult to imagine a more splendid creature than the *Goura coronata*, which has quite a regal port and gait, and, with its magnificent crown of plumes, has some claim to be considered a monarch among birds. The curious fact is, that, though a pigeon, it is completely unpigeon-like in character. It is very fond of the sunshine, and is accustomed to recline on the ground, with its head flat, one wing folded under it, and the other expanded over its body, so as to form a kind of pavilion; the quill-feathers being separated each from its neighbour, and radiating like the shafts of a fan. At times it relieves itself by stretching out the other wing to its full extent, and holding it from the ground at an angle of twenty degrees or so, as if to welcome the passage of every breath of air and every ray of glowing light.

The general colour of the plumage of this noble bird, —the largest of its order, frequently measuring thirty inches in length,—is a pale bluish gray; but the feathers of the back, the scapulars, and lesser wing-coverts, are black at the base, and purplish brown at the apex, and the larger wing-coverts are also purplish brown, but relieved by a broad band of white across their middle. The quill-feathers of the wing and tail are gray. Its crest of wavy, silky, delicate plumes is of the same colour as the plumage of the body.

The crowned pigeon feeds on berries, and on seeds which it picks up from the ground; it builds its nest on the branch of a tree, and lays only a couple of eggs.

A Papuan pigeon of singular character is the *Trugon terrestris*, which shows a close affinity to the *didunculus* of the Navigators' Islands, and by this relationship is



CROWNED PIGEONS.

brought into alliance with the extinct dodo. Its bill is large and strong; the upper mandible hooked at the tip, and the lower mandible truncated; hence it can feed on hard fruit and berries.

The other birds of New Guinea, though beautiful in themselves, and marked by specific differences, do not call for special notice, because in their general habits and organization they resemble their European or Asiatic congeners. We can but allude to the blue flycatcher, and the little boat-billed flycatchers, the gorgeous kingfishers, and the fork-tailed water-chats, the crow-like starlings, and the pale-coloured crows. When we state that one hundred and eight genera of land-birds are *known* to inhabit the hills and vales and plains of Papua, the reader will understand that a detailed description is impossible. Papua, in truth, presents itself to the mind of the ornithologist as one immense aviary—as an island of birds, an ocean-girdled Eden, where they flourish and multiply almost without check.

Of these one hundred and eight genera, twenty-nine belong exclusively to New Guinea, while thirty-five belong to an area including also North Australia and the Moluccas. About one-half of its genera are found in Australia, and about one-third in India and the Asiatic Malay Islands.

Mr. Wallace calls attention to the remarkable fact that a pure Malay element may be detected in the Papuan birds. Thus we meet with two species of *Eupetes*—a singular Malayan genus, allied to the fork-tailed water-chats; two of *Alcippe*, an Indian and Malay wren-like form; an *Arachnothera*, closely resembling the spider-catching honey suckers of Malacca; two species of *Gracula*, or Grakle, the mynahs of India;

and a strange little black *Prionochilus*, a saw-billed fruit-pecker, which may be, and perhaps is, a distinct genus, but undoubtedly is allied to the Malayan form.

Now, we must remember that not one of these birds, or "anything allied to them," occurs in the Moluccas, or, with a single exception, in Celebes or Australia; and as most of them are birds of short flight, it is not easy to understand how or when they could have crossed the waste of waters, upwards of one thousand miles in width, which now separates them from their nearest allies. The fact is noteworthy, for it points, as Mr. Wallace remarks, to extensive changes in the distribution of land and sea—changes which must have taken place at a rapid rate, if we judge by the time required for a change of species. Reflecting on the mutations thus shadowed forth, we come to see how partial waves of immigration have entered New Guinea, and how "all traces of their passage may have been obliterated by the subsequent disappearance of the intervening land."

PICTURES OF PAPUAN SCENERY.

The want of fuller and more accurate knowledge of the great Papuan islands is seriously felt by the writer who would fain attempt to convey to his readers some clear idea of the characteristic features of their scenery. The deficiency at present existing, we may expect to see supplied by the researches of the expedition under Mr. Rosenberg, which the Dutch Government despatched some few years ago. Meantime, we can but repeat that of the interior little is known, and that even the coast-line has not been completely surveyed; and we can but offer a few isolated sketches,

gathered here and there from the observations of various voyagers.

The shores of Torres Strait seem to be generally low and swampy, well-wooded, and intersected by numerous fresh-water channels. The trees are mostly a tall, thin, straight species of mangrove. They grow perfectly upright, with slender, pole-like stems; many of them attaining a stature of one hundred feet, and their naked matted roots sprawling loosely over the mud, as if to secure the firmest possible hold. Interspersed among them are clusters of palms of different kinds; and of various tropical plants—one resembling an aloe or agave, with broad, succulent, pointed leaves springing from the root, and armed with sharp thorns along their edges. The wood is not only impracticable, but even impermeable to the sight for more than a few yards, owing to the denseness of the undergrowth and the thick tangle of the spreading roots of the mangroves. It is simply a thick, dank jungle, as Mr. Jukes describes it, based on mud, and dripping with moisture.

If we ascend one of the fresh-water channels we speak of, we shall find that it receives a noble river, three-quarters of a mile in width, flowing through a densely-wooded country. On one of the banks we observe some native huts; and as they appear to be deserted, we land for the purpose of examining them. They are five or six in number: two of them, of small dimensions, evidently have been very recently constructed. One, which is much larger and older than the others, attracts our attention. We notice that it is quadrangular in shape, with a gabled roof; its ground-plan measuring about twenty feet in length by twelve

feet in width. It is raised on stout posts, fully five feet from the ground; and access to the upper part is obtained by a notched post leaning against it at the back. The floor of this upper story consists of stout poles laid transversely on the framework, and covered by the flattened rind apparently of some species of palm, forming very fair planks, an inch thick, and the size of our flooring planks. The back of the house, looking towards the woods, is quite open; but the other three sides have walls composed of palm-leaves twisted through upright poles or rods. The roof is thatched with the leaves of the sago-palm, very ingeniously interwoven upon a framework of sticks, and completely water-tight. The ridge of the gable rises about ten feet above the floor, and the side walls measure about four feet in height. At the end looking river-wards occurs a small recess or doorway, with a rude little staircase leading to the ground. Inside are a couple of fireplaces, each made of a patch of clay two or three inches thick, resting on the floor; over each of which is raised a frame of slender sticks, two feet high, as if for the purpose of hanging things over the fire.*

Round the huts spreads a partial clearing,—many large trees having been felled by repeated cuts, so sharp and broad that one can scarcely believe they were made by a stone axe. Several young cocoa-nuts and plantains flourish in this clearing, which looks exactly like the commencement of a new settlement by some Papuan squatters.

From this strange little colony the river maintains more or less of a northerly direction for two or three miles, and then divides into two large branches. We

* Jukes, "Voyage of H.M.S. *Fly*," i. 228, 229.

follow up the north-eastern branch, which bends boldly to the east, and then again divides ; one arm running east and south-east, and another due north. All these water-ways vary from a quarter to three quarters of a mile in width ; all are perfectly fresh ; generally twelve to fifteen feet in depth ; their banks of mud and clay covered with dense jungle, in which, as we continue our voyage, the mangroves become fewer and the palms more abundant, while in the distance the lofty forest-trees begin to show their canopies of luxuriant foliage.

AN INTERVIEW WITH NATIVES.

It was while ascending one of these romantic channels that Captain Blackwood and his exploring party fell in with a company of the natives under somewhat unpropitious circumstances.

Observing two or three canoes paddling about, he immediately pulled towards them. As he entered a side creek, others suddenly emerged, as if by magic, from the shelter of the overhanging bushes ; and a line of six or eight drew across the stream, evidently with the intention of disputing the passage.

When our explorers came within about one hundred and fifty yards of their opponents, they lay on their oars. The natives were all shouting and gesticulating, wildly flourishing their paddles, and splashing up water in the air like boys at play ; while others adjusted their bows and cast loose their bundles of arrows. Then arose a regular *slogan*, or war-cry, accompanied by a measured beat of the paddles against the sides of the canoes ; and the two ends of the line advanced towards the Englishmen. Captain Blackwood considered it necessary to order the muskets to be got

ready ; directing his men, if compelled to fire, to aim first at the canoes, so as to enlighten the savages respecting the capabilities of the white man's weapons, and frighten them away without bloodshed. The seamen then continued their advance. When they were within sixty yards, two arrows were shot, as if to test the distance : one dropped short, the other flew over the boat. Then the captain raised his rifle and fired. A bullet entered a canoe very near the feet of two savages in the bow, and they leaned down and looked over, as if wondering what had happened ; when, at the rattle of several muskets and the whistling of a shower of balls, they were seized with a panic, sprang overboard, and swam for the woods.

The other canoes now paddled swiftly up the channel, two or three more balls skimming the water alongside of them, to show they were still within reach. It was not intended to wound the savages, but to terrify them ; and this effect was produced by the rattle of the musketry, and the reverberations which echoed through the deep and lofty woods.

Captain Blackwood followed up the canoes into the main stream again, when the scared Papuans hastily landed among a crowd of natives. These remained half-concealed among the bushes at the mouth of a small creek ; and in the background stood a house of singular aspect, which immediately attracted the attention of the explorers. On drawing nearer, they examined it with their glasses, and were greatly surprised by its construction and dimensions. It looked exactly like an immense barn, with one gable projecting towards the river, but the roof extended back so far as to leave the other end completely hidden in the shadow of the woods.

A kind of balcony or platform rose underneath the gable, at some height from the ground, affording a very convenient observatory or station for sentinels. The roof was covered with thick, heavy-looking thatch, from which blue whirls of smoke ascended at several points. From the balcony one or two arched doorways led into the interior, through a wall apparently constructed of bamboo. What followed may best be related in the words of an eye-witness—the late distinguished naturalist, Mr. J. Bute Jukes:—

The canoes, he says, were now re-manned, and pushed off towards us with about fifty men in them. While we were reconnoitring these with our glasses, one of the men said he saw the people puffing smoke at us from the balcony; that they waved their arms, and a jet of smoke proceeded from them “like the puff of a pipe.” I did not succeed in seeing this action myself; but I have no doubt it was the same as that observed by Cook when he landed on this coast to the westward, and which has never yet been explained or accounted for. The men seemed each ornamented with a piece of round shell hanging on their breasts, and most had the shield-shaped piece of shell over the groin. They were generally of a dark brown or copper colour; but we observed one lad of a dirty pale yellow, the colour of a frog. The canoes were quite simple, having no outrigger on either side, but appearing to be a mere hollow tree. The paddles were about five feet long in the handle, with a diamond-shaped blade; the men using them as they stood up. They gradually advanced towards us.....As we were now so far from the sea, with such a labyrinth of channels to trace back, it would evidently never do to proceed with so

strong a body of enemies likewise in the rear. We determined, then, to return at once, and not attempt further communication with these people, as it would only lead probably to bloodshed, without any adequate reason.

Captain Blackwood made further attempts to examine the country in the vicinity of these water-ways, but was baffled by the hostility of the natives. On one occasion he had an opportunity of observing that they did not reserve all their vindictiveness for strangers, but could expend it among themselves. The inhabitants of two neighbouring villages seem to have been the combatants in the battle which he witnessed. One party advanced in an irregular, straggling line, with the women on the flanks and in the rear carrying bundles of arrows. The opposite party showed as little consideration for a strict military array; and each rushed upon the other at full speed until they came within about forty yards. Then they halted, and sought what shelter they could find behind rocks and large stones. This done, hostilities commenced. The sharp twang of the bows, the clatter of bundles of arrows, and the hurtling, hissing sound of the weapons as they shivered through the air, combined, with the savage yells of the combatants, to produce a terrible effect. The interest of the scene was increased by its abundant *movement*: by the animated attitudes of the black and naked warriors—many of whom had ornamented themselves with glittering pearl-shells, or with red flowers and yellow leaves in their long dark hair—and the gestures and hurried motions of the women, as they hovered on the rear or skirts of the battle with fresh supplies of ammunition.

After some preliminary skirmishing, the combatants

rushed together, and engaged in a hand-to-hand *méléc*—fighting like an infuriated mob. The shouting and clamour were redoubled; and the din was increased by the clatter of the long poles, sticks, or canoe-paddles to which the combatants had recourse. Strange to say, however, the affray, though so fierce in appearance, and so terrifically noisy, was comparatively innocent; and in a very brief time poles and paddles were held erect, the women closed up, an animated parley was held, and, after a general shout of “Poud! poud!” the warriors separated, and the fight was at an end. No one was killed, and no one seriously wounded; though some were scarred with arrow marks, and others wounded apparently with knives or hatchets.*

THE COAST SCENERY.

From the observations of various travellers, it is evident that the coast-scenery of New Guinea on the south and east everywhere presents the same general characteristics,—immense breadths of low, swampy land, densely planted with mangroves; which, as the ground rises, give way to thick and lofty forests, inhabited by lories, cockatoos, and pigeons. Here and there sandy flats, uncovered at low water, are utilized by the natives, and weirs for catching fish are constructed upon them. These are walls of loose stones, about three feet high, formed in curves and semicircles, each with a radius of one or two hundred yards. At high water they are completely covered; but when the tide falls numbers of fish are left within these enclosed spaces, or, together with crabs and other creatures of the sea, caught in the interstices of the stones. At

* J. B. Jukes, “Voyage of H.M.S. *Fly*,” I. 255–257.

varying distances from the shore stretches the great sunken barrier-reef of coral, which possesses so marked a resemblance to the Barrier Reef of Australia. The water upon the reef is generally very shallow ; but at certain points deep gaps or channels occur, which ships of heavy burden may navigate in safety.

Along the low littoral belt clearings have been made by the natives, to obtain sites for their little settlements. For this purpose a slight knoll or rising ground is selected. The timber-trees are then felled, the old stumps and branches of the trees being sometimes left for the "ketai" or yam plants to be trained upon. In the rear a grove of cocoa-nuts frequently affords shelter and precious food. The gardens are planted with plantains, and fenced in with bamboos ; beyond which spreads the tropical forest, matted by innumerable creepers and impervious with dense undergrowth. The construction of the huts is always on the same system : a flooring raised upon posts, a gabled roof, and walls and partitions of split bamboo. The great amusement of the inhabitants of these huts—apparently their only luxury—is tobacco-smoking, in which they indulge after a fashion of their own. They break off a piece from the roll or plait into which the leaves are twisted, and wrap it in a green leaf, to prevent it from igniting the bowl of their wooden pipe. A woman is deputed to fill the bamboo tube with smoke ; after which it is passed round, and each person in turn inhales a long draught, which he *swallows*, apparently with considerable effort,—stands motionless a few seconds, as if paralyzed, with the tears in his eyes,—then he respires deeply, and seems to recover. This practice the natives call *cree oara*, or "fire-drinking ;" and, objectionable

as it seems to us, protest that it comforts and benefits them.

Their principal occupations are hunting, fishing, and manufacturing images, tortoise-shell masks, drums, and bows and arrows.

The bows are made of the upper part of a stout bamboo, partly split in half, flattened, and bent by the application of heat. The string is a broad strip of the tough outer rind of a bamboo; and the fastenings are ingeniously and powerfully wrought. The bows are large, and of great strength; some are more than seven feet long, and in the centre more than three inches wide, and an inch thick. The natives discharge their arrows to very considerable distances, but not with any great accuracy of aim. The arrows vary from three to five feet in length, the common sorts being pointed only with hard wood, variously jagged and barbed. The war arrows, however, are much larger and heavier; the hard-wood part being very thick and square, and elaborately carved, with a sharp bone point and barb made and fitted like the Australian spears. The shaft is always a light cane or reed, without feathers. In using the bow, the men wear on the left arm a stout armband or gauntlet, which reaches from the hand to the elbow, is made of woven grass, and serves to defend the arm from the rebound of the string.

A few words may be added in reference to the physical character of the natives, which will apply to all the Papuans, whether inhabitants of New Guinea or of the islands that fringe its shores. The men, generally speaking, are fine, active, well-made fellows,—such is the description of a modern voyager,—rather above the middle height, and of a dark brown

or chocolate colour. Sometimes their faces may be designated handsome; they have aquiline noses, rather broad about the nostrils; well-shaped heads, and, in not a few cases, a curiously Hebrew cast of features. The frizzled hair is worn in long pipe-like ringlets, smeared sometimes with red ochre, sometimes left of its natural black colour; the use of wigs is not infrequent. The cartilage of the nose is bored, but there is seldom anything worn in it. Their ears are generally pierced all round with small holes, in which pieces of grass are stuck; and in many the lobe is torn, and hangs down to the shoulder. On the body and limbs the hair grows in small tufts, so that the skin has a slightly woolly appearance. They go entirely naked, except so far as some slight covering is afforded by the ornaments they wear; these are made of mother-of-pearl shells, either circular or crescent-shaped, suspended round their necks. Occasionally, also, part of a large shell, apparently a *cassis*, or helmet-shell, is cut into the shape of a shield, and worn in front of the groin.

The dress of the women consists of one or two *nessoors*, or petticoats, round the waist, and reaching nearly to the knees. These are composed of the inside part of the large leaves of a bulbous-rooted plant, called "teggær," of which each strip measures an inch in breadth. The *nessoor* of the young girls is made of much narrower strips, from the inside of the leaf of the "cabbow" or plantain. They are sewn on to a girdle.

According to Mr. Jukes, the younger women are often gracefully formed, with agreeable expressions of countenance, though not what Europeans would consider handsome features. They quickly degenerate,



NATIVES OF NEW GUINEA.

however, as is the case with women in almost all savage races; the degeneracy arising from insufficient food, and hard labour. The girls wear their hair rather long, but the women cut their tresses short, with a bushy ridge over the top; to which, singularly enough, they give the same name as to pieces of tortoise-shell,—that is, *kaisu*. Some of the elder females shave their heads quite smoothly; and they never wear a wig, or dress their hair in long ringlets, like the men.

A PAPUAN VILLAGE.

In the course of a visit to a Papuan village, situated on the bank of a large river at some distance from the sea, Mr. Jukes made some interesting discoveries, which must not be passed over.

It contained eleven small houses, and one of considerable dimensions. These stood in an irregular, open space; the houses being about fifty yards from the water's edge, and a dense forest of timber-trees and lofty palms about fifty yards behind them. The open ground was covered with heaped bushes of low trailing herbage, and the lower parts of the houses were half-hidden by large-leaved succulent plants.

The great house, or whatever it might be called, was raised from the muddy ground about six feet; resting on a number of posts placed irregularly underneath it, most of which seemed to be stumps of trees, cut off at that height and left standing. The floor seemed to consist of poles fastened across a framework, on which were laid loose planks, made apparently of the outer rind of the sago-palm, split open, flattened, and dried. This floor was perfectly level and smooth, and felt firm and stable to the foot. Its width was

thirty feet ; its length not less than three hundred ! An arched framework of bamboo, covered with an excellent thatch of the leaves of the sago-palm, formed the spacious roof, which was sixteen or eighteen feet high in the centre, and sloped down on either hand to the floor. It was thoroughly waterproof. The end walls were upright, made of bamboo poles, set close together ; with three doorways, having the form of a Gothic arch, and the centre being the largest.

Looking at the interior of the house, the spectator might have been forgiven for imagining himself to be at the mouth of a great tunnel. Down each side ran a row of cabins ; each was of a square form, projecting about ten feet, with bamboo walls reaching from the floor to the roof, and accessible at the side by a small door, neatly made of split bamboo. Inside were low frames covered with mats, which apparently did duty as bed-places ; and overhead were shelves and pegs, loaded with a variety of articles, such as bows and arrows, baskets, stone axes, and drums. In each cabin stood a fireplace of clay, and over it a small wooden framework, as before described, about two feet in height, three feet in length, and twelve inches in width ; this, probably, served the purpose of a grate. On a shelf overhead was stored a supply of dry firewood.

Between each pair of cabins was a small doorway about three feet high, closed by a neatly made door or bamboo shutter, from which a small ladder descended to the ground.

At each end of the house ran the stage or balcony previously described, being merely the open ends of the floor projecting beyond the walls ; here the cross-poles or beams were not covered with planks. The

roof, however, projected over these stages, both at the sides and much more overhead, "protruding forward at the gable something like the poke of a lady's bonnet, but more pointed."

All the centre of the interior was perfectly clean, and formed a noble promenade; except that it was somewhat dark, the only light proceeding from the doors at the end, and the little side-doors between the cabins. Near the middle, on one side, a pole, reaching from the floor to the roof, supported a kind of framework covered with skulls. These were very curiously ornamented: a wooden projection answered for the nose; black protruding lumps of gum, like short horns, were inserted in the sockets of the eyes, at the end of which were broad red seeds; and black gum, in which were embedded seeds both red and white, was smeared over the mouth and lower jaw. A handle of twisted cane was attached to the base of the skull, and by this handle it was suspended to the framework.

The smaller houses were also examined by our adventurous explorers, but offered no peculiarities of structure. Nowhere was visible sign or fragment of European articles or workmanship; and no particle of iron; so that the labour and ingenuity brought to bear upon the erection of the monster barn cannot but command our admiration.

ON THE NORTH COAST.

It is interesting to turn from these pictures of the southern shores of Papua to the slight sketches which Mr. Wallace furnishes of the north coast. Here, and on the neighbouring islets, a Christian mission has been established by some devoted Germans. It does not

appear, however, that the natives have attained as yet to any higher degree of culture than the southern tribes.

Mr. Wallace visited two villages on the little island of Mansinam, which presented some novel and interesting features. The houses all stand completely in the water, and are reached by long rude bridges. They are very low, with the roof shaped like a large boat, bottom upwards, reminding one of the fishermen's boat-hovels in some of our fishing villages. The posts supporting houses, bridges, and platforms are small crooked sticks, placed without any attempt at order, and exhibiting no appearance of solidity. The impression on the mind of the spectator is, that the whole structure will speedily come down with a crash, like a house of cards. This impression is confirmed when he ventures to "step inside." The walls consist of bits of boards, old canoes, rotten mats, attaps, and palm-leaves, all stuck together in an indescribable combination, and suggesting a modification of the well-known lines—

" Not that the things are either rich or rare ;
We wonder how " they managed to " get there ! " "

To walk on the floors was to experience the sensation of walking for the first time on the tight-rope. Under the eaves of many of the houses human skulls were suspended in ghastly, grisly array,—the trophies of the victories of the inhabitants over the savages of the interior, with whom they are constantly at war. A large boat-shaped "council-house" was supported on stronger and more massive posts, each of which was rudely carved to represent a naked male or female human figure; while grosser and truly revolting devices were placed on the platform in front of the entrance.

VILLAGE OF DORY, NEW GUINEA.



The wretched tenants of these wretched huts are, many of them, very handsome, being tall and well-made, with good features and large aquiline noses. Their colour is of a brown so deep that it can scarcely be distinguished from black; and their frizzly hair forms a tremendous "mop," into which a long six-pronged bamboo fork is inserted as a comb. This, in leisure moments, is actively employed to keep the jungle from growing hopelessly intertangled! The short woolly hair of the majority, however, attains to no such extraordinary development.

IN THE INTERIOR.

The Papuans of the interior differ much in physical features from the natives of the coast. Though generally black, some are as brown as Malays. Their hair, though always more or less frizzly, is sometimes short and matted, instead of being long, loose, and woolly; and this difference, in Mr. Wallace's opinion, is constitutional, and not the result of care and cultivation. Nearly half are afflicted with scrofulous skin-disease.

It is certainly curious that, among people who have attained to no higher standard of civilization, a love of the artistic, or at least of the ornamental, should prevail. Yet such is the case. According to Mr. Wallace, who resided for some time among them, they are "great carvers and painters." They cover every available inch of space on the outside of the houses with figures which are rude but not without character. They ornament the high-peaked prows of their boats with "masses of open filigree work," cut out of solid wood, but frequently light and graceful in design. Sometimes they attach to it a human figure, with a head of

cassowary feathers to imitate the marvellous "convexity of frizz" which distinguishes the Papuan dandy. "The floats of their fishing-lines, the wooden beaters used in tempering the clay for their pottery, their tobacco-boxes, and other household articles," are enriched with carved work, which is always tasteful, and often elegant.

On this strange but not uncommon union of the profoundest barbarism with an obviously deep if unenlightened love of art, Mr. Wallace offers the following observations:—

"These people," he says, "live in the most miserable, crazy, and filthy hovels, which are utterly destitute of anything that can be called furniture; not a stool, or bench, or board is seen in them; no brush seems to be known; and the clothes they wear are often filthy bark, or rags, or sacking. Along the paths where they daily pass to and from their provision grounds, not an overhanging bough or straggling brier ever seems to be cut, so that you have to brush through a rank vegetation, creep under fallen trees and spiny creepers, and wade through pools of mud and mire, which cannot dry up because the sun is not allowed to penetrate. Their food is almost wholly roots and vegetables, with fish or game only as an occasional luxury, and they are consequently very subject to various skin-diseases—the children especially being often miserable-looking objects, blotched all over with eruptions and sores. If these people are not savages, where shall we find any? Yet they have all a decided love for the fine arts, and spend their leisure time in executing works whose good taste and elegance would often be admired in our schools of design!" Surely we have here an illustration of the natural tendency of man to love and

admire the beautiful, and, so far as possible, to realize his idea of it, in contradistinction to the opinion of those who seek to lower the savage to the level of the brute.

NEW ROUTE FROM AUSTRALIA TO CHINA.

The recent explorations of the coast and seas of New Guinea by the *Basilisk*, one of the ships attached to Rear-Admiral Moresby's squadron in the Pacific, has led to the opening up of a new and shorter route from Australia to China, which may well claim a brief description.

Three distinct routes from Sydney to Hong Kong were previously recognized. These, in June 1873, were enumerated by Lieutenant Gowland, R.N., as follows:—

Imray's outer route.....	6,240 miles.
Imray's inner route.....	5,400 „
New inland passage.....	4,680 „

To these must now be added a fourth, which it has been proposed to call the "Moresby route:" it measures only 4,401 miles. A ship choosing this route would navigate the Coral Sea, with its labyrinth of islets and reefs, as if bound to Torres Strait; but on reaching the twentieth parallel of south latitude would steer direct for Teste Island.

Teste Island is the westernmost of the Louisiade group, and lies at the extremity of a range of enormous reefs, which stretch away from it to the eastward for about two hundred miles. It has been the dread of approaching this huge coral barrier, on which the strong south-east monsoon beats and buffets incessantly for eight months out of the twelve, that has so long retarded the exploration of the eastern shores of New

Guinea, and induced the voyager bound for China to adopt a circuitous westerly route. But it is now known that no insuperable natural obstacle blocks up the direct route. Immediately to the west of Teste Island, the reefs sink from the surface of the water to a depth of ten or twelve fathoms, and so continue for more than one hundred miles to the west, forming what the late Captain Stanley aptly designated "the sunken barrier-reef of New Guinea."

To the immediate west of Teste Island, ships taking the Moresby route pass over the sunken barrier; and here, as a writer remarks, Nature has planted such striking landmarks, that in no other place in the world would a landfall be made more easily, or a mistake in position be less likely to occur. A better beacon could not be desired than Teste Island itself affords. Its peaks, about three hundred feet in height, when first sighted might be taken for islands, and are distinguished by two remarkable trees. Four miles to the westward stands Bell Rock; a huge circular mass, starting perpendicularly from the sea, five hundred feet high, six hundred feet in circuit, and densely clothed in luxuriant vegetation.

This noble land-mark, or sea-mark, indicates the entrance to the new route; and the mariner may safely steer for it, and pass within a stone's-throw of its richly-wooded sides. Thence he will pass between Moresby Island and the Engineer's group, where the channel is entirely free from reef and rock. To the north-west, as far as Slade Island, the passage lies between two reefs of coralline limestone, about two miles apart. Then it widens into a channel four miles across, which opens, between Blakeney and Sydney

Islands, into Goschen Strait, after which the navigation is free and easy.

What now remains to be done, in order to complete the survey of this interesting route, is to follow up the unknown shores of New Guinea from East Cape for about four hundred miles to the west.

CHAPTER VI.

THE PAPUANS AND MALAYS.

GENERAL CHARACTERISTICS.



THE Eastern Archipelago may be considered as divided between two races of man,—the Malayan and the Papuan. The former are found almost exclusively in the western half; the latter almost exclusively in New Guinea and its adjacent islands. Of the latter, as the less known, we propose to speak first.

The colour of the body of the Papuan is a deep sooty-brown or black, almost approaching the jet-black of some of the negro races. The hair is frizzled or woolly—not spreading over the surface of the head as with the African negro, but growing in little tufts or curls, which keep separate from one another; while the hairs, if not checked in growth, twist and twine together in spiral or cork-screw ringlets.

Many of the tribes, and particularly those which have come in contact with civilized races, and procured cutting instruments from them, crop their hair as closely as the authorities of our workhouses and prisons crop the heads of their inmates. The tufts then assume the form of little knobs, about the size of large peas, which give the head a curious but not altogether disagreeable appearance; for, says Mr. Earl, the regularity of these

little knobs is so great, that the first idea which strikes a stranger is, that they have been produced by means of a stamp.

Among the coast-tribes the spiral ringlets sometimes grow to the length of a foot. In such a case, they are either shorn close to the head, and made into wigs, by inserting the ends into skull-cups formed of matting; or they are opened out by hand, and kept extended by the constant use of a four-pronged or five-pronged bamboo comb. The hair then forms a compact convexity of frizzle, which has caused the adopters of this peculiar mode of head-decoration to be called "mop-headed Papuans."

It is probable that, as Mr. Earl suggests, these practices have been adopted for the purpose of obviating the inconvenience caused by the ringlets falling over the face while their wearer was hunting or fishing, while at the same time they prevent the necessity of his parting altogether with a personal adornment in which every Papuan takes as much pride as a European belle.

The face is clothed with beard and whiskers, also growing in frizzly tufts; and the same peculiarity distinguishes the hair with which the breasts and shoulders of the men are sometimes covered. But it is to be noted that the woolly or twisted hair we have been describing is peculiar to the full-blooded Papuans. Where a cross has taken place with a Malay race, the hair, though thick and curly, spreads over the surface of the head, like that of Europeans. The Malayan term for crisped hair is *rambut pua-pua*; and hence the application of the term *pua-pua* or *Papua* to the entire race.

In stature the Papuan excels the Malay, and equals the European; but his legs are long and thin, and his hands and feet are large. The features are strongly marked with negro characteristics: the forehead is depressed, while the brows are very prominent; the large nose is broad and high, with the aperture hidden, owing to the elongation of the tip; thick protuberant lips apparently increase the size of the capacious mouth. According to the European standard of beauty, the Papuan is deficient; is far inferior to the shapely and comely Polynesian, and not quite equal to the lithe and active Malay. He does not improve his appearance by the strange practices to which he resorts. Thus, boring the septum, or cartilaginous partition of the nostrils, is by no means conducive to good looks. A roll of plantain-leaf inserted in the orifice, or the thigh-bone of some large bird, is not ornamental according to European canons of taste. Nor can we commend the curious custom, among the coast-tribes, of filing or grinding the front teeth to points; and that other curious custom, of destroying the colour of the hair,—that is, of converting it from its natural black to a light red by applications of burnt coral mixed with sea-water, or of preparations of wood-ashes. Not less objectionable is the very general habit of gashing the skin in longitudinal stripes with a sharp instrument, then rubbing white clay or some similar substance into the wound, and thus producing ghastly “embossed cicatrices,” which disfigure the thighs, breast, and shoulders, as if the flesh had been cut by the thongs of a heavy whip.

Morally, the Papuan is equal to the Malay; intellectually, he is perhaps superior, though from an in-

patience of organization, and a lack of what we would call *associative power*, he has been compelled to retreat before him. He is as impulsive and demonstrative as any warm-blooded Italian, and gives vent to his feelings and passions by shouts and laughter and yells, and by frantic gestures. He is full of energy and quick of comprehension, with a keen sense of the artistic, which leads him to decorate with elaborate carving his house, his canoe, his implements, and his weapons. He has a marked antipathy to strangers, or at least to their attempting to settle in his neighbourhood. And his indomitable nature and love of independence seem to have been the cause which has led to his extermination in all those islands of the Archipelago where he was unable to retire to the inaccessible fastnesses of the mountains. On the other hand, in a foreign country he loses his ferocity of disposition, and the Papuan slaves are remarkable for docility and obedience.

The different characteristics of the two races, the Papuan and the Malay, are pithily summed up by Mr. Wallace. The Malay, as he says, is of short stature, brown-skinned, straight-haired, beardless, and smooth-bodied. The Papuan is taller, black-skinned, frizzly-haired, bearded, and hairy-bodied. The former is broad-faced, has a small nose, and flat eyebrows; the latter is long-faced, has a large prominent nose, and projecting eyebrows. The Malay is cold, quiet, undemonstrative, bashful; the Papuan, impetuous, excitable, warm-tempered, and noisy. The former, grave and dignified, seldom laughs; the latter is merry and laughter-loving: the one conceals, the other displays his emotions.

The characteristics of the Papuan tribes on the

south coast of New Guinea have been minutely described by Lieutenant Modera, in his "Verhaal van eene Reize naar du Zuid-west Kust van Nieuw Guinea." Their stature is of the middle size, and their build does not indicate great physical strength. The colour of their skin is a bluish black. The lips are thick, and the nose is rather flat. Their general appearance is not prepossessing; nor is it improved by the greasiness of their bodies, or by the uncleanly practice of besmearing the forehead, and the face under the nose and round the chin, with red clay or mud. Nearly all have the lobe of the ear bored, and the slit is generally half a finger long.

The hair of the head is crisp, like that of the African negroes, and pitch-black in colour, and is worn in various fashions: some of the men plaiting it and twisting it into a tail which depends from the back of the head; others making it up into a kind of top-knot or braid; and others weaving it round rushes, so as to form an erect crest or coronal.

Their ideas of clothing are very vague. The men are naked, with the exception of a girdle or band, five or six inches broad, round the lower part of the stomach; the said girdle being sometimes provided with a large shell, so placed as to cover the centre of the stomach. It is made (the girdle) of the leaves of the pandanus, skilfully woven together; it fastens behind, and the ends hang down about a foot. But scantiness of clothing is compensated, in a certain sense, by abundance of ornament. Not a Papuan but assumes some kind of personal decoration. In this respect, however, the variety is great, no rule being observed but that of the individual fancy. Here you may see a man with bands

or bracelets of plaited ratans so tightly clasped round the muscle of the arm above the elbow that they cannot be removed except with the assistance of a friendly neighbour; there struts to and fro a savage with a necklace made of very neatly twisted cord; a third is resplendent in breast fringes of the same material, the ends being fastened round small oval pieces of wood: many have ear-rings of plaited ratan, which some wear in the right and others in the left ear.

From the above description, we may easily picture to ourselves this race of people; and it is not surprising that by their European visitor they should be esteemed both ugly and repulsive,—especially when we also take into account their alternate shrill laugh and piercing yell, which jar on the ear like bad notes in music.

The only weapons seen amongst them by Lieutenant Modera were arrows, bows, and lances, or throwing-spears. The arrows and lances were of reed, with points of pinang-wood hardened in the fire.

They display an extraordinary agility in climbing trees, and leaping from branch to branch like monkeys. This arboreal habit has been well established by the testimony of several travellers, and is doubtless due to the peculiar character of the country which they frequent. Along the coast of New Guinea the mangroves, which sometimes extend far into the sea, assume the character of forest-trees about the upper parts, while the lower consist of a network of strong fibrous roots, quite impenetrable without the aid of an axe; and even in this case progression is impossible unless the mud—which rarely happens at low water—has sufficient consistency to support the weight of the body. Now, the coast tribes, obtaining their chief subsistence

from the sea, are compelled to cross the mangrove belt daily. Naturally, they prefer to scramble their way through the upper branches, which are strong enough to afford a firm footing, while they intertwine so closely as to render this apparently singular mode of travelling comparatively easy, and practicable even by Europeans. Mr. Earl asserts that on more than one occasion he has seen a file of marines, with muskets on their shoulders, steadily proceeding in this fashion over mangrove swamps, though certainly not with the monkey-like agility of the Papuans.

An interview with tree-frequenting natives is described by Dr. Müller. On the occasion to which he refers, he had lost sight of the tribe for some hours. But in the afternoon he and his companions thought they discovered signs of agitation in the high forest; and soon afterwards, to their surprise, saw several men clambering about in the tops of the trees, and peeping out through the branches and foliage, now here and now there. It was just high water, and the surface of the ground was entirely submerged. Excited by curiosity, Dr. Müller and three of his companions sprang into a boat and rowed for the shore. As they approached, they observed that the trees were absolutely thronged with natives. And terrible was the disturbance they made as they leaped to and fro, and beckoned and nodded, and intimated by a hundred gestures that they wished their visitors to land.

Dr. Müller was accompanied by a native of Ceram, as interpreter; who was not less noisy and active in inviting the Papuans to visit the European strangers, endeavouring to entice them by a display of white calico, strings of beads, and other presents. The at-

traction proved powerful enough to draw some of the natives from their perches ; and down the trunks they clambered, and beyond the forest threshold they advanced, waving green branches in their hands, the water reaching to their armpits, and sometimes even to their necks. The beckoning and waving of the branches might have reminded one of the approach of Macduff's army from Dunsinane, when Macbeth thought the forest of Birnam was bearing down upon him ; and the loud yelping cries of " Kaka ! kaka ! " " djewa ! djewa ! " " ajecuba ! ajecuba ! " and the like, were endless. All yelled in a different key ; and there was evident a general desire to outvie each other in the loudness of their clamour and the extravagance of their gestures. Their parti-coloured countenances and be-frizzled hair were very distinctly displayed. After tarrying for about half an hour, Dr. Müller proceeded westward, still followed by the savages, who clambered through the upper branches of the trees, and over the arching roots of the mangrove trunks, exactly like " great monkeys."

THE OUTANATA TRIBE.

New Guinea is an extensive region ; and its two islands are inhabited by numerous tribes, all of which differ in some detail of appearance or customs, though all resemble each other in their leading characteristics. We have seen something of the Papuans of the southern coast : let us proceed to the south-west, and in the neighbourhood of the Outanata river. Lieutenant Modera shall introduce us to a savage community well worth notice.

The Outanata males are generally above the middle stature ; may, indeed, be considered " large-sized men."

They are all well-made and muscular. Their dark-brown skin is glossed over with a bluish tinge, apparently communicated by a decoction of some dye-wood. Some of them suffer from a cutaneous disease, owing to which the entire surface of the body and limbs is rendered scaly. Strange to say, they have all naturally a very agreeable smell, though they do their best to neutralize it by plastering the body with sand and mud. Their crisp, woolly hair they wear very dexterously plaited from the forehead and over the crown of the head to the occiput. Their eyes are small and dark; the septum of the long, drooping nose is pierced, so as to carry an ornament consisting of pieces of stick, bone, or hog's tusks. The mouth is large, and filled with white teeth, generally sharpened to points. The lips are thick.

Most of these quaint-looking individuals eschew clothing; but a few condescend to wear round their loins a piece of bark, or a narrow band of a cloth woven from the fibres of the cocoa-nut husk. The neck, arms, and waist are ornamented with hog's teeth; and the dandies figure in bracelets and leglets of twisted ratans, and in collars or necklets made of a cleverly interwoven network of rushes.

The women are of the middle stature, and generally darker complexioned than the men: they cannot be commended on the score of comeliness. Their children they carry on their backs, suspended in a clout or shawl made of leaves or bark. They anoint their bodies, as the men do, with sand and mud. Their requirements in the way of dress are not extensive, their only clothing being a patch of coarse cloth about six inches square.



PRAHUS ON THE RIVER OUTANATA

In disposition the Outanatas will not compare unfavourably with other Papuans, for they are good-natured and honest. No trace of a religious creed or of religious ceremonies has been discovered among them, though it is probable that some may have adopted from the Ceramese traders a rude Mohammedanism.

Their weapons consist of bows, arrows, javelins, and very neatly carved clubs. The bows are made of bamboo or betel-wood, about five feet long, with a string of bamboo or twisted ratan; and the arrows of cane or bamboo, with betel-wood points, hardened in the fire. Some of the points are shaped smooth; others are hacked with barbs, or armed with fish-bones, the horns of saw-fishes, and the claws of cassowaries. It is difficult to believe that such weapons as these can inflict any very serious wounds. They have also a kind of axe—that is, a stick with a large, sharp pebble attached to it by a lashing of ratan; and with this they are said to cut down the largest trees—though to use such an implement for such a purpose must exercise the patience of the most patient.

A single tree, hollowed out by means of fire, like Robinson Crusoe's canoe, forms their prahu. Simple as the craft may appear, it is frequently sixty feet in length; and the smallest are fully half that size. Both ends are flat. Often the prahu is handsomely carved; and owing to its build it draws but little water, and is made to progress by its rowers with considerable rapidity.

The habitation of the Outanatas is after a type not uncommon on the Papuan coast. Seen from without, it appears to be a number of small bamboo houses,

thatched with leaves, standing close together ; but on inspecting the interior we find it to consist of a single building, about one hundred feet in length, six feet in width, and five feet in height. It has nineteen doors, not one of which can a moderate-sized man enter without stooping. The floor is strewn with white sand, and the inmates lie and sleep on mats made of woven leaves. This caravanserai is devoted to the accommodation of several families, like a Scotch "flat;" and each have their own door and cooking-place. It is unfortunate that no passage is provided for the smoke except the doors, which serve also as windows. "Pots and pans" there are none ; the household paraphernalia of the Outanatas being of the most limited character, and chiefly confined to baskets of various textures and sizes.

THE DORIANS.

Our survey now takes us to the north coast. Through the researches of a Dutch expedition in 1850, much information has been obtained in reference to the tribes inhabiting the shores of the Great Bay, that here forms so remarkable a feature in the physical geography of New Guinea ; and especially in reference to those who at Port Dory have come into contact with Western civilization.

The Dorians—as we shall call them, for the sake of brevity—are small in stature ; mostly five feet and a quarter, and only in a few cases five feet and a half, in height. Their colour is a very dark brown ; the hair black and crisp, and worn at the full length to which it is inclined to develop. As, generally speaking, little attention is bestowed upon it, the vast expansion of frizzly hair gives its owner a wild and fierce

appearance. The men wear in it a comb, consisting of a bamboo stick split at one end into three or four long points like a fork, and shaped at the other into a spike, which is generally carved. This strange implement (or ornament) is stuck obliquely into the hair of the head, and a strip of coloured calico, fastened to the upper end, hangs down from it like a streamer. The beard is strongly crisped, but short. Most of the Papuans in this district have a high narrow forehead, large black or dark-brown eyes, flat broad noses, thick lips, large mouths, and good teeth. Not a few, however, have thin arched noses and thin lips, resembling the Caucasian type of countenance. Their expression is vacant and dull: most of them are very ugly, and only a few possess regular features and present a vivacious appearance.

The dress of the chiefs is on an ampler scale than generally prevails in Papua. They wear the *saluer*, or short drawers, of the Malays; and the *kabaya*, or loose coat of calico, with a handkerchief twisted round the head. Men of lower rank restrict themselves to a *chawat*, or waist-cloth, made of the bark of the fig, or of the paper-mulberry tree, beaten out in the same way as the bark-cloth of the Polynesians. The women are attired in a short petticoat of blue calico, or in short loose drawers. In both sexes the ears are bored, but not the septum of the nose; nor is the hideous practice of scarifying the limbs and bodies in vogue among them. On the other hand, they have learned the Polynesian custom of tattooing, which is performed by young girls with the aid of sharp fish-bones and soot. The chief devices with which the skin of the male is ornamented are crossed swords and kris-

blades; but in no case does the tattooing of the Papuans approach that of the Polynesians in variety and fancifulness.

What are the occupations of these people? For the men: hunting, fishing, weapon-shaping, house-making, and canoe-building. For the women: the cultivation of the plantations, the household work, carrying wood and water, manufacturing earthen pots, weaving mats and cloth. It will be seen that "women's rights" are not recognized among the Dorians. Natives of both sexes and all ages display extraordinary skill in the management of their canoes, and swim and dive with equal boldness and dexterity. Occasionally the dull tenor of their lives is diversified by a campaign against a hostile tribe; but war in Papua can never be sanguinary, owing to the imperfection of the weapons in use among the warriors, and it is carried on with a fitfulness and a want of energy that almost suggests the idea of its being regarded as a pastime, and not as a serious affair.

The principal articles of food among the Dorians are yams, maize, millet, fish, pork, plantains, cocoa-nuts, papayas, and rice, which they obtain from the traders who visit the coast. They are incessantly smoking small cigars or cigarettes, made of tobacco rolled up in a piece of pandanus-leaf; and they chew the siri, or betel-leaf, with great perseverance.

Their houses are always erected on the beach, and the wooden piles which support their flooring extend beyond low-water mark. A raised stage or platform affords access from the shore. The sides are built up with timber, and the roof is thatched with *ataps*, or marsh flags. A corridor about ten feet in width

traverses the centre of the building, and on each side the store-rooms and chambers are partitioned off with mats. The end nearest the sea is left open on three sides, and this is the favourite resort of the male inmates, who sit here and employ themselves in repairing their weapons and fishing-gear, or recline at their ease, smoking tobacco.

Cooking, says Mr. Earl, is performed in the inner rooms, each of which is furnished with a small fireplace. The floors are of rough spars, placed close together, and cannot be traversed safely by persons unaccustomed to them. It is not unusual for as many as twenty, even, and the wives and families of those among them who are married, to occupy a single house. The furniture is of the very plainest description; consisting of light boxes of palm-leaves, or of a bark resembling that of the birch-tree, very neatly made, and embellished with small shells and devices in black and red: these are used as receptacles for their scanty clothing and few valuables. Also, "hunting and fishing gear, arms, implements, earthen pots for cooking or holding food, wooden mortars for husking rice and maize, and sleeping mats and pillows; the mats being very neatly made, and ornamented with figures of bright black and red. The pillows consist of smooth, circular blocks of wood, resting on short feet, usually handsomely carved."

MORE ABOUT THE DORIANS.

The industrial resources of the Dorians, and of the Papuan tribes in general, are very limited. They weave mats with much dexterity, but entirely by hand, being ignorant of the use of the loom. They have made some progress, however, in an art with

which the savage world is usually unacquainted—that of working iron; their forge consisting of a bellows composed of a couple of large bamboos about four feet long, from which the air is expelled by means of two pistons, with bunches of feathers at the end; these are worked just like hand-pumps, and by their alternate upward movement a continuous air-current is driven through the orifices at the bottom, from which small tubes lead to the fireplace.

In agriculture their advance has been inconsiderable. They cultivate but few plants; and to obtain space for these they cut down and burn out the jungle, and the clearance thus effected they enclose with a strong bamboo fence to protect the young vegetation from the pigs.

To refer once more to the pages of Mr. Earl, an acknowledged authority on the manners and customs of the inhabitants of the Eastern Archipelago,* we find, from his description, that the weapons of the Dorians are scarcely more formidable than those of the other Papuan tribes. They include bows and arrows, lances or throwing spears, and klewangs or swords, with razor-shaped blades. The parang, or chopping-knife, which has also a razor-shaped blade, may be regarded as a weapon, for, being constantly worn in a sheath at the waist, it is ready for use in any emergency. The bows, between six and seven feet in length, are made of bamboo, or a tough kind of red-wood; the string is of ratan, and strong enough and elastic enough to propel an arrow four or five feet long. The arrows are never poisoned, but generally furnished with rudely-wrought iron heads.

* G. W. Earl, "Native Races of the Indian Archipelago," p. 77.

The iron axes used in felling trees, and shaping planks and canoes, are not manufactured by the natives, but bought from traders. Their fishing apparatus consists of bows and arrows of a lighter construction than those employed as weapons, and spears with points of iron, barbed and forked. The latter are used for striking fish, much in the same way as salmon are *leistered*, or speared, in the Scottish rivers. Fish are also caught in traps made of basket-work, the entrance to which is formed like that of a wire rat-trap; only, instead of wire, ratans are substituted, and the points expand to admit the victim, but close together to prevent him from getting out again. These traps are sunk in deep water by being weighted with heavy stones; and a line, buoyed with a piece of bamboo, is attached to the upper part, so that it can be raised at pleasure.

The Dorian prahu is wrought out of the trunk of a single tree, and often requires as many as twenty rowers to propel its formidable bulk. "A sail of matting is hoisted to a bamboo mast, which stands upon three feet; two being fixed to the side with pins, on which they work like hinges, while the third is slipped over a hook fastened near the stem." When the boatmen wish to strike the mast, they unhook this third foot, and the mast then lies over the thwarts of the prahu. But for ordinary purposes a small canoe is used, light enough to be carried by two men, and manageable even by children.

The manners and customs of the Dorians are described* as less barbarous than might be expected of so rude and uncivilized a race; a race which has come

* Brityn Kops, "Tidschrift," p. 185, cit. by Earl.

in contact with civilization, but not, as yet, to profit greatly by its better influences. They are evidently of a mild disposition, with strong moral principles, and inclined towards right and justice. They look upon dishonesty as a serious crime, and theft rarely occurs among them, though they have no fastenings to their houses, and no means of securing their property from the marauder. They are suspicious of strangers, however, and not until after prolonged intercourse show any disposition to confide in them; a circumstance probably due to ill-treatment received at the hands of the traders who visit their coast.

Many civilized peoples might find much to admire and imitate in their deference to old age, their faithfulness to the marriage tie, and their affection for their children. They prize chastity as highly as the most refined of European peoples, and breaches of it are scarcely known among them. They are partial to strong drink, however; but as they prepare no fermented liquor, the evil is obviously one which has been introduced by European traders. Kidnapping seems to be pursued as a legitimate occupation, to which no dishonour or reproach attaches. The captives are well treated, and exchanged or ransomed, as was the custom in medieval Europe.

Each tribe has its own chief; and each chief is independent of other chiefs, though a nominal allegiance seems to be given to the Sultan of Tidore. When a chief dies, one of the relatives of the deceased hastens to communicate the intelligence to the sultan, carrying with him a gift of slaves and birds of paradise—the two, apparently, being held of equal value—as a token of fealty. This person is generally appointed

to the chieftainship, and is duly invested with its insignia—namely, a yellow kabaya, a pair of drawers, and a handkerchief! Thenceforward he is bound to pay a yearly tax of one slave to his liege lord; to contribute three vessels, or prahus, to the sultan's flotilla; and supply the latter with provisions when demanded.

It does not appear that the authority of the chief is very extensive. The actual government of the tribe rests with a council of elders, and the chief's principal prerogative is to lead his men to battle. Legislation is excessively simple; for where crimes are few, punishments will also be few, and the pervading principle is that of compensation. If a man burns down his neighbour's house, he becomes his slave. If he wounds another wilfully, he must give him a slave by way of *solatium*. So, too, if he steals, he must restore what he has stolen, and add something as a bonus. Capital punishment is rarely, if ever, inflicted.

The Dorians, and, we may add, the Papuans generally, are prone to an excessive and even childish superstition. They carry about with them at all times and in all places a variety of charms and talismans, such as bits of bone, or quartz, or carved wood, to which, for some reason or other, an artificial value has come to be attached. Those who have acquired a tincture of Islamism use verses of the Koran, written on narrow slips of paper by the Moslem priests of Ceram and Tidore. But most Dorians are pagans, and worship an idol called "Karwar;" a clumsy figure of which, carved in wood, holding a shield, and distinguished by an abnormally large head, with a sharp nose and a

wide mouth, is kept in every house. It plays the part of a dumb oracle. In every emergency its owner hastens to consult it, crouching before it, and bowing repeatedly, with his hands clasped upon his forehead. Should he be seized, while thus engaged, with any feeling of doubt or despondency, it is considered an unfortunate sign; and the votary abandons whatever may have been his desire or intention. But it is clear that if he has formed any very strong wish, or is resolutely bent on carrying out some particular project, no such sensation is at all likely to disturb him; and then, of course, he assumes that he has the approval of his Karwar. Even among civilized nations a similar method of "consulting the oracle,"—of soliciting the advice of another, only to follow it when it coincides with one's own wishes,—is sometimes heard of!

There are priests among the Dorians; but their functions are confined to the interpretation of dreams and omens, and to giving advice in cases of sickness. Sacrifices are unknown; and we nowhere read of any religious ceremonies having been observed. The marriage-rite is performed with an absence of ostentation that would surprise the poorest couple in Christendom. The would-be bride and bridegroom sit down before the Karwar; the woman offers the man homage in the shape of tobacco and betel-leaf; the two join hands, rise up, and go forth united in "the bonds of matrimony!" When a death occurs, the corpse is wrapped in a shroud of white calico, and interred in a pit about five feet deep. Here it rests on its side, with its weapons and ornaments around it, and a

porcelain dish under its ear. The grave is then filled up with earth, and roofed over with *atap*; after which the Karwar of the deceased is placed on the top—and all is over!

ABOUT THE ARUANS.

Tribes of Papuan origin are scattered over the Aru and Sulu Islands, the Philippines, some parts of the coast of Borneo and Sumatra, and the north-western district of Australia. Their general characteristics are identical with those we have already described, and repetition would not add to the accuracy or effect of the picture. But something may be said, in conclusion, of the indigenous Aruans, who are certainly much more advanced than their congeners in Papua or Australia.

They are bold and expert mariners, these Aruans, and Lieutenant Kolff furnishes a lively sketch of their manner of conducting the trepang and pearl fisheries on the banks which lie off their pleasant islands. Vorkay, at the south-eastern extremity of the group, is the focus or centre of the pearl fishery, and the trepang is found on numerous reefs lying about eight miles to the eastward. At low water, the Aruans go forth, men, women, and children, by tens and hundreds, and, with basket on back, and iron-shod stick in hand, wade towards the banks. When the tide is flowing canoes are used; or, for the more distant reefs, stout-built prahus, each capable of accommodating a large family. Our British fishermen would be surprised at the grotesque appearance of these boats, with their amazing breadth of beam, the two planks projecting from the bows, and the lofty curved stern, reminding the spectator of a medieval galley. The

family reside in three or four huts, or rather wigwams, made of *atap* or palm-leaves, erected within the vessel, round the whole extent of which runs a light railing, apparently to keep the children from falling overboard. The prahu, thus equipped and loaded, is propelled by a large sail made of rushes, which folds up like a fan, similar to the sails of a Chinese junk, and is hoisted to a bamboo tripod or three-footed mast, as already described. There are two rudders for steering. Two short masts are erected for the purpose of displaying several small flags.

The pearl-fishery is vigorously prosecuted. The trader agrees to purchase a certain number of oysters, and pays down in advance so much cloth, arrack, and other articles. These preliminaries settled, the fisher launches his bark and sails for the oyster-bed, which lies in about four to five fathoms of water. The diver then goes down for the shells, which are small and black, and selects the best. The work is both difficult and dangerous; as, from the time the diver remains under water, blood frequently bursts from his nose and mouth, while he also runs the risk of being attacked and devoured by a shark.

The Aruans are specially remarkable among the tribes of the Archipelago for their inoffensive and peaceable disposition. This is shown in their behaviour to strangers, who are often injurious, extortionate, and domineering; and still more in their behaviour to one another. Though uninspired by religious motives, though fearing no future punishment and hoping for no future reward, they live in the utmost good fellowship; and in any disputes submit at once to the decisions of their elders, according to the customs of

their forefathers, which they hold in the highest esteem. Their sole, or at all events their chief vice, is an unfortunate appetite for strong drink.

No Aruan can take to himself a wife until he has delivered the marriage present—which consists of cloth, or brass gongs, or elephants' teeth, according to his rank. Usually this is paid in instalments, spreading over several years. It is a good thing to be a man with many daughters; for their marriage presents put him in possession of a considerable fortune. A young man sometimes wishes to marry, but can make no offering. In such a case he undertakes a long voyage among the group, and solicits contributions from those he visits, to enable him to pay down an instalment of his beloved's price.

It is not lawful in Aru for a man to enter the house of his neighbour during his absence; and whosoever transgresses this law is compelled to pay to the owner a piece of cloth, or some similar fine. This is called "pakal dende;" and if the offender should be unable to pay the fine, he immediately leaves the village.

The funeral rites of the Aruans are exceedingly curious, as illustrating the attempt of humanity, when not supported by the consoling belief in the soul's immortal life, to disguise the gloom of death.

On the death of an Aruan his relatives assemble and destroy all the goods that he may have collected in life,—breaking even the gongs in pieces, which are carefully thrown away. The body is next laid out on a small mat, and propped up against a ladder for three or four days; when the relatives again assemble, and cover the decomposed parts with lime, apparently for the purpose of checking further decay. Mean-

while the fumes of burning dammar or resin fill the hut, and the guests sit in the perfumed atmosphere drinking large quantities of arrack, and of a spirit which they themselves extract from the juice of a fruit. Thus excited and inflamed, they vent their feelings in violent shouts, which mingle with the howlings and wailings of the women and the hoarse discord of the gongs. Food is offered to the deceased; and when they find, as indeed they know, that he cannot partake of it, the mouth is filled to overflowing with eatables, siri, and arrack.

The friends and kinsmen being all collected, the body is placed on a kind of bier, which is strewn with numerous pieces of cloth according to the wealth of the deceased; while large dishes of China porcelain are set beneath to catch any moisture that may fall from the corpse. These dishes are afterwards held in high value. Being removed from the house, the body is supported against a post, and yet another attempt is made to induce it to eat. The hollow mouth is stuffed with lighted cigars, rice, fruit, and arrack, and the "mourners" join in a loud chant, inquiring whether the sleeper will not awaken at the sight of so many friends and fellow-villagers.

At length the mockery is at an end, and the unfortunate corpse placed again upon its bier, which is then adorned with flags and carried into the forest, where it is fixed upon the top of four posts. A tree—usually the *Pavetta Indica*—is then planted near it; and it is stated that at this final ceremony none but nude women are present. This is the "sudah buang," and testifies that the body is abandoned to the silence and the solitude, as unable any longer to see, hear, think, or feel.

MALAYAN SUPERSTITION.

Some curious particulars in illustration of the Malayan character have been brought together by Admiral Sherard Osborn in his "Quedah," and they serve to confirm the general view put forward in the preceding pages. He alludes to their superstitious credulity, and endeavours to explain it. The wild and enterprising life the majority of them lead, and the wonderful phenomena peculiar to the seas and islands of the great Archipelago, could never, he says, be accounted for by an uneducated but observant and highly imaginative race by any other than supernatural agency. But, then, the superstitious temperament is not peculiar to the Malayan race. It is found in all savage peoples, and would seem to be connected with that undefinable sense of an overruling and mysterious Power which is implanted in the heart even of Savage Man.

There were proofs by the thousand amongst the Malays with whom Admiral Osborn came in contact, of that connection with the spirit-world which men in every stage of civilization seem desirous to believe in and develop; and he relates the following instance of their childish credulity, which shows, moreover, their tendency to exaggerate into the marvellous a common optical delusion.

His gunboat was lying one night close to the southern point of the Quedah river, which flows into the Strait of Malacca. The air was damp and chill, and the sky obscured with clouds, through which a young moon darted occasional gleams of silvery light.

About eleven o'clock his attention was directed to his look-out man, a Malay, who, seated upon the bow-gun, was spitting violently, and giving rapid utterance

to expressions apparently of reproof or defiance. Presently another man went up to him; he pointed in the direction of the jungle-covered shore, and then both repeated the same extraordinary conduct. After a while, as if glad to escape from deck, the second Malay suddenly went below. Sherard Osborn could no longer restrain his curiosity, and walked forward. The look-out man had turned his back to the jungle, but was ever and anon casting furtive glances over his shoulder, and muttering sentences in which the name of "Allah" frequently occurred. He seemed delighted to see his captain, and, springing to his feet, saluted him.

"Anything new?" said Osborn; "any prahus in sight?"

"Teda, Touhan—no, sir!" was the reply; and then observing that his officer was looking in the direction of the jungle, he indicated by signs that it was better to look anywhere but there.

Calling Jamboo, his interpreter, Osborn desired him to ask what the Malay saw in the jungle. The reply was astonishing:—"He says he saw a spirit, sir."

"Nonsense! Ask him how, or where. It may be some Malay scouts."

Again came the answer—that the man had distinctly seen an untoo, or spirit, moving about among the trees close to the edge of the water, and that he had been assiduously praying and expectorating, in order to prevent it from approaching the gunboat, as it was evidently a very bad spirit, very dangerous, and clothed in a long dress.

Sherard Osborn expostulated with his interpreter for repeating so absurd a tale, and bade him explain

to the man that there were no such appearances as "spirits," and that if he had seen anything it must have been an animal or a man. But Jamboo earnestly assured him that Malays frequently saw untoos; that some of them were dangerous, and some harmless; and that, if he looked, he could see it as well as the Malay.

Accordingly, the English captain sat down by the Malay sailor, and looked in the same direction. The gunboat lay about one hundred and fifty yards distant from the jungle; the water flowed up to its very margin; among the roots of the mangrove-trees, and for a few yards inland, lay small ridges of white shingle and broken shells, which receded into darkness, or shone out into distinct relief as the moonlight fell upon them.

When these white gleams became apparent, Osborn pointed immediately, and inquired if these were what the Malay had seen.

"No, no!" he answered; and Jamboo added: "He says he will warn you immediately he sees—It!"

Suddenly he touched his officer, and pointing earnestly, exclaimed, "Look—look!"

Osborn *did* look, and for a moment felt the effect of the superstitious fancy on himself, as he caught sight of what appeared to be, and probably was, the figure of a female with drapery thrown around her: it glided out of the forest shadow, and halted at one of the hillocks of white sand, not more than three hundred yards distant. Osborn rubbed his eyes! while the interpreter called on a Romish saint; and the Malay spat vigorously, as if his path had been crossed by an unclean animal. Again the captain looked, and

again he saw the dark form, which had passed a dark clump of trees, and was slowly crossing another avenue in the forest.

“Feeling,” says Osborn, “the folly of yielding to the impression of reality which the illusion was certainly creating on my mind, I walked away, and kept the Malay employed in different ways until midnight; he, however, every now and then spat vehemently, and cursed all evil spirits with true Mohammedan fervour.”

THE ORANG-LAUTS.

It would be impossible in any accurate description of the Malayan peoples to pass over without notice the strange race of pirates known as the Orang-Lauts, “Men of the Sea,” or “Sea Gipsies.” Under the pressure of advancing civilization, they are gradually decreasing in numbers; but they still infest the Eastern seas, preying upon unprotected traders of every land. Their proper home is in their large prahus or canoes, though some of them plant little colonies on the sea-shore. Ishmaels of the ocean, their hand is against every man, and every man’s hand against them. Even the Malay of more civilized communities, notwithstanding his kinship and race relations, holds them in contempt or dread. They are generally found east of the Strait of Malacca; and under fifty different names, all of bad reputation, are known to the inhabitants of Java, Sumatra, Borneo, and the Moluccas.

A minute description of their habits has been given by Mr. Thomson, who speaks of them as animated in life by no higher motive than the satisfaction of the physical appetites. With the *sârkab*, or fish-spear, and the *parang*, or chopper, as their only implements,

they eke out a wretched subsistence from the stores of the rivers and forests. They neither dig nor plant, and yet live nearly independent of their fellow-men, except when plundering them. Tobacco they procure by the barter of fish, and a few marketables gathered in the woods or from the coral reefs. Of esculent roots they have the bulbous prioh and kalana, which are not unlike coarse yams. Of fruits they eat the tampii, kledang, and buroh, as they successively mature; and of animals they hunt the wild hog, refraining from snakes, iguanas, and monkeys.

It does not appear that they have the slightest intelligence of a Creator; "a fact so difficult to believe," says Mr. Thomson, "when we find that the most degraded of the human race, in other quarters of the globe, have an intuitive idea of this unerring and primary truth imprinted on their minds, that I took the greatest care to find a slight image of the Deity within the chaos of their thoughts, however degraded such might be, but was disappointed. They knew neither the God nor the Devil of the Christians or Mohammedans, although they confessed they had been told of such; nor any of the demigods of Hindu mythology, many of whom were recounted to them."

No rites or ceremonies appear to mark out the three great epochs of their individual life—birth, marriage, death. At birth, the mother's joy is the child's only welcome to a world it is not likely to find very bright or happy; at marriage, the bond of union is confirmed by the exchange between the male and the female of a mouthful of tobacco and a chupah, or gallon, of water; at death, the deceased is wrapped in his miserable garments, and, with a few tears from

the attendant women, committed to the earth. They seem to be as absolutely without superstition as without religion; and the influences of Nature appear to produce no effect on their stolid dispositions. Of the *pâris* and *dewas* and *nambang*s, and other phantom-forms that, in the quick imagination of the Malay, haunt each mountain, rock, and tree, they know nothing; and knowing nothing, they are without fear. It has never entered into their minds to conceive of the unseen world, or dream of the supernatural.

They do not practise circumcision, nor any other Mohammedan rite. Their women marry not unfrequently with the Malays and the Chinese, but are freely divorced by their husbands, and at liberty to form new alliances. Their personal appearance is unprepossessing, and their deportment lazy and slovenly, united to much filthiness of person. Both men and women fold about their middle a coarse wrapper made from the bark of the trap-tree—a species of *artocarpus*—and extending from the navel to the knee. The men bind up their locks with a fillet of cloth, and sometimes with the Malay *sapu-tangan*, or kerchief; the women allow their hair to flow in dishevelled luxuriance over face and shoulders. The children go entirely naked until they reach the age of puberty.

Mr. Thomson says of a tribe of Orang-Lauts inhabiting the creek of Salatar, that it numbered about two hundred men, women, and children, who dwelt in forty boats or canoes. This tribe, he continues, though confining its range within the limits of thirty square miles, may still be regarded as truly nomadic. In their sampans or canoes, which are barely sufficient to float their cargoes, they skirt the mangrove-girdled

shore, collecting their food from beach and forest as they glide or drift along, and after they have exhausted one locality proceeding to search another. “To one accustomed to the comforts and artificial wants of civilized life, theirs, as a contrast, appears to be extreme. Huddled up in a small boat hardly measuring twenty feet in length, they find all the domestic comforts they are in want of. At one end is seen the fireplace; in the middle are the few utensils they may be in possession of; and at the other end, beneath a mat not exceeding six feet in length, is found the sleeping apartment of a family often counting five or six members, together with a cat and a dog. Under this they find shelter from the dews and rains of the night and the heat of the day. Even the Malays, in pointing out these stinted quarters, cried out, ‘How miserable!’ But of this the objects of their commiseration were not aware. In these canoes they have enough for all their wants.”

The children gambol on the shore, and hunt after shell-fish at low water; or, when the tide rises, clamber up into the branches of the mangrove-trees, and leap from thence into the heaving waves with all the spirit and energy of children of a colder clime; so that whatever may be said of the manhood or old age of the Orang-Lauts, it is evident that their childhood is not without its pleasures.

THE AHETAS, OR NEGRITOS.

Our sketch of the inhabitants of the Eastern Archipelago would be incomplete without some reference to the Ahetas, or Negritos, of the Philippine Islands. Whether they have sprung from a mixture of Malayan

and Papuan blood, or whether they are of purely Papuan origin, we need not here inquire, but it is certain they belong to the "woolly-haired" race, and some of their characters are identical with those of the African negroes. They are not so dark in colour, however, as the latter, are smaller of stature, and more slightly built. The Spaniards call them "Negritos," or little negroes; but the planters and villagers of the Philippines generally term them "Itas" or "Ahetas." They are well-made, and vivacious in their motions, but rarely exceed four feet and a half in height. They have not the low flat nose of the negro, but their chin is very short, and the hair invariably crisp and frizzled.

Having no knowledge of agricultural pursuits, they live principally upon roots and fruits, to which they add the spoils of the chase—the woods abounding in all kinds of feathered game, as well as in deer, wild pigs, and buffaloes. The game is hastily cooked and eaten on the spot where it has been slain; a custom which has originated, perhaps, in the difficulty of removing large animals, such as buffaloes or deer. Their weapons are lances or javelins, and bows and arrows, in the use of which they display an extraordinary dexterity.

Their animosity to the Indians, or brown-coloured race, is extraordinary, and has led to the perpetuation of a custom which renders them exceedingly formidable. When a member of their family or a friend who has been famous as a warrior departs this life, one of them immediately presents himself among his companions and the kith and kin of the defunct, with a quiver at his back and bow and arrows in his hand,

and announces his departure; swearing that he will not return among them until he has slain one or more of the Indians, and so avenged the death of his friend, which he ascribes to the sorcery of their rivals. Immediately he betakes himself to the localities which he knows they frequent, and, climbing a tree, examines from thence the dwellings of the Indians, the rivers in which they are accustomed to bathe, or the brook from which they collect the gold dust; and, hidden among the screening foliage, watches for an opportunity to strike them dead with his poison-steeped arrows. Having thus secured a victim, he returns among his people; and proud of having avenged the death of a friend or brother, joins in their dances and songs of festive triumph.

Mr. Earl quotes from M. de la Gironière's interesting narrative of his explorations of the Philippines some details which that intelligent traveller collected in reference to the Ahetas. He paid a visit to their tribe, and met with a sufficiently friendly reception. His description runs as follows:—

One morning, while he and his followers were pursuing their way in silence, they suddenly heard before them a shrill chorus, resembling rather the cries of birds than human voices. Knowing they were in the district inhabited by the Ahetas, they advanced warily, keeping as much as possible under the cover of the trees and brambles. All at once they discovered at a short distance about forty savages, of all ages and sexes, who wore a truly *animal* appearance. They were on the banks of a rivulet, surrounding a large fire.

Forward went the travellers, presenting at them the butt ends of their guns. The Ahetas renewed

their shrill cries, and prepared for flight; but M. de la Gironière made signs to them that his intentions were friendly, and showed them some packets of cigars as designed for their acceptance. As soon as this was understood, they arranged themselves in a line, like men preparing for a review; a signal that the strangers might approach.

The latter accordingly went up to them with the cigars in their hands, and M. de la Gironière commenced the distribution at one end of the row. It was important to make friends with all of them, and, therefore, to give to each an equal share. The distribution at an end, the alliance was concluded, and a general smoking was begun "all along the line." A deer was suspended to a tree. The chief took his bamboo knife, cut three large slices of venison and flung them into the fire, and drawing them out a moment afterwards, presented a piece to each of the strangers. The outside was powdered with ashes and slightly scorched, while the inside reeked with blood, and was perfectly raw. M. de la Gironière regarded the dish set before him with repugnance, but, aware that he must not show it, did his best to eat the venison with apparent relish. His Indian companions followed his example; and the confidence of the Ahetas was thus completely secured.

M. de la Gironière goes on to say that the people in whose society he now found himself appeared to him more like a family of apes than a tribe of human beings. Even their voices resembled that of the ape in tone, and their gestures were identical. The only, or at all events the principal, difference consisted in their know-

ledge of the use of the bow and lance, and their ability to kindle a fire. Their complexions were ebon-black. The tallest among them did not exceed four feet and a half. The hair was woolly, and as they know nothing or care nothing about arranging it, it forms a kind of crown around the head, which gives them an exceedingly fantastic aspect, and may be compared, when seen from a distance, to a kind of aureola. The eyes are rather yellow, but as bright and vivacious as those of an eagle. Their keenness of vision is remarkable, owing to the constant exercise of the eyes in hunting and in the experiences of a forest-life.

The features of the Ahetas somewhat resemble, says our authority, those of the African blacks; but the lips are less prominent. While still young, their figures are well-formed; but the rude life they lead in the woods, sleeping always in the open air without shelter, eating largely one day and starving the next, prolonged fasts being followed too often by repasts eaten with the voracity of wild beasts, produce a large stomach in contrast to lank and meagre extremities. They wear no clothing, except a belt, made of the bark of trees, and about eight or ten inches in width, which encircles the waist.

Their weapons, both in the battle and the chase, consist of a bamboo spear, a bow of palm-wood, and poisoned arrows. They live upon roots, fruits, and the produce of their skill and industry as hunters. They devour their meat, as we have seen, almost in a raw condition; and live together in migratory tribes numbering fifty or sixty members. During the day, the aged and infirm, and the children, gather round a large fire, while the young and able-bodied are hunt-

ing in the woods; when the latter return with sufficient booty to supply them with food for several days, they all settle down to a prolonged bivouac. At night they sleep in promiscuous confusion among the ashes of the fire. It is exceedingly curious, and, we think, somewhat pathetic, to see fifty or more of these semi-human, semi-bestial creatures, all more or less deformed, huddled together in one disorderly group. The old women are particularly hideous; their decrepit limbs, protuberant stomachs, and wild, dishevelled mass of hair seem to realize the old conception of witches, or "midnight hags."

The Ahetas have no religious system, though they are not wholly without the religious sentiment. It appears that they have taught the Tanguianes—a brown race dwelling in the neighbourhood—or have learned from them, the practice of worshipping for a day the trunk of a tree or a fragment of rock in which they trace some fancied resemblance to an animal. Then they turn away from it, and think no more about gods until they come across some other fantastical form, for the existence of which they are unable to account; and this they make in turn the object of a temporary worship. They cherish a particular veneration for the dead. For several years they do not fail to visit their graves, and deposit upon them an offering of a little tobacco and betel,—just as the Christian mourner places a wreath of flowers, though, alas! without the Christian mourner's hope. The bows and arrows of the deceased are suspended above his grave on the day of interment, and it is their fond belief that he issues every night from his resting-place to

pursue the shadowy hunt in the haunted glades of the forest.

In the case of an aged person afflicted with a mortal illness, they do not always wait for his death, however, before they bury him. But no sooner has the body been deposited in the grave than it becomes necessary, according to their traditions, that his death should be avenged; and, accordingly, the warriors of the tribe sally forth, with lance and arrow, to slay the first living creature they encounter,—whether man, or stag, or wild hog, or buffalo. When thus in quest of an expiatory victim, they take the precaution of breaking off the young shoots of the shrubs as they pass by, and leave the broken ends hanging in the direction of their roots, for the purpose of warning neighbours and travellers to shun the path they are taking; for if one of their own people should come across the avengers, they durst not permit him to escape. He must suffer for the dead.

They are faithful in marriage, and have but one wife. When a young man has selected his future partner, his friends or relatives ask the consent of her parents, which is never refused. Then the marriage day is fixed; and in the morning, before sunrise, the maiden is despatched into the forest, where she conceals herself or not, according to her inclinations towards her suitor. An hour's grace is allowed, and the young man then goes forth to seek her; and if he succeeds in finding her and bringing her back to her friends before sunset, she becomes his wife. But if he fails in his quest, he is required to abandon all further claim to the damsel. There is at least more liberty of choice allowed by this strange custom than is always permitted in civilized society.

It is an admirable feature of the character of the Ahetas, that they pay the greatest respect to old age; and their assemblies are always governed by one of the elders. These assemblies, as we have said, number generally about sixty or even eighty individuals, and wander about the forests without any "local habitation," moving hither and thither according to the abundance or scarcity of game.

Pursuing such a primitive mode of life, it is no wonder that these savages are destitute of even the rudest musical instruments. They have scarcely a language; their method of intercommunication curiously resembling the chirruping of birds, while it contains a few, and only a few, words, which are of incredible difficulty of acquisition, it is said, to any stranger.

They are excellent hunters, and the skill with which they use the bow extorts the admiration of the European. The children of both sexes, while their parents are hunting in the woods, exercise on the banks of the streams with tiny bows and arrows; and when they catch sight of a fish in the crystal water, immediately discharge an arrow at it,—seldom failing to hit their mark.

Their weapons are always poisoned. A simple arrow could not make a wound of sufficient importance to arrest any large animal in its course; but when the barb has been steeped in the poisonous preparation manufactured by the Aheta hunters, its slightest scratch produces in the animal a terrible thirst, and he dies the moment he has gratified it. The hunters are careful to cut away the flesh all round the wound, and the remainder may then be

eaten with impunity; but if they neglect this precaution, the flesh acquires an intense bitterness of taste, which not even an Aheta can relish.

The Ahetas are remarkable for the agility and address of all their movements. Like the Papuans of New Guinea, they dexterously climb the highest trees, seizing the trunk with both hands, and using the soles of the feet as a lever. In the chase, which is their favourite occupation, they run with the nimble swiftness of a deer. A curious sight it is to see these people departing on a great hunting expedition; men, women, and children all consort together, and issue forth like a troop of orang-utans. They are always accompanied by one or two small dogs of a peculiar breed, which assist them in following up the prey after it has been wounded.

Book Third.

THE PHILIPPINE ISLANDS.

INTRODUCTORY.



REMARKABLE cluster of islands lying to the north-east of Borneo, with the Chinese Sea on their west, the Sea of Celebes on their south, and the North Pacific on their east, though not to be included in either of the two great divisions of the Eastern Archipelago, seems to fall within the scope of the present volume; for it is situated within the Tropics, is tropical in its physical aspects and vegetation, and belongs to the Eastern Ocean.

The group to which we refer is known as the Philippines, and includes about forty islands of considerable dimensions, besides numerous smaller isles and islets. The principal are Luzon, Mindanao, Mindoro, Samar, Panay, Leyte, Zebu, Negros, Bohol, and Alawan.

These islands present so many interesting and attractive features, that we shall attempt a somewhat detailed account; beginning with a general view of their prominent characteristics, glancing at the history of their discovery by Europeans, and concluding with some sketches of their scenery, and leading forms of animal and vegetable life.

GENERAL VIEW OF THE GROUP.

The larger islands of the group appear to produce a powerful impression on the imagination of the voyager, to judge from the many glowing pictures contained in various narratives. Their coast-line is bold and irregular, broken up by numerous romantic headlands, the declivities of which are green with abundant foliage; by long narrow tongues of land, with forest-growth extending to the very margin of the sea; by broad bays, each capable of accommodating an imperial fleet; and narrow inlets and creeks, so embowered in shade that large ships might harbour in them and not be discovered by a passing enemy. Then from the bright and picturesque shore the ground rises inland with a continual ascent, until the undulating plains are succeeded by low ranges of wooded hills, and these by lofty ranges, which here and there culminate in magnificent mountain-peaks. In and among these ranges, which are irregular in their direction, and throw off numerous short chains and spurs, lie slopes of perennial verdure, and valleys so gifted with the bounties of nature that they surpass the dreams of Arcadian poets. Here, too, are broad, deep lakes, in their general features often reminding the traveller of the charming basins of the Scottish Highlands; while many streams flow through the verdurous glens to unite in ample rivers, which, with full channels, descend to the sea.

The vegetation of the Philippines is rich almost beyond tropical richness. Nor could it be otherwise; for a fertile soil is assisted by a genial climate. Droughts are unknown: the tropical heats are tempered by abundant moisture, and by the constant alternation of the land and sea breezes. In the western portions of

the group the rainy season begins in June and ends in September ; in the east, it begins in October and ends in January : and the rains are then so heavy and so continuous, that the low grounds are converted into extensive lakes. This inundation, however, increases the fertility of the soil, and favours the growth of exuberant crops. It may almost be said that the only misfortune to which the islands are liable, the only shade on a picture which astonishes us by its splendour, is the frequency and the severity of their earthquakes. They form a part of the great volcanic chain to which, in describing the Eastern Archipelago, we have so often found it necessary to allude ; and they possess several volcanoes, both active and extinct, among the most important of which is that of Taal. Manilla, the capital of Luzon, and the chief town of the group, was ruined by a convulsion which broke out on the evening of the 3rd of June 1863. The cathedral, with its noble dome, was shattered into ruins by a shock which occurred while the priests were chanting vespers. The viceroy's palace was destroyed, and the British consulate ; not one of the churches escaped, and the only one left standing, that of Binondo, was rent from roof to basement. Nearly two thousand persons perished.

The Philippines are not only rich in vegetation, but abound in treasures "subterrene." The sand of their rivers yields no inconsiderable quantities of gold dust. All the palaces of earth might be rebuilt from their extensive quarries of marble and limestone. Their coal-fields cover a wide area, and produce an excellent fuel. Iron, the wealth of strong and powerful nations, and copper of the best quality, are found in all the mountain-ranges. Sulphur, magnesia, quick-



VOLCANO OF TAAL LUZON, PHILIPPINES.

silver, vermilion, saltpetre, and alum are also plentiful. So vast, indeed, are the resources of the Philippines, that only an able government is needed to give them the position of a wealthy, influential, and prosperous commercial state. But the colonial administration of Spain has never been marked by either vigour or sagacity; and though the recent development of commerce has been considerable, it is by no means proportionate to the capabilities of these beautiful islands.

VEGETABLE AND ANIMAL LIFE.

The forest-trees which cover the valley-slopes and ascend the mountain-sides are very valuable. Among the plants cultivated for use we find the gomuti or cabonegro palm, the abuca, the cocoa, and other palms; the pine-apple, the cacao-tree, cotton, and coffee; the tamarind, indigo, and sugar-cane. Tobacco is largely grown, and the Manilla cigars are scarcely less celebrated than those of Havannah. Rice is raised in immense quantities, and forms a principal article of trade; and the vegetable wealth of the group also includes cassia, cloves, red and black pepper, vanilla, cinnamon, nutmegs, maize, wheat, yams, the sweet potato, and a variety of the most delicious fruits on which the ripening sunshine of the Tropics falls.

Animal-life is neither less various nor less exuberant. The horses of the Philippines are small, but strong and lively; the deer supply a capital venison; hogs, goats, sheep, buffaloes, and oxen are bred by the agriculturist. Foxes and gazelles frequent the valleys; monkeys, squirrels, wild cats, and the *bagua*, a kind of flying cat, the woods. The jungles are enlivened by the bright plumage of the humming-birds, parrots, and the

rhinoceros-bird. The sea-swallow builds her edible nest in the hollows and caves of the rocky coasts. The forests swarm with eagles, falcons, herons, pigeons, game-cocks, quails; and the lakes with aquatic birds. The timorous pelican haunts the lonely shores. Pools and rivers teem with fish; but here an unpleasant fact obtrudes itself upon us,—crocodiles are numerous. Serpents lurk in the dense growth of the forests; leeches swarm in the swampy lowlands; reptiles abound; and insect-life displays itself with a luxuriance which both native and stranger find good cause to lament. None can regard with satisfaction the constant presence of spiders of “exaggerated dimensions,” white ants of the most terrible destructive powers, mosquitoes which levy a blood-tax with remorseless ferocity, voracious locusts, and weird-looking tarantulas. On the other hand, the glades are illuminated at night by swarms of fire-flies. Hives of wild bees droop from the branches, alongside of the swaying nests of the beautiful Trochilidæ. Nowhere are the Coleoptera invested with brighter colours, and the irritating hum of the insect-world is forgotten when the pillared avenues resound with the various melodies of a thousand birds.

We have spoken of the forest-trees. They attract attention by their enormous bulk, and by their huge canopies of spreading foliage. They are bound together by the remarkable bush-rope, or palaseru, which grows in festoons several hundred feet in length; while a whole world of epiphytous plants, parasites, creepers, climbers, lianes, finds nourishment in their bark, or support on their stalwart arms, and spreads everywhere such a tangle of leaf, and stem, and blossom, that the traveller can only force his way into the forest-depths

axe in hand. The glowing picture drawn by an English poet from the resources of his imagination is realized here, and even surpassed; it is as if Nature,—to use a word which means so much and yet expresses so little,—had chosen these islands as the theatre of her most extensive operations, and in the heart of the warm Eastern seas, and under the genial influence of the tropical skies, had given full range to her wonderful fertility of invention. As the wondering explorer forces his way through the verdant labyrinth,—

“ The meeting boughs and implicated leaves
Weave twilight o'er his path.”

He goes forward in the shade of noble trees reaching from seventy to one hundred feet in height, and the green gloom increases:—

“ More dark
And dusk the shades accumulate.....
The pyramids
Of the tall cedar, overarching, frame
Most solemn domes within.....
Like restless serpents clothed
In rainbow and in fire, the parasites,
Starred with ten thousand blossoms, flow around
The gray trunks; and, as gamesome infants' eyes,
With gentle meanings and most innocent wiles,
Fold their beams round the hearts of those that love,
These twine their tendrils with the wedded boughs,
Uniting their close union; the woven leaves
Make network of the dark-blue light of day
And the night's noontide clearness, mutable
As shapes in the weird clouds.”*

NATIVE INDUSTRIES.

The industrial occupations of the natives include a very ingenious method of working in horn; the manufacture of gold and silver chains, of cigar-cases and fine hats in various vegetable fibres, of beautifully coloured

* Shelley, “Alastor;” Poems, ed. by W. G. Rossetti, p. 104.

mats, embroidered with gold and silver ; the dressing and varnishing of leather ; ship-building and coach-building. The manufacture of cigars gives employment to a large number of hands. The cordage of the Philippines is held in good repute. The textile productions are said to be fifty-two in number ; from the delicate and costly shawls and handkerchiefs, made from the fibre of pine-apple leaves, called *pinas*, and sold at the rate of one or two ounces of gold a piece, down to coarse cotton and stout sacking, wrought from the fibres of the abaca and gomuti palms. But a clearer idea of the insular resources is gained from a mere enumeration of the exports ; among which we find tobacco, cigars, hats, mats, shawls and handkerchiefs, cotton, alpaca, silk, gold and silver work, mother-of-pearl, amber, tortoise-shell, coral, birds of paradise plumes, edible birds'-nests, gold dust, sulphur, alum, coal, quicksilver, Manilla hemp, indigo, coffee, guava, maize, rice, tamarind, oranges, lemons, sugar, spices, trepangs, hides, ratans, dye-woods, and timber. The list is not complete ; but it draws, as we see, on the products of earth, air, and water, as well as on the results of human industry and skill ; and it indicates the enormous range to which the inhabitants of the Philippines extend their commercial enterprise. Regarded in this light, the catalogue acquires a special interest ; and, indeed, every component part of it will suggest a delightful field of inquiry to the cultivated mind. It calls up pictures of the tropical forest, with its astonishing profusion of animal and vegetable life ; of blooming orchards, where, in this happy clime, blossoms and fruit hang on the trees together ; of rich plains and slopes, affording a continual succession of

bounteous crops, and rejoicing in a soil which the British agriculturist would look upon as an inexhaustible source of wealth; of the caves of the sea-coast, where the sea-swallow makes her home; the coral-reefs, where the sea-cucumber falls a prey to the adventurous diver; the well-tilled plantations, with their orderly array of sugar-canes, or thriving plots of tobacco; the groves, thick with spice-trees, where the air breathes an undying sweetness; the lofty mountains, with their internal deposits of precious metals and minerals; the bright streams, whose shifting sands sparkle red with gold dust; and the lonely surf-washed shores, where the turtle loves to bask in the sunshine. Such a list, then, is a guide to the scenery, so rich and so diversified, of these marvellous islands, as well as a key to their numerous stores and treasures. And it shows that few countries possess a finer colony than Spain possesses in the Philippines.

POPULATION AND GOVERNMENT.

We have nearly completed our general view of the islands, but a few details seem wanting for the full information of the reader. The two principal races, then, are the Tagals and Bisayers, who inhabit the towns, villages, and cultivated lowlands, and are mostly Roman Catholics, though a considerable number remain faithful to the creed of Mohammed. In the mountainous interior we find what is probably the original race, the Oceanic Negroes; a black-complexioned, negroish people, closely resembling in their persons and their customs the Papuan Alfoories. They are chiefly heathens, practising a wild and crude idolatry, or otherwise observing no religious form at all, though not free from degrad-

ing superstitions. Among the industrial population a foremost place must be given to the Chinese immigrants—who, however, do not settle permanently in the islands; while the Mestizos, or half-breeds, who are mostly of Chinese fathers and native mothers, exhibit a remarkable degree of activity, enterprise, and industry. Spaniards are few in this Spanish colony—except in the military and naval service. According to Mr. Martin, in his valuable “Statesman’s Year-Book,” the Spanish garrison consists of two brigades of artillery and a corps of engineers; besides which there are seven regiments of native infantry and one of native cavalry. A small body of native militia is stationed at Manilla. The navy is composed of four steamships, one brig, six gunboats, and numerous feluccas for coast service.

The colony is administered by a governor-general, appointed by the Crown. He is commander-in-chief of the land and sea forces, president of the supreme court of justice, vice-patron, and sub-delegate judge of couriers, posts, and expresses. He is assisted by a lieutenant-governor, and thirty-three governors, one for each of the provinces into which the islands are divided. To each province is also allotted an *alcalde-mayor*, or *corregidor*, appointed by the Crown; while each *pueblo*, or township, has its native *gobernadorcillo*, or mayor, elected annually by the inhabitants.

Of the size and population of the islands a few particulars may be useful. The total area of the group may be estimated at 150,000 square miles. Luzon has an area of 51,300 square miles, whereas Scotland scarcely exceeds 29,000. Mindanao, which lies to the south, as Luzon does to the north, is estimated at fully

25,000. The islands called the Bisayas, lying between these two points, include :—Samar, 13,020 ; Mindoro, 12,600 ; Panay, 11,340 ; Leyte, 10,080 ; Negros, 6,300 ; Masbute, 4,200 ; and Zebu, 2,352. There are fully one thousand lesser isles, but of these little is known. The total population may be computed at 5,000,000, of whom one-half are Christians. To the south-west of the Bisayas is situated the long narrow mountain-island of Alawan, adorned with noble forests, and abounding in beautiful scenery ; area, 8820 square miles. To the north of Luzon lie the Bashee, Batanen, and Babuyan Islands, resembling the Philippine group in their leading characteristics. Between Mindanao and Borneo stretches the long and interesting chain of the Sulu Islands, bristling with peaks, and from their appearance suggesting the idea that they, as well as the Philippines, are either the remains of a submerged continent, or the landmarks of a continent that is slowly rising above the surface. These islands may excuse a brief digression, or *excursus*, before we enter on a more detailed account of the Philippines.

THE SULU ISLANDS : A DIGRESSION.

The chief island of the group is Sulu, and the capital is of the same name. The island is lofty, extensive, and well-wooded ; the chief town is built partly on the shore and partly on piles in four fathoms water, with intervals between the main rows of houses wide enough to admit of the passage of a man-of-war. The entrance is defended by two strong batteries ; and, in allusion to its defences, the warlike disposition of its inhabitants, and their piratical forays, the city has been designated the “Algiers of the

East." The "unconquered Sulus" are considered the bravest warriors of the Indian Seas; they invariably go armed, carrying a formidable spear in one hand, and wearing in their sarongs their inseparable companion, the deadly *kris*. According to Mr. Arthur Adams, who visited the islands in H.M.S. *Samarang*, their countenance is not agreeable; they are fiercer in appearance, more vindictive and more morose, than any other of the Malayan tribes. Their figures, moreover, are taller, better proportioned, and of a handsomer bearing than is common even among the Malays. Some of the young girls are very nearly white, and many of them tolerably well-looking; though, as is generally the case in savage nations, they lose their fair proportions as they advance in years. They manufacture a fine stuff from the fibres of the plantain by a very simple and primitive process; their loom being composed of a few sticks, and the woof being secured around their waists. Otherwise, their principal occupation is to pound *padi* for the delectation of their lords and masters.

The Sulus are excessively partial to cock-fighting, and frequently stake their all on the result of a battle. The spurs they use are scythe-shaped, long, sharp, and made of steel; sometimes they are fastened to one leg, frequently to both. Groups of the Sulus stand about the mud-streets of the capital with game-cocks under their arms, which they are always ready to pit against "all comers." They are also fond of accumulating pearls and bezoar stones; and there is scarcely a man of any note among them who will not, after he has been in your company for a brief period, produce mysteriously from the folds of his sarong two or more

of these "precious concretions." The pearls in vogue are of different sizes and different colours. Those yielded by the pinna are black and red; by the giant clam, or *Tridacna gigas*, a dull, opaque white; by the *Plaruna placenta*, of a leaden hue; by the true pearl-oyster, either a lustrous pearly white, or a light, semi-transparent straw colour.

Sir Edward Belcher, on his visit to Sulu, had an audience of its sultan. The road to the "palace" was lined with groves of cocoa-nut palms, interspersed with the sweet-smelling *Tsjampaka*, a splendid magnolia, whose beautiful flowers are used by the dusky beauties of the East to ornament their tresses. Their perfume also renders them acceptable at the banquets of the great; and their foliage affords a welcome shade in the villages of the Malays. At first, the captain and his suite were conducted to the house of the prime-minister, who received them in state, and, after salutes of twenty-one guns had been exchanged, accompanied them on foot to the residence of the sultan. They found the place of reception, or Hall of Audience, an unadorned building, about forty feet square, and raised upon posts some four or five feet above the ground. It had no throne or raised chair of state; but a carved, high-backed arm-chair was placed for the sultan, and a table, chairs, and benches for persons of inferior rank.

On entering the presence, Captain Belcher found the sultan already seated, and surrounded by his chiefs and guards in gorgeous attire, the bright colours of their dresses producing a very gay effect. The sultan himself was clothed in an embroidered vest of purple, with a rich flowing robe or mantle of green velvet,

covered with gold lace; around his waist was a broad band of gold work, fastened in the centre by a large ornamental clasp of gold, set with jewels. He received his visitor very cordially; rising, and extending his hand to welcome him, and motioning him to be seated in a chair exactly opposite the royal seat. He appeared to be about five feet ten in height, much emaciated, with a heavy countenance exhibiting traces of mental weakness; his forehead was narrow, and his face large; and it was evident, from various symptoms, that the weakness had overtaken him which is the invariable result of excessive indulgence in the use of opium.

After a brief conversation, the visitors were served with chocolate, sherbet, and other refreshments, and then retired.

OCEAN CURIOSITIES.

Of the wonders of the ocean-world in the Sulu archipelago, the naturalist of the *Samarang* expedition affords some curious details. The Sulu seas, he says, swarm with sea-snakes; partly, perhaps, on account of their calmness, and partly owing to the extreme heat of the climate, which is favourable to fecundity. They appear always to prefer calms, when they may be seen swimming on the still surface with an undulating motion, as their congeners progress upon land; never lifting their crest much above the wave, or leaping out of the water. At the approach of danger they dive readily, but they show no special timidity. They gather in thousands in the little eddies and currents which collect the medusæ and the fish that constitute their principal prey. Their lungs exhibit a closer resemblance to the air-sacs of fishes than the respiratory organs of reptiles; being, in most

cases, simple elongated bladders, with a network of blood-vessels spreading over them, but without cells. The tongue is forked and white; in other snakes it is usually black. In some of the genera true poison-fangs occur, though they are of small size; and it is affirmed by some naturalists that *all* the species are highly venomous. Captain Cook, in one of his voyages, fell in with an abundance of these "sea-serpents;" one of which, he says, was creeping up the side of his ship, but was beaten off by the men. The Spaniards say, he adds, that there is no cure for persons bitten by them; and one of the "blacks" on board happening to meet with this misfortune, died, "notwithstanding the utmost care was taken by our surgeons to recover him."

Various explanations have been given of the supposed appearances of the great kraken or sea-serpent, recorded by many of our voyagers; and it is generally believed that their marvellous stories have arisen in deceptive glimpses of vast coils of sea-weed floating on the surface of the sea, and moving up and down with the roll of the waves. In the Sulu seas, however, it would seem that the fable may have been suggested by lines of rolling porpoises, resembling a long string of buoys, and extending as much as seventy, eighty, or a hundred yards in length. These, in the opinion of the naturalist of the *Samarang*, constitute the so-named protuberances of the monster's back, keep in close single file, progressing rapidly along the tranquil surface of the water, by a succession of leaps or "demi-vaults" forwards, part only of their uncouth forms being visible to the eye. At the same time, it is no uncommon occurrence for beautifully-banded

water-snakes, of the thickness of a man's leg, to be seen outstretched supinely on the glassy waves, or gracefully swimming and diving, with slow, undulating, sidelong movements of their vertically-compressed bodies.

To give some idea of the splendid colouring of tropical fishes, we may transcribe Mr. Arthur Adams' description of a species of *Balistes* caught at Sulu.

The upper half of the body was a pale brown, with two broad stripes of deeper brown stretching backwards in the direction of the dorsal fin; four well-defined but narrow streaks descended to the anal; a bright spot of ultramarine blue encircled the anus; the iris was golden; a dark, greenish brown triangular mark, bordered with deep blue, reached from beneath the eye to the base of the pectoral fin; over the eye and summit of the head gleamed a deep blue, with a lighter streak running down before the eye to the base of the pectoral fin; a bright blue stripe above the upper lip reached to the angle of the mouth, and from this point to a little below the pectoral fin a stripe of deep orange-yellow; the lower surface of the body was a pure, dead white; while the fins were of a light semi-transparent brown. What a combination of colours! What a splendid livery for a creature inhabiting the hidden depths of the sea!

The shell-fish found on the shores of tropical islands are not less brilliant in their hues. Cones, for instance, are very numerous, and their delicately blended tints give them a peculiar brightness and beauty. Their favourite haunts are obscure holes in the rocks, where they lead a predatory life, boring into the substance of the shells of other molluscs, in order to

extract the juices from their bodies. They crawl but slowly, and usually with their tentacles stretched out in a straight line before them. Exceedingly timorous, they quickly draw back within their shells on the approach of danger.

The ficala shells are also very beautiful, and in their living state these handsome molluscs attract an amount of admiration which they can hardly claim when stored away in the cabinets of naturalists. They crawl along with much rapidity, easily and gracefully carrying their light, elegantly-formed shells,—their siphon erect, their foot expanded, and their bodies gleaming all over with brilliant colours; moving their long, flat heads, and watching with their large, bright black eyes everything that transpires, in a manner that is truly surprising, and with a vivacity truly wonderful, when we recollect the low place in the scale of animated nature supposed to be occupied by the molluscs.

Reference, though necessarily very brief, must be made to the *Terebellum*, in one species of which the proboscis is of a whitish brown colour, reddening towards the tip; the body, of an opaque, pearly white; the mouth, transparent; the foot, a semi-pellucid white; the eye-stalks are mottled with dark red; the iris is a brown-red, and the pupil black.

If our space permitted, we might dwell on the glories of the *Cassididæ* or helmet-shells, some of which are extensively used in the manufacture of cameos, and all of which are remarkable for their rich and fanciful colouring. Then there are the *Olividæ* or olives, with their smooth-polished, sub-cylindrical shells, tinted in the most exquisite manner—rich ver-

milion, light green, warm orange, delicate pink. A numerous family, moreover, is that of the rock-shells,* many of which are the largest and finest that adorn our conchological cabinets, and are not less remarkable for their variety of colour than for the grace and elegance of their sculpture. One species, from the regularity of its projecting spines, is poetically called Venus' comb; another, from its foliated outline, is known as the endive-leaf shell; others, from their long and slender *beaks*, as the snipe and the thorny wood-cock; while a beautiful species common to the Indian Seas, and measuring about seven inches in length, is named Hercules' Club.

We have also the auger-shells, of which the spotted auger is a favourable specimen; its ground-colour being a delicious creamy white, elegantly marked with rows of brown spots. Its outline is the perfection of grace, and it measures from six to eight inches in length. The tulip-shells and the mitres are remarkable for their peculiar shape, as well as for their richness of colouring. Among the Philippines and Sulu Islands the so-called bishop's mitre is very common: on the low coral rocks and sandy shores it crawls about with considerable vivacity. Some of the mitres have the art to cover themselves all over with the sandy mud in which they dwell; and thus disguised, they move about in comparative security.

Very beautiful, too, are the chank-shells,† or turnip-shells, as they are sometimes called, with their diversity of hue and peculiarity of configuration. They are ovate, fusiform, or top-shaped, with a large body, a conical

* *Muricidæ*.

† *Turbinellidæ*.

spire, and a straight, elongated canal. Fully sixty species are known, and these inhabit the Philippines, the Pacific, Ceylon, the West Indies, South and North America.

On Ceylon, and the Indian coast, the chank-shell is regarded with something like veneration, and the Hindu priests use some of the varieties for the purpose of administering medicines. They are elaborately carved by the Cingalese, who carry on a considerable commerce with them. They are largely employed as personal ornaments. Sawed into rings of different sizes, they are made to fit the wrists, ankles, toes, and fingers. In Bengal a religious prejudice is entertained in their favour; and, in consequence, thousands of them are buried with the bodies of opulent and distinguished persons. The fishery is of importance as a “nursery for divers,” who acquire in it the skill and experience necessary for the successful prosecution of the pearl-fishery.

But we must not longer delay among these graceful denizens of the ocean-world, which, in their exquisite gracefulness of form and lovely blending of colours, their apparent slightness and yet real durability and power of resistance, have been so finely described by one of the greatest of modern poets :—

“ See what a lovely shell,
 Small and pure as a pearl,
 Lying close to my foot,
 Frail, but a work divine,
 Made so fairily well
 With delicate spire and whorl,
 How exquisitely minute,
 A miracle of design !”

In very truth, a miracle of design, which raises our

thoughts in awe and admiration to the Almighty and All-wise Creator!—

“ Slight, to be crushed with a tap
Of my finger-nail on the sand ;
Small, but a work divine ;
Frail, but of force to withstand,
Year upon year, the shock
Of cataract seas that snap
The three-decker’s oaken spine
Athwart the ledges of rock.”

DISCOVERY OF THE PHILIPPINES.

VISITS OF THE OLD NAVIGATORS : MAGELLAN—DRAKE —DAMPIER.

The Philippines were discovered by Magellan in March 1521. The day on which he came in sight of them being dedicated to St. Lazarus in the Roman Calendar, the great navigator called them by the name of that saint.

The chronicler of the expedition* describes the inhabitants as of an olive colour, and generally “pretty plump.” They tattooed themselves, and covered the body from head to foot with cocoa-nut oil, as a protection from the sun and wind. Their hair was black, and of such a length that it reached to the waist. Their weapons were clubs, lances, bucklers, and cutlasses ; their fishing appliances, darts, harpoons, and nets made after the European fashion. They wore no clothing except a piece of the bark of a tree round their loins ; or, in the case of the chiefs, a girdle of cotton cloth, embroidered with silk at the two extremities.

The king—that is, one of the native princes of Mindanao—paid them a visit soon after the Spanish

* Pigafetta. See Pinkerton’s Collection, xi. 323, *et seq.*

vessels had come to an anchor. He was attended by eight or ten of his principal subjects, and on arriving on board the Spanish admiral embraced the commander, and presented him with three porcelain vessels full of rice, and covered with leaves, two tolerably large "dorados," and various other articles; for which he received in return a Turkish robe made of red and yellow cloth, and a "fine red cap."

The Spanish commander afterwards spread out cloths of different colours before the king, linens, knives, and other merchandise. To impress him with a proper idea of the white man's power, he also displayed his firearms and great guns; causing several to be fired, to the manifest consternation of the natives. Attiring one of the crew in complete armour, he directed three others to cut at him with swords, and strive to stab him, that the king might learn the value of "mail of proof." The king was greatly surprised, and, turning towards the interpreter, observed that a man so defended would be able to encounter a hundred opponents. "Ay," replied the interpreter, in the name of the captain; "and on board each of our three vessels we have two hundred men clad in the same manner;" a piece of information which, doubtlessly, had its due effect on the mind of the native chief.

Afterwards he was conducted to the "hind-castle," or poop, and a chart and a compass being placed before him, he was instructed, through the interpreter, by what means the Spaniards had discovered the strait leading to the sea in which they then were, and how many "moons" they had passed on the deep without obtaining a solitary glimpse of land.

Then, astonished at all he had seen and heard,—

and who shall conceive the mental perplexity of this child of the East, thus brought for the first time into contact with the restless, energetic, and overmastering West!—the king took leave of the captain, beseeching him in return to send two of his people to view the curiosities of *his* country. The captain complied, and deputed Pigafetta “and another” to accompany him on shore.

And this is what happened:—

On landing, the king raised his hands up to heaven, and afterwards turned towards his guests; who, as well as all the company present, imitated the royal example. He then took Pigafetta by the hand, and one of the chief nobles did the same with his comrade, in which manner they repaired to a kind of shed constructed of reeds, under which was a *balanghay*, or gallery, about fifty feet in length. The two Spaniards took their seats on the poop, and endeavoured by gestures to render themselves understood, as no interpreter was present. The king’s attendants gathered round him in a ring, standing, and armed with spears and bucklers.

A “dish of pork” was quickly served up, with a large pitcher of wine. At every mouthful of meat was taken a spoonful of wine; and when the spoon was not wholly emptied, the residue was poured into another pitcher. The spoon from which the king drank was always covered, and no one but himself was permitted to touch it. Before drinking, he constantly raised his hands to heaven, afterwards turning towards his guest; and on taking the spoon with his right hand, he extended his left closed towards his guest in such a manner that the latter thought he was

intending to strike him with his fist. In this strange attitude he remained all the time he was drinking; and when Pigafetta saw that all the company did the same, he also adopted it.

After an interval, supper was brought in; it consisted of rice and pork, in porcelain dishes.

Eventually the Spaniards repaired to the royal palace, which in form resembled a haystack. It was thatched with leaves of the banana, and raised some height above the ground on four large posts. Access to the interior was obtained by means of a ladder.

On entering his abode, the king caused them to be seated on mats of reeds, with their legs across "like tailors." Half an hour afterwards, though so short an interval had elapsed between dinner and supper, a dish of broiled fish, cut into slices, was brought in, with some wine, and ginger fresh gathered. The king's eldest son also made his appearance, and took his seat with the rest. Whether his coming was the signal for further refreshment or not may be uncertain; but almost immediately two other dishes were presented, the perennial rice and "broiled fish swimming in its liquor."

We pass over some details, to take up the narrative where it enters upon a description of a religious ceremony which the Spaniards celebrated on shore, in the presence of the sultan and his brother,—who was sovereign of another part of the island,—and their suite. It will interest the reader, perhaps, if we faithfully transcribe the quaint old English version:—

We landed, fifty in number, not completely armed, but at the same time armed and dressed in the best manner possible. At the instant our boats touched

the shore, six guns were fired as a salute. We jumped on shore, when the two kings, who had come down to meet us at the water-side, embraced our captain, and placed him between them. We proceeded thus in an orderly manner to the spot where mass was to be said, which was but a short distance from the sea.

Before mass was said, the captain sprinkled the two kings with sweet-scented water. At the period of the oblation they kissed the cross as we did, but made no offering. On the elevation of the Host, they adored the Eucharist with joined hands, imitating us in all we did. At this instant, upon signal given, a general discharge of artillery was fired from the ships. After mass some of us received the communion; which effected, the captain exhibited *a dance with swords* (in the middle of a solemn act of worship!), with which the two kings seemed much delighted.

After this he (the captain) caused a large cross to be brought, garnished with nails and a crown of thorns, before which we prostrated ourselves; and in this action were again imitated by the islanders! The captain then told the two kings, by means of the interpreter, that this cross was the standard confided to him by the emperor, his master, to plant wherever he landed; and that, in consequence, he should erect it on the island, to which this symbol, moreover, would be auspicious, as all European ships that might thereafter visit it would know, on seeing the cross, that we had been received as friends, and would refrain from any violence to the persons or property of their subjects; and should any be taken prisoners, they would only have to make the sign of it to regain their liberty. He added (with a reckless disregard of

truth) that this cross should be placed on the loftiest spot in the neighbourhood; and that if it were worshipped every morning, neither storms nor thunder would in the future do them injury! The kings, says the chronicler, who gave implicit faith to all the captain said, thanked him, and assured him, through the interpreter, that they were perfectly satisfied, and would with pleasure do as he desired.

The Spaniards spent seven days on this island, and had full opportunities of observing the manners and customs of the people. The men wore no clothing; the women, a petticoat made of the rind of a tree, which descended from the waist downwards. Their hair was black, and so abundant as in many individuals to reach the ground; a length exceeding that of the tresses of Tennyson's Godiva, which rippled only to the knee. Their ears were bored, and adorned with rings and pendants of gold. They seemed possessed with an incessant thirst, and constantly chewed a fruit called areca, which resembled a pear; cutting it in quarters, they folded it in the leaves of the same tree called betel, which were like those of the mulberry, and mixed with it a portion of lime. This custom of betel-nut chewing was universal; and the natives assured Pigafetta that if they abstained from it they would die. The animals were dogs, cats, hogs, goats, and fowls; and the edible vegetables included rice, millet, maize, cocoa-nuts, oranges, lemons, bananas, and ginger.

Gold abounded; and in proof of his statement the chronicler adduces two facts. A man brought a large bowl of rice and figs, for which, in exchange, he de-

manded a knife. Magellan, instead of a knife, offered him some pieces of money, and among others a doubloon; but he refused the money, and preferred a knife. Another offered a large ingot of massive gold for six strings of glass beads; but the captain forbade the bargain, lest the islanders should be led by it to suppose that the Spaniards placed a higher value on gold than on glass and other merchandise.

From Mindanao Magellan proceeded to Zebu, where he entered the harbour with his colours hoisted, and firing a general salute; a proceeding not comprehended by the islanders, who were grievously alarmed by this new kind of thunder. After a while, however, their confidence was restored; and the king of Zebu, having been assured of the peaceful intentions of his strange visitors, sent his nephew and heir to bid them welcome.

The interview which ensued was remarkable for its combination of the commercial and the religious elements. Magellan seems to have been equally anxious to secure a material advantage for his king and country, and to save the souls of the natives. He received the embassy with considerable state. He himself was seated in a chair covered with red velvet, and similar chairs were provided for the king of Massana and the prince; the chiefs were seated on chairs covered with leather, and the rest of the party on mats.

Magellan's first object was to convince the islanders of the benefits they would derive from an alliance with Spain, "calling on the God of heaven to witness to the truth of what he said, and adding many other things which inspired them with love and veneration

for our religion." Their love and veneration increased so rapidly, that they besought the captain to leave with them, at his departure, one or two men capable of instructing them in this new and wonderful faith, assuring him that they would be held in great honour. Magellan informed them, however, that the most essential thing was that they should be baptized—which should be effected, he said, before they quitted the country; that he would not on that occasion leave any of his people behind him, but that he would return on a future day, and bring with him priests and monks to instruct them in all things belonging to his holy religion.

He proceeded to promise them a supply of arms and a complete suit of armour; but, at the same time, he told them it was requisite their wives also should be baptized, as they must otherwise be divorced from them if they would escape sin. And learning that they were tormented, as they thought, by frequent apparitions of the devil, he assured them that if they became Christians the devil would not afterwards dare to appear before them, except at the hour of death. "These islanders," says Pigafetta, "much affected, and fully persuaded of the truth of all they heard, answered that they placed full reliance in him; whereupon the captain, weeping for joy, embraced them all."

He then took hold of the hand of the prince, and of that of the king of Massana, and declared that by the trust he had in God, by his allegiance to his sovereign the emperor, and by the knightly dress he wore, as a commander of the order of St. Iago, he established and vowed perpetual peace between the king of Spain and the king of Zebu. A similar pro-

testation was made by the two ambassadors, who, after an exchange of presents, returned to the shore.

Magellan afterwards paid a visit to the king of Zebu, whom he found in his palace, surrounded by a large concourse of people, and seated on a mat of woven palm-leaves. With the exception of a girdle round his loins, he was naked; his head was covered with an embroidered veil; on his neck he wore a collar of great value; and in his ears two gold rings of great size, set with precious stones. He was small in stature, plump, and painted with different devices burned into the skin. Before him, on another mat, in two porcelain vases, were some turtles' eggs, of which he was eating; and near them stood four pitchers of palm wine, covered with sweet-smelling herbs. In each pitcher was a hollow reed, by means of which he drank.

After courteous salutations—for the Spaniards never neglected the minutest formalities of ceremony—the interpreter informed the king that the captain returned thanks for the present made him, and on his part offered certain articles, not as a compensation, but as proofs of the sincerity of the friendship lately contracted. After which the Spaniards arrayed him in a loose vest of yellow and violet-coloured silk, put a red cap on his head, and gave him a couple of gilt glasses, and some strings of crystal beads in a silver dish.

The king would fain have had his guests stay and sup with him, but they excused themselves and took their leave. The prince, his son-in-law, conducted them to his own residence, where they were entertained with music by four girls,—one of whom beat a drum similar to the European drum, but placed on the

ground ; the second had two kettle-drums by her side, and in each hand a small drum-stick, the end of it armed with cloth made from the areca-palm, with which she struck first one drum and then the other ; the third performed in a similar manner on a large kettle-drum ; and the fourth held in her hands two small cymbals, which she struck alternately one against another, producing an agreeable sound. The chronicler remarks that they all kept excellent time. The kettle-drums, of metal or bronze, were made “in the country of the Sign’ Magno,”—that is, the *Sinus Magnus* of the geographer Ptolemy (our modern China),—and served instead of bells ; they were called *agon* (or gongs). The islanders likewise played on a kind of violin, with strings of copper.

Pigafetta describes the girls as very comely, and almost as fair as Europeans. Though they were adults, they wore no clothing ; or, at least, “part of them” had a piece of cloth, made of the inner bark of a tree, fastened round their waists, and descending to the knees. The hole in their ears was very large, and furnished with a wooden ring to keep it extended and of a circular figure. The hair was black and long, and the head encircled by a small veil. The damsels wore no shoes, nor any covering whatever for the legs and feet.

We might continue our quotations from Pigafetta’s narrative for many pages, and not fail to excite the lively interest of the reader. But we must pass on to his description of one of the religious ceremonies of the natives,—that of “blessing the hog.” It began with the discordant beating of large gongs. Then

three dishes were brought,—two of them containing broiled fish, and cakes of rice and millet folded in leaves; on the third Cambayan stuffs were spread, and two fillets of cloth made from the palm-tree. A couple of old women advanced, each carrying in her hand a large tube or trumpet of bamboo. Placing their feet upon the cloth, they saluted the sun, and attired themselves in the other stuffs which were in the dish. Next, the first, or superior, of the old women covered her head with a kerchief, so twisted round her brow as to present a couple of horns; and taking another kerchief in her hand, she danced, at the same time blowing her trumpet, and at intervals invoking the sun. The other beldame took one of the palm-cloth fillets, and in like manner danced and trumpeted, and, turning towards the sun, did homage to the orb of Day. The first woman then snatched up the remaining fillet, flung away the kerchief she had held in her hand, and both she and her companion proceeded to sound their trumpets and dance around the hog, which, securely bound, lay upon the earth. In the meantime the first old woman once more addressed the sun, in a low tone of voice, and was answered by the other. After which a cup of wine was presented to her, which she took without pausing in her vigorous saltatory movements or her invocations of the sun. Four or five times she raised the cup to her lips, but not to drink; and finally she poured the liquor over the heart of the hog. Throwing down the cup, she seized a lance, and, still continuing her invocatory dance, brandished it, directed it repeatedly at the hog's heart, which, finally, she pierced with a sharp and sudden blow.

As soon as the lance was withdrawn from the wound healing herbs were applied, and the wound was closed.

During the whole ceremony a torch was kept burning, which the aged crone, after her deed of slaughter, seized, and extinguished in the mouth of the animal.

The other crone dipped the end of her trumpet in the blood of the hog, and with the blood which be-smearred it stained the forehead of every one of the spectators. This strange series of rites concluded, the two women undressed, and ate the food which the plates contained—inviting the females present, but not the men, to partake with them. Afterwards the hog was seared; and its purification being completed, it became lawful eating.

DEATH OF MAGELLAN.

Magellan met with his death at Zebu, or rather at the contiguous island of Matan, in a skirmish with the natives.

He had undertaken to assist one of the chiefs of the island in an expedition against his rival, who had refused to acknowledge the authority of the king of Spain. For this purpose he started at the head of sixty of his men, who were well armed with helmets and cuirasses. The Christian king, the prince his nephew, and several chiefs of Zebu, with a number of armed islanders, followed in twenty or thirty balang-hays. The whole force reached Matan about three hours before dawn, and finding the natives resolved on defiance, determined to attack them when morning broke.

At the first appearance of the sun the Spaniards leaped into the water up to their thighs, the boats not being able to reach the shore owing to the rocks and shallows. The number which landed was only forty-nine, as eleven were left in charge of the boats. They found themselves opposed by about fifteen hundred islanders, arrayed in three battalions, who charged them furiously, uttering loud shouts, two of the battalions taking them in flank and one in front. Magellan immediately drew up his little force in two platoons. The musketeers and cross-bowmen fired from a distance for the space of half an hour, but made no impression on the enemy. Though the balls and arrows penetrated their thin wooden bucklers, and even wounded them at times in their arms, they did not halt; for their wounds not proving mortal, as they had expected, did but increase their fury and stimulate their boldness. They were confident, moreover, in their superiority of numbers, and rained on their assailants such showers of bamboo lances, fire-hardened staves, stones, and even dirt, as well nigh to discomfit the Spaniards. Some of them even threw iron-headed spears at the captain-general; who, in the hope of intimidating them and causing them to disperse, ordered off a small detachment to set fire to their houses. The sight of the flames, however, very naturally increased their exasperation; and many of them hastening to the burning village, killed two of the invaders on the spot. Every moment their numbers seemed to increase, as well as their fury. A poisoned arrow hit Magellan in the leg, who thereupon ordered his men to retreat in slow and regular order; but the Spaniards, seized with a panic, rushed

headlong towards the boats, leaving only seven or eight about their wounded captain.

The Indians had by this time discovered that the armour of the Spaniards effectually protected their head and body; but noticing also that their legs were exposed, they directed against them their javelins, arrows, and stones, and so abundantly and persistently as to render defence impossible. There were guns on board the boats; but as the latter could not get in-shore, the show of artillery was useless. The fight grew hotter; and the unfortunate Spaniards, as they retreated gradually, were sorely pressed. They reached the strand, began to wade towards their boats, and were knee-deep in the water, when the natives redoubled the fury of their attack. Recognizing Magellan as the leader, they chiefly aimed their blows at him, and twice struck his helmet from his head. He abated not one jot of heart or hope, however, and with his faithful few struggled resolutely on. The unequal combat lasted upwards of an hour.

At length an islander more dexterous than the rest succeeded in thrusting the end of his lance through the bars of Magellan's helmet, and smote him sorely in the forehead. Smarting with the sudden pain, Magellan immediately ran his assailant through the body, the lance remaining in the wound. Deprived of this potent weapon, he sought to draw his sword, but was unable, his right arm being grievously injured. Seeing him in this helpless condition, the "Indians" pressed in crowds upon him; and one of them having dealt him a violent cut on the left leg with a sword—which, we suppose, he had snatched from some disabled Spaniard—he fell upon his face. Immediately they rushed

upon him. As he lay prostrate, he turned a wistful and inquiring glance towards his followers; not so much to ask for the assistance he needed but knew they could not give, as to see if they could save themselves. Then the natives closed around him; and the Spaniards, wounded, weary, and exhausted, took advantage of the cessation of the attack to crawl on board their boats, which immediately put off.

Thus perished Magellan, the first of the great circum-navigators, and one of the ablest and most resolute of discoverers, on Saturday the 27th of April 1521.

A few years later the Philippines were invaded by a powerful Spanish force, and annexed to the then immense colonial empire of Spain; which, though it has lost most of its colonies, has been fortunate enough to retain these beautiful and fertile islands.

DAMPIER VISITS THE PHILIPPINES.

The celebrated sea-rover and buccaneer, Dampier, whose name is deservedly enrolled high on the list of our Ocean-Worthies, visited the Philippines in 1686, and has left on record many particulars concerning their products, and the manners and customs of their inhabitants, the accuracy of which has been fully confirmed by later voyagers.

He was then serving as pilot on board the *Cygnets*—a buccaneering vessel or privateer commanded by Captain Swan. They had quitted the coast of California—where they had been waging a desultory warfare against the Spaniards—on the 31st of March; and with infinite boldness had run right across the broad Pacific, in the whole course of six to seven thousand miles seeing no living thing, whether bird, fish, or

insect, save, in longitude 18° , a flock of boobies, presumed to be denizens of some far-off cliffs or islands shrouded in the ocean-mists. Near midnight on the 21st of May they had the good fortune to drop anchor on the west side of Guahan, one of the Philippines, about a mile from shore. Here the Englishmen were very kindly received, though their character seems to have been suspected. They obtained a supply of fresh provisions; and Dampier for the first time saw the breadfruit-tree, the "staff of life" to so many of the Polynesian tribes. At the flying-proas, or sailing-canoes, of the islanders, the visitors were greatly astonished. They were admirably built, and so swift that Dampier was persuaded that one of them would sail twenty-four miles an hour; and another had accomplished the distance between Guahan and Manilla, or four hundred leagues, in four days.

From Guahan they went to Mindanao; and after beating about through several channels and islands, came to anchor, on the 18th of July, opposite the river's mouth, and at no great distance from the city.

The island of Mindanao was then divided into several small states, governed by rival or hostile sultans. The chief town stood on the banks of the river, about two miles from the sea; was nearly a mile in length, but narrow, and in the plan of its building followed the course of the stream. The houses were raised on posts from fourteen to twenty feet high; and as at the time of Dampier's visit the rainy season prevailed, they literally stood in an extensive lake, the inhabitants plying from door to door in canoes. They were of one story, but partitioned off into several rooms, and approached by a ladder or stair outside.

The roof was covered with palm or palmetto leaves. The sultan's house was distinguished from the others by superiority of size. It was supported by about one hundred and eighty great posts or trees; and in the interior of the first apartment were stored about twenty guns, mounted on field-carriages.

The common food at Mindanao was rice or sago, and a small fish or two. The better classes ate buffalo, or "fowls ill drest," with abundance of rice. In eating the latter commodity they used no spoons, but every man took a handful out of the platter, and, wetting his hand in water that it might not adhere, squeezed it into a lump as hard as he could possibly make it, and then thrust it into his mouth. Dampier asserts that all "strive to make these lumps as big as their mouth can receive them; and seem to vie with each other and glory in taking the biggest lump, so that sometimes they almost choke themselves." They always washed after meals, or after touching anything that they thought unclean; and in bathing and washing apparently took a great delight.

Tradesmen in Mindanao were few in number: the principal avocations were those of the goldsmith, the blacksmith, and the carpenter. Of the first-named Dampier found only two or three professors, who would work in gold and silver, and make anything that was required, but kept no wares ready made. There were several blacksmiths; and these plied their trade admirably, considering the imperfect character of their tools. The construction of their bellows was curious: they were made of a wooden cylinder—the trunk of a tree—about three feet long, bored hollow like a pump, and set upright on the ground. The fire was kindled on

the ground. In the side of the trunk near the fire was inserted a small pipe, through which the wind was driven to the fire by the agitation of a great bunch of feathers fastened to one end of the stick, which, closing up the inside of the cylinder, drove the air *out* of the cylinder and *through* the pipe: two of these trunks or cylinders were set so closely together that a man standing between them could work them both at once, one with each hand. Neither vice nor anvil was used in the Mindanao smithy, but the brawny smith did his work on a great hard stone or a piece of an old gun: yet, primitive as were these appliances, no fault could be found with the work they produced.

Of the third trade, it is enough to say that nearly every man was a carpenter, or at least could handle axe and adze. We say "axe and adze," but in reality one instrument played both parts. The axe was small, and so made that it could be taken out of its helve and by turning converted into an adze. They used no saws, but when they wanted a plank split a tree in twain, and hewed and planed away each part until it was tolerably smooth—a wasteful as well as a laborious process.

Dampier describes the trees of Mindanao with some degree of particularity. In his time they were curiosities, and scarcely known to Europeans even by repute; but now we are all of us familiar with the properties of the breadfruit and the cocoa-nut, the nutmeg and the banana, the durian and the plantain. Yet there is something so fresh and minute in his careful accounts that we cannot wholly pass them over. The plantain he boldly entitles "the king of all fruit."



PLANTAIN AND COCOA-NUT TREES.

He will brook no rivals near its throne; not even the cocoa-nut palm—gracefullest of vegetable wonders, which wins the admiration of every cultivated eye with its slender shapely column and tufted crown of plumes! The tree that bears the plantain is, he says, about three feet or three and a half feet round, and ten or twelve feet high. It is not raised from seed, but from the roots of old trees of the same kind. If these young suckers are taken out of the ground and planted in another place, they will not fructify for fifteen months; but if allowed to remain in their own soil, they will fructify in twelve. As soon as the fruit is ripe the tree decays, but several young ones are always ready to take its place. On first emerging from the

ground it springs up with two leaves; and by the time it is a foot in height two more spring up inside the

first couple, and shortly afterwards two more within *them*; and so the brave work goes on. By the time it is a month old, a small stem about the size of a man's arm is discernible, as well as eight or ten leaves, some of which are four or five feet high. The first leaves, however, are not more than twelve inches long and six broad; the stem that bears them is no bigger than a man's finger; but the leaves increase in size as the tree increases in height. The old leaves spread off as the young spring in the inside, and their tops droop downwards, being of a greater length and breadth in proportion as they are nearer to the root. At last they decay and drop off; but the young leaves always blooming at the top preserve the green and flourishing aspect of the tree. When the latter has attained its full development, the leaves are seven or eight feet long, and a foot and a half broad; towards the end they taper gradually, until they terminate in a round point. The leaf-stalk is as big as a man's arm, almost round, and about a foot in length between the leaf and the body of the tree. That part of the stem which comes from the tree, if it be the outside leaf, seems to enclose half the body, as it were, with a thick hide; and right against it, on the other side of the tree, is another such corresponding to it. The next two leaves in the inside of these grow opposite to each other in the same manner, but so that if the two outward grow north and south, these grow east and west, and those still within them keep the same order. Thus the body of the tree seems to be made up of many thick skins, growing one over another; and when it is full-grown, out of the top springs a strong stem, harder in substance than any other part of the trunk.

This stem shoots forth at the heart of the tree; is as big, says Dampier, and as long as a man's arm; and all clustering round grows the fruit. And such fruit! The Spaniards give it the first place among the productions of Pomona as most conducive to life. It grows in a cod about six or seven inches long, and is of the size of a man's arm—a favourite standard of comparison, we may observe, with Dampier. The cod, shell, or rind is soft, and, when ripe, as yellow as gold. The fruit within is no harder than butter in winter, and resembles good yellow butter in colour. It is of a delicate taste, and melts in one's mouth like marmalade. It is all pure pulp, without any seed, stone, or kernel. Europeans, when they settle in America, learn to esteem it so highly, that when they make a new plantation they usually begin with a good "plantain-walk," as they call it, or "a field of plantains;" and as their family increases, so do they enlarge their plantain-walk, keeping one man purposedly to prune the trees and gather the fruit as it reaches maturity. For some or other of the trees are always bearing throughout the year; and frequently this is the only food on which a whole family subsists. Such, at least, is Dampier's statement; but, accurate as he generally is, some exaggeration is surely manifest here.

When the fruit is used as a substitute for bread, it is gathered before it grows fully ripe, and is roasted or boiled. Poor people, or negroes, who have neither fish nor flesh to eat with it, use as a seasoning cod-pepper, salt, and lime-juice. Or, for a change, they eat a roasted plantain and a ripe raw plantain together, as we might do bread and butter. Dampier's comrades had a way of taking five or seven plantains, mashing

them together, making them into a lump, and boiling them instead of a "bog-pudding." This they called a "buff-jacket;" and it made a savoury dish. Capital tarts might also be manufactured with this dainty, all-accommodating fruit; or the green plantains, cut into thin slices, dried in the sun, and grated, afforded a very good kind of flour.

But we must no longer delay under the shade of the plantain-trees. Let us hear what our navigator has to say of the islands which they so bounteously adorn.

Mindoro he describes as about forty leagues long, stretching north-west and south-east. It is high and mountainous, and somewhat sparsely wooded. Luzon he speaks of as a large island, about sixty leagues broad in the middle, with an abundance of little rocky islets, or keys, lying about it, especially at the northern extremity. The south side fronts towards the remainder of the Philippine group. Generally speaking, it is composed of many spacious plain savannahs and lofty mountains. It appears less green and flourishing than some of the sister islands, but here and there is clothed with luxuriant masses of foliage. Some of the mountains afford gold, and the savannahs are well stocked with herds of cattle, especially buffaloes.

The bats which Dampier saw at Mindanao seem to have ranked foremost in his mind among the curiosities of the Philippine Islands. He speaks of them as having bodies as big as ducks or large fowl, and of their wings as of vast size. "I saw at Mindanao," he says, "one of this sort, and I judge that the wings,

stretched out in length, could not be less asunder than seven or eight feet from tip to tip ; for it was much more than any of us could fathom with our arms extended to the utmost. The wings are for substance like those of other bats, of a dun or mouse colour. The skin or leather of them hath ribs running along it, and draws up in three or four folds ; and at the joints of these ribs, and the extremities of the wings, there are sharp and crooked claws, by which they may hang on anything. In the evening, as soon as the sun was set these creatures would begin to take their flight from this island, in swarms like bees, directing their flight over to the main island, and whither afterwards I know not. Thus we should see them rising up from the island till night hindered our sight ; and in the morning, as soon as it was light, we should see them returning again like a cloud to the small island till sun-rising. This course they kept constantly while we lay here, affording us every morning and evening an hour's diversion in gazing at them and talking about them ; but our curiosity did not prevail with us to go ashore to them."

Bats are as numerous in the Philippine Islands now as in the days of Dampier, but they no longer prove objects of such curious attention on the part of our voyagers.

We conclude with some particulars about the manners of the inhabitants of Mindanao, as they appeared to our accurate and patient observer.

The sultan, he says, is absolute in his power over all his subjects, and, whether at home or abroad, is surrounded with considerable pomp. When visiting

his friends he is carried in a small couch on four men's shoulders, and attended by an escort of eight or ten armed men. In his water-journeys he is accompanied by some of his nine-and-twenty wives. The proas built for these expeditions are capable of carrying fifty or sixty persons, or more. The hull is neatly built, with a round head and stern, and over it a small and slight pavilion of bamboos. The sides are built up with split bamboos, about four feet in height, with little lattices or shutters of the same, which open and shut at pleasure. The roof, almost flat, is neatly thatched with palmetto leaves. The interior of this royal pavilion is partitioned off into two or three small apartments—one particularly reserved for the sultan's use, a second for his wives, and a third for his servants. The mariners sit and row in the fore and after parts of the vessel.

The sultan, as is the custom with savage rulers everywhere, and even with civilized sovereigns, sometimes makes war upon his neighbours. The weapons of his soldiers are swords, spears, and hand-cressets. A hand-cresset, according to Dampier, is "a small thing like a bayonet"—that is, a *kris*, or *kreese*—which they always wear at work or play, in war or peace, from the greatest persons to the meanest. The hostile parties never encounter each other in pitched battles, but erect small works or forts of timber, in which they plant small guns; and here they will lie in sight of each other for two or three months, skirmishing daily in small parties, and sometimes surprising and carrying one of their miniature citadels. "Whichever side is likely to be worsted, if they have no probability to escape by flight, they sell their lives as dear as they

can; for there is seldom any quarter given, but the conqueror cuts and hacks his enemies to pieces."

The religion of these people is Mohammedanism. Friday is their Sabbath; but Dampier could not discover that they made any difference between their Sabbaths or their work-days, only that the sultan himself then went to the mosque twice.

In the sultan's mosque, continues our narrator, is a great drum with but one head, called a gong, which serves instead of a clock. This gong is beaten at twelve, at three, at six, and at nine, by a man specially appointed for the purpose. He uses a stick as big as a man's arm, with a great knob at the end bigger than a man's fist, made with cotton, bound fast with small cords. With this he strikes the gong as hard as he can about twenty strokes, beginning to strike leisurely the first five or six strokes; then he strikes faster, and at last strikes as fast as he can; then he strikes again slower and slower, so many more strokes: thus he rises and falls three times, and then leaves off till three hours after. This is done night and day.

The Mindanese are not very "curious" or strict in observing any days, or times of particular devotion, except it be Ramadan time, which occurs in the month of August. During this special season they fast all day; and about seven o'clock in the evening spend nearly an hour in prayer, towards the close of which they invoke their prophet in the loudest tones,—both old and young joining in a discordant clamour, as if they designed to frighten him out of his sleepiness or his neglect of them. After this noisy devotion, they spend some time in feasting before they retire to repose. For a whole month, at least, they keep up this daily

observance; but sometimes it is prolonged for two or three days longer, inasmuch as it begins at one new moon and lasts until they see another new moon, which, in thick, hazy weather, may not be for two or three days after the change. The day after the welcome sight the guns are all discharged about noon, and the Ramadan ends.

The primary element of their religion, says Dampier, is frequent ablutions to keep themselves from being defiled; or, after they have been defiled, to bring about purification. They are very careful to keep themselves from being polluted by tasting or touching anything that is accounted unclean. Therefore, swine's flesh is an abomination to them. Nay, every one that hath tasted of it or touched it, alive or dead, is not suffered to enter their houses for many days afterwards; and nothing in the world will scare them so effectually as a pig! Wild hogs there are, however, in the islands, and so abundant, that they come down out of the woods into the very city in troops, and gather under the houses to feed on the garbage they find accumulated there.

And here Dampier sums up with a story concerning Rajah Laut, the general of the sultan's army, and second in rank only to the sultan. He once desired to have a pair of shoes made after the English fashion, though he seldom wore any; and one of the searovers made him a pair which gratified him exceedingly. Afterwards, he heard that the thread with which the shoes were put together was pointed with "hog's bristles." The intelligence was unlucky, and provoked him into a violent passion; so he sent back the shoes to their maker, and sent him withal a supply

of leather sufficient for another pair, only requiring that no more hog's bristles should be made use of.

Here we may bring our labours to a close ; having, we hope, so arranged the particulars we have collected in reference to the islands of the Eastern Archipelago, that the reader has been able to realize to himself their principal characteristics, and to form a tolerably full and accurate idea of all that is most interesting in their physical aspect, their vegetable and animal life, and the customs and manners of their inhabitants. We have seen how vast are their natural resources, and yet, up to the present time, how imperfectly they have been developed ; but now that the energetic and progressive spirit of the West has begun to breathe on the dry bones of a moribund civilization, and to infuse a higher life into the decadent forms of a miserable barbarism, we are justified in anticipating for those great and splendid islands—for Java, Sumatra, Borneo, Papua, and the sister-groups—a future of almost incredible prosperity. Mighty empires may yet rise and wane in the nature-favoured regions of the Eastern Archipelago.

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