

V.—*Discoveries in Eastern New Guinea, by Captain Moresby and the Officers of H.M.S. Basilisk.* By Captain J. MORESBY, R.N.

[Read, February 22nd, 1875.]

IN November, 1873, a Paper of mine, giving a brief outline of H.M.S. *Basilisk's* work in New Guinea, was read before you by your esteemed Secretary, Mr. Markham.* Since then I was sent in command of an expedition to substantiate and follow up that work; and this Paper will give you, I trust, a summary of the results accumulated during these two cruises.

I confess I am amazed to think that the very outline of the third largest island in the world should have been unknown till now, and the navigation between its north-east coast and Australia invested with such imaginary dangers as to prevent communication between these shores.

I will first now endeavour to show you what I have accomplished, in conjunction with my able assistants, Lieutenant L. Dawson, Admiralty Surveyor, Lieutenant Sydney Smith, Navigating-Lieutenant Mourilyan, and the other officers of the ship; and secondly, give you the information we have been able to gather concerning the natives.

In brief, then, we have proved that East New Guinea ends not in a wedge, as hitherto imagined, but in a huge fork, the lower prong of which is cut up into an archipelago of islands. Between these new islands and the peninsula which forms the northern prong a sheet of water lies, about 45 miles deep and 12 to 18 in breadth, named by me Milne Bay.

This new archipelago consists of about sixty islands, large and small. Of these the largest, Moresby Island, is about 36 miles in circumference; Basilisk Island nearly as large; Hayter and Heath Islands somewhat smaller; many of the remainder being from 4 to 12 miles in circumference, and inhabited. These islands are mostly lofty and volcanic, and richly wooded.

Moresby Island, a fair type of the rest, rises boldly from the sea to a height of 1600 feet, rich in fruit-bearing and timber-trees, whose dark tropic green is relieved by the various earth-tints of the cultivated and terraced land, and the lighter greens of yam and taro. Here and there the eye rests on great grassy slopes that look like English meadows ready for the scythe; but a giant scythe, indeed, would be needed to cut them, for this grass is 12 feet high. We found it very difficult to make our way through to reach a good look-out from above, and the only plan that succeeded was for the leading man of the party to throw himself bodily forward and press the grass down with

* 'Journal of the Royal Geographical Society,' vol. xliv., p. 1.



his dead weight. We relieved each other frequently at this duty, but still found it exhausting and most unpleasant, as we bled all over from the sharp grass. On the shore are scattered the most singular dome-shaped grassy hillocks, which made for us natural surveying stations. At the water-line the shore is broken into fine deep-water bays, some five of which are good harbours. Villages cluster to the edge of the calm waters, and here and there a coral-reef runs out, from which the dusky fishers ply their task.

I would I had the power to tell you of the glorious panorama which greeted us from the top of Glenton Island, the summit of which we had cleared with immense labour from its giant forest-trees, that the tiny theodolite might sweep an horizon never before gazed on by our race. Six hundred feet below us, almost as the plumb drops, the light waves curled on a snowy coral-beach. To the west the wooded peaks of Moresby Island closed the view; but on every other side island after island floated on the bosom of an intense blue sea, some volcanic, lofty, and rugged, others coralline, low, white, and covered with graceful trees, with every variety of form and tint, of light and shadow, in the nearest ones, whilst those beyond faded out as they distanced into dim shapes, faint clouds—very dreams of islands—giving one a sense of the profusion of creative power that was almost overwhelming.

The *Basilisk* has had the honour of fixing the position and laying down the coast-line of the D'Entrecasteaux group. These islands were seen from a distance by D'Entrecasteaux 94 years ago, as he sailed in search of La Perouse; but he never visited them, and he saw them on the east side only.

We have proved them to consist principally of three large islands, separated by narrow straits from each other and the mainland of New Guinea; and as their first surveyor and visitor, I have taken leave to name the islands Normanby, Fergusson, and Goodenough; and called the straits Ward Hunt, Goschen, Dawson, and Moresby. These islands extend north and south about 90 miles, and afford harbours and anchorages.

With your permission, I will give you a slight account of this survey. Lieutenant Mourilyan and I, with an engineer and seven men, started on March 7th in our steam-pinnace, with a whale-boat in tow, loaded with fuel and provisions for a week. We left the ship in Dawson Straits, and steaming to the westward we passed close under the high volcanic mountains of Fergusson Island which bound the strait to the north. The shore that we coasted was dotted with villages high on the hills, peeping through the sombre tropical green. We could see that our appearance caused great excitement amongst the natives,

who must have thought us gods moving rapidly on the water without exerting an effort. They raced for miles along the beach inviting us to land (but we could not accept their invitation), shouting their cry of surprise, "Hōō-ee! hōō-ee!" Turning the western point of Fergusson Island, we found ourselves at the entrance of a fine strait separating Fergusson from Goodenough Island. Both these islands, with their forests topped by bare grey peaks, are grandly picturesque objects, Mount Goodenough rising magnificently to a height of nearly 8000 feet. The sides of this great mountain are cultivated in patches to a height of about 2000 feet; gradually its woods give place to barrenness, and its summits stand bare and knife-edged against the sky. Mountain torrents dash down its ravines and flash out at times from their dark-green setting, like molten silver.

Night now closing, we sought to anchor between a small islet and the shore; our draught of water was but 12 or 14 inches, and yet we could obtain no anchorage; the channel was full of mushroom-coral, which rose like great pillars from a depth of 20 to 30 fathoms to within 3 or 4 inches of the surface, so close together that after many a weary trial, off the entrance of lovely coves and delicious-looking bays, we had to seek a precarious anchorage in 20 fathoms' water outside these coral pillars, on which a dangerous surf was breaking.

The natives then crowded alongside us: but we were weary and wanted to have our evening meal in peace, to obtain which we blew the steam-whistle, and their consternation was absurd in the extreme; they seized their paddles and glided off into the darkness. All night long the near village clamoured like a frightened rookery, and our look-out men were frequently startled during the night by natives stealing out on the reef to within a few feet of us. At last some sleep being needful, I caused a rifle to be fired to seaward, and this secured us some quiet. Next day we failed for want of fuel to completely circumnavigate Goodenough Island. We landed on it and found it the home of the megapode and a variety of exquisitely-plumaged birds, unknown to us; also of parrots and lorries.

Passing back to Fergusson Island, we landed at a large village in Moresby Straits. Strangely enough, for we saw no such thing elsewhere, the men hid themselves, and an old lady, with a very pleasant face, paddled off to us in a catamaran; we gave her strips of red cloth, and she became quite friendly. When we landed the married women alone advanced to us, the men appearing, but keeping back in evident timidity; but the presents distributed amongst the women soon brought the men about us, all anxious to exchange their stone-axes for our rusty

iron-hoop. So entire was my confidence in the peaceable disposition of these people that, accompanied only by a seaman, I visited their inland plantations, and found large enclosures well fenced in with bamboo, producing tropical fruits, yams, sweet potatoes, Indian corn and sugar-cane. The sago-palm grows most abundantly here; and the natives mash the sago in immense troughs, which I at first took to be worn-out canoes. We all enjoyed this food, and used it largely.

The good feeling of these natives deserves particular mention: they had never seen the *Basilisk*, and knew nothing of our possessing superior arms. We were only ten men amongst hundreds, and they knew that we carried iron-hoop on our persons, a thing of priceless value in their eyes; but not only did they respect our position, but they helped us over obstacles, showing us the best paths, and took care of our clothes when we bathed in their cool streams. Here, a mile from the beach, I saw large masses of coral-rock cropping up at perhaps 100 feet above the sea-level in close vicinity to volcanic cliffs. There was a singular absence of coral-formation on the north side of Fergusson Island; and the beach and bottom of the sea, formed of black volcanic sand sloping gradually into deep water, offered many valuable anchorages. No natives lived on this part of the island, and we could not find any fish in the bays, but a wallaby was shot near the beach. We discovered here a number of boiling mineral-springs, strongly alkaline; they united themselves in one large rivulet, which offered any degree of temperature to our bathers. Other hot springs may exist here at the bottom of the sea, which would account for the absence of fish in the bays. In the sand and mud thrown out by these springs we found very small specimens of rubies and amethysts, evidently chippings from larger stones.

Our return to the ship was very arduous work; we had heavy weather and were out of coals, but by burning wood and greased coal-bags we succeeded in getting back.

Now, with regard to the great Louisiade reefs, I must say a few words. Our work here has proved that these reefs, hitherto deemed an impenetrable barrier between Australia and North-East New Guinea, present, in reality, a wide open gateway, through which ships may safely pass from the one to the other, and enter on a shorter course to China. Previous to this discovery three routes lay open between Australia and China. Of these the shortest, or New Ireland passage, ran inside the Solomon Islands, and leaving the Louisiade Archipelago to the west, went between New Britain and New Ireland, and so on to China. Our new route lies to the west, instead of the east of the Louisiade reefs, and shortens the dis-

tance by about 300 miles, without, to my knowledge, increasing the danger. Eventually the trade with China will be carried on by steamers, and this, the shortest route, will doubtless be *the* route. Near Teste Island the Louisiade reefs sink from the surface to a depth of 10 or 12 fathoms, and so continue for more than 100 miles to the west.

To the immediate west of Teste Island ships bound by this new route pass over this sunken barrier; and here Nature has placed such striking landmarks that a land-fall can be unmistakably made. Teste Island is easily recognisable. Its peaks rise to a height of 300 feet, and look like islands at a distance. Four miles to its west stands Bell Rock, a great dome-shaped mass of rock, rising perpendicularly from the sea to a height of 500 feet, wooded over wherever a crevice affords room for a tree to grow, and marking well the entrance to the new route: it may be passed by a vessel within a stone's throw. Thence, as the ship passes between Moresby Island and Engineer's Group, not a reef lies in the way. To the north-west of Slade Island the passage lies between two reefs about 2 miles apart, and a passage of 4 miles' breadth leads to the point of exit between Cape Ventenat and a reef which I have named Gallows Reef. The channel here is 2 miles wide; and Gallows Reef being awash, and marked by two tree-covered islets, affords sailing-marks which remove all danger to the navigator.

Another useful gift which the *Basilisk* has been able to present to the mariner and the merchant has been the discovery of harbours on these once inhospitable coasts. I cannot trouble you with a description of these many new harbours, but will speak of a few.

1. Robert Hall Sound, South New Guinea, in lat. $8^{\circ} 50' \text{ s.}$, long. $146^{\circ} 35' \text{ e.}$, is well marked by Yule Island at its entrance. I have a great belief in the future of this noble sheet of water, seen from seaward by Captain Owen Stanley's survey, but never entered till now, by a passage we have found off the south-east end of Yule Island. A good, safe, clear channel leads in, and the harbour is perfectly protected, and land-locked with deep water, for hundreds of ships to lie safely. Its shores are low, swampy, and mangrove-covered, and probably unhealthy; but Yule Island, near which ships would anchor, is high and healthy ground. At the head of the harbour Hilda River issues, navigable for steam-launches, but too rapid for row-boats to ascend, destined in time to bear the valuable woods and many products which here await the advent of commerce downwards on its rapid bosom.

2. Port Moresby is a safe, commodious, double haven, lying 60 miles to the east of Robert Hall Sound, at the point where

the swampy coast first gives place to coral, white sand and shells. Truly this harbour was "the desire of our eyes;" and when, after much search in open boats, we discovered this harbour from Jane Island, we were very joyful. Then the great anxiety arose as to whether we could find a good entrance; and for two days more we sounded in our little galley and cutter, far away from the ship, inside the great barrier-reef, to find an entrance. Suddenly I dropped my lead 50 fathoms down, and finding no bottom, knew that the entrance was found. Two days after we took the ship in. The outer harbour of Port Moresby is an extensive bay, surrounded by open, grassy, round-topped hills, thinly timbered with the Australian gum-tree, whilst rich tropical valleys lie between. There are several large native villages on its shores. Jane Islet, about 5'0 feet high, lofty and precipitous, wooded and cultivated, stands in the centre of the outer harbour, and if fortified would render it impregnable. The eastern waters are a mass of coral-reefs; but the western are clear, and just the right depth—9 to 12 fathoms—for anchoring. A fine, clear passage leads to the inner, Fairfax Harbour; and in this inner broad sheet of water, shut round by high land, the *Basilisk* anchored in 5 fathoms. On its southern side from the hill under which she lay a considerable quantity of gold-quartz was taken, specimens of which are here for your inspection. We were too busy surveying to prosecute this discovery; but, as I have before stated, the aspect of the land, and character of the masses of granite-quartz cropping up, lead me to think that gold will be surely found there. This port, from its healthy situation, has already been selected as the principal station of the London Missionary Society.

3. Pitt Bay is a fine harbour, and easily entered; it lies at the gateway of the New Australo-Chinese route at the east end of Moresby Island, embosomed by lofty hills. Hereafter the power holding Pitt Bay will possess the key of the route. At Pitt Bay we took one piece of gold-bearing quartz from the bed of a stream, but though we searched diligently, we could not find a second.

4. Traitors' Bay, on the north coast of Eastern New Guinea, in lat. 8°, and long. 148° E., offers shelter to ships trading on that coast, and possesses a navigable river with a gentle current. This river discharges itself outside the anchorage, over a bar that proved impracticable to our boats. I regret much that I had not time to survey this river, for it seemed to me to lead far up into the country, and I hope some future explorer will follow it up. It needs no words of mine to show you how important it is that this great country should be opened up by water-communication.

They bury their dead in a respectful manner in the ground, and build small thatched huts over them, on which coco-nuts were hung. These coco-nuts, hung plentifully in the villages and even far out on the reefs, may have been votive-offerings. In some few cases these burial-huts are rudely carved and fenced in with a bamboo palisade, as if the resting-places of chiefs; but we saw no sign of chieftainship amongst the living.

These Malays must be considered a more civilised race than the Papuan; they possess the art of pottery, still unknown to the Papuans. In every village women may be seen moulding the clay, whilst others tend the wood-fires in which the globed jars are baking. They are also better cooks; for they boil their food, as well as roast and bake it like the Papuans: and I have frequently enjoyed the vegetable porridge they make of yams, taro, and mangrove fruit stewed in these bowls, with coco-nut shred finely over.

As fishers they far exceed the Papuans in art: the latter fish only with hook and line and the barbed spear, whilst our new friends make fishing-nets of various sorts with great skill; one, like the English seine, made with the fibre of a small nettle-like plant; another is what I call a "trap-net," and consists of a netted bag, with the mouth kept open by a bamboo-spring. It is let down with the bait in the bottom, the mouth open. The fisher, on feeling a fish, pulls a string which closes the bag and draws it up with his prey.

The Papuans have but one kind of canoe, dug out of a single tree and balanced by heavy out-riggers; but these people have several kinds of canoes, of which the trading-canoe is best, having topsides laced on with split bamboo, strengthened by strong knees inside, supporting a sort of half-deck, under which they stow their goods. They are most ingenious basket-makers, and make strong good-looking baskets to fit one inside the other in a nest: they also make capital woven-bags for carrying their property; and they make light rope and strong cord from various vegetable fibres, that would not disgrace an English rope-yard.

Their weapons consist of stone tomahawks, clubs, and axes, and of spears, and heavy wooden swords and hair-slings; and that these weapons are not very effectively used Lieutenant Deeds, of the *Basilisk*, had ocular proof, as he witnessed a fight between the Slade islanders and those of East Cape and Moresby Island, whilst detached on a surveying cruise. The combined warriors of East Cape and Moresby Island approached Slade Island in some twenty canoes, containing about thirty men each, but remained thirty yards off shore, throwing spears and sling-stones at the Slade Islanders, who waded out to meet them.

and returned the compliment. They maintained this respectful distance for two hours, when they drew off and nobody seemed wounded, such was their skill in dodging these missiles. We rarely saw a wounded man amongst these people, and but few enemies' skulls ornamented the outsides of their houses.

Their houses and those of the Papuans do not differ materially. They are built on poles, sometimes 12 or 14 feet from the ground, and consist of one large tunnel-shaped room, well thatched over. A pole, with notched steps, leads from the ground to a small landing-place or verandah, behind which is the small opening leading into the interior. This verandah is the favourite lounging-place of the family; and their implements of war, fishing, and labour, are carefully hung round on the inside walls.

They are rude but successful cultivators of the ground, using stone mattocks for turning up the soil to a small depth, preparatory to planting their yams and taro. Their food is very plentiful, and consists of fish, yams, taro, fruits, and pork on great occasions, with abundance of the delicious crabs which abound here, and they do not make any kind of intoxicating drink. This plenitude of food may have some influence in checking a desire for cannibalism, which certainly does not prevail largely amongst them; though from the fact that we saw some of them wearing bracelets of human jawbones, and necklaces made of the spinal vertebræ, which had evidently been subjected to the action of heat, coupled with some signs they made us, we suspected that cannibalism was not wholly unknown to them.

These people are affectionate to their children: they make toys, especially models of canoes and small spears, to amuse them and encourage them to have pets. The little ones were constantly to be seen petting little pigs, with which they ran off at our approach, lest we should barter for them. They had also multitudes of tame parrots, lories, cassowaries, and kept several varieties of the marsupial cuscus in cages. In some cases the parents were willing to barter their children for our iron axes.

They did not (like most savages) keep their wives in the background, but allowed them to meet us freely and have a voice in the trading. On one occasion a husband was heartily belaboured by his wife with a paddle on the head and shoulders, because he did not barter satisfactorily, and his friends, instead of interfering for his relief, only shouted with merriment. He did not retaliate, but looked foolish. Nevertheless, the lot of the women here is to do all the heavy labour, whilst the men fight or fish, as in all other savage communities.

The men are but slightly tattooed, but the women tattoo all over, sometimes in graceful patterns. The men paint grotesquely

with ochres, and sometimes shave the head, and paint it, and the whole body to match, of a shining black, with charcoal and coco-nut oil. The women crop their hair short, the men wear theirs long and frizzed, and all disfigure their mouths with chewing the betel-nut, except the younger women. The men wear a waistcloth only, the women the usual South Sea garment, the short grass petticoat or "ti-ti."

A New Guinea exquisite, lithe, dark, and graceful, with shell-anklets, making his small feet seem still smaller, is not an unpicturesque object. His waist is braced in with many turns of black cord, the outside of which is plaited in with gold-coloured straw; his neck is bright with a red shell-necklace, from which a boar's tusk depends, and from the tight ligatures and bracelets on his arms the graceful pandanus-leaf flows far behind, curiously embroidered. Bright red flowers and berries adorn his hair, and his face is frequently painted red at one side and black and white at the other.

The only maladies we perceived amongst them were elephantiasis, ulcers, leprosy, and other skin-diseases; otherwise they were vigorous and healthy.

In conclusion, I am anxious to take this opportunity of expressing my grateful sense of the exertions made by the officers of H.M.S. *Basilisk* during both our New Guinea Surveys. Their work was continuous, arduous, and frequently exhausting, from circumstances of climate, exposure, deprivation of comforts, and physical efforts of all sorts. No one thought of rest; all felt that a really stupendous task had to be accomplished within the limits of a comparatively short time, and laboured heartily to achieve it.

I think we all felt that English hands only ought to finish the work of Cook and Dampier in this quarter of the globe, and that it was well to establish for England a right on these shores, knowing that such a right will become of importance in the future.

Having been long in Australia, we naturally felt a growing interest in the future of the great Australian Colonies, and were struck with the importance of keeping them unhampered by any complications that might result from the establishment of foreign settlements within so short a distance of Cape York.

To this end we desired to ascertain if harbours existed on the coast easy of access and possessing strategic advantages. Our secondary desire was to throw the riches of New Guinea open to Australian effort, and so lead to the mutually helpful union which Nature intends between the sister islands of Australia and New Guinea. Providence has crowned our efforts with success, and time, which tests all things, will, I know, prove our