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Discovery of the Mai-Kassa, or Baxter River, New Guinea

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1874; Handbook for Travellers in Denmark, with Sleswig and Holstein, 4th edition, 1875; and Handbook for Travellers in Sweden, &c., 4th edition, 1875 (*John Murray, Esq.*). Die Zweite Deutsche Nordpolarfahrt, 1869 and 1870: Volksausgabe, Leipzig, 1875 (*The Bremen Arctic Society, through Dr. Lindeman*). Catalogue of the books in the Admiralty Library, by Richard Thorburn, 1875 (*Author*). Outlines of Indian History, 1871, and Gazetteer of the province of Sindh, 1874, by A. W. Hughes (*Author*). Projet d'un Canal inter-océanique par le Nicaragua, par A. P. Blanchet, Bourges, 1874 (*Author*). La Végétation du Globe, par A. Grisebach, traduit par P. de Tchihatchef, vol. i., part 2 (*M. de Tchihatchef*). Transactions of the Chronological Institute, vols. i., ii., parts 3 and 4, vol. iii., part 1; Transactions of the Syro-Egyptian Society, 1867-68, and Original papers, vol. i., parts 1 and 2 (*The Society of Biblical Archaeology*). Die geographische Aufstellung . . . Paris, and Der Golf und Polarstrom im Ost-Spitzbergischen Meere, Wien, 1875, by Joseph Chavanne; and Die Verhandlungen des internationalen Congresses . . . Paris, von F. v. Hellwald and J. Chavanne, Wien, 1875 (*Dr. Chavanne*). Aperçu de l'état de nos connaissances géographiques, &c., 1875, Rapport sur le concours au prix annuel, &c., 1875, and La France Vinicole, 1875, par V. A. Malte-Brun (*Author*). Account of the Survey of the Russian Empire during the reign of Alexander II. (in Russian), by J. Stralisky, St. Petersburg, 1874, and Les Voyageurs Russes en Asie, 1854-74 (*M. Veniukoff*); and the current issues of corresponding Societies, &c.

The PRESIDENT, in introducing the subjects of the evening, said the first paper was one referring to New Guinea, and the other to Madagascar. The first consisted of a letter recently addressed to the Society by one of its members, who, visiting in the course of his travels the northern part of Australia, had accompanied the mission sent out by the London Missionary Society, and with the head of that mission, the Rev. Mr. M'Farlane, had ascended a river on the southern coast for a distance of nearly 100 miles—the furthest point in the interior yet reached in that part by any European traveller. This journey was performed in the steamer *Ellengowan*, which had been presented to the London Missionary Society by a liberal-minded lady at Dundee, Miss Baxter, and it was proposed to call the newly-discovered river the Baxter River, in her honour. After the paper was read, Dr. Mullens, the Foreign Secretary of the Society, would give some additional facts from the Rev. Mr. M'Farlane's journals.

1.—*Discovery of the Mai-Kassa, or Baxter River, New Guinea.*

By OCTAVIUS C. STONE, F.R.G.S.

Mouth of the Mai-Kassa, New Guinea,

SIR,

Sept. 7th, 1875.

In my last letter to you, written from Somerset, Cape York, I had the honour to inform you of a vague report that reached me

through some pearl-shell fishers, of a river near to Boigu, said to be navigable, although they themselves had not ascended it. This intelligence would appear to have been communicated to them by some of the missionary native teachers, who had gone up some few miles in a sailing-boat, and found it continue of great width. It was therefore decided upon by the Rev. S. M'Farlane, the head of the New Guinea Mission, to ascertain the truth of any such report, with the purpose of endeavouring to establish the mission as far in the interior as possible should the country be found suitable. I was invited to accompany the reverend gentleman, and it is therefore to his kindness that I must attribute the information contained in the account of our voyage up the Mai-Kassa, or Baxter River, in the London Missionary Society's steamer *Ellengowan*, presented by Miss Baxter of Dundee, after whom the river will be called, should your Society be pleased to accept the name. Although personally objecting to alter native names when they can be ascertained, I cannot but concur in intimating the Rev. S. M'Farlane's desire in this matter, and to honour thereby the noble-hearted donor of the *Ellengowan*, by whose means this river has been ascended, and we have been able to penetrate further into the interior of this *great unknown* country than any previous explorer or expedition. Although the results have not been *quite* so satisfactory as I had hoped, yet in some respects it has been more so. We have found a river navigable for any ordinary-sized steamboat 60 miles in the interior, whose width averages from one mile to one quarter, and depth from twelve to three fathoms. It is likewise navigable for small boats to a further distance of 30 miles, making a total of 90 miles, but by clearing away logs and branches that choke it up at that point, it might be made navigable for many miles further, as the depth at the furthest extremity I went to is $1\frac{1}{2}$ fathom. I will, however, with your permission, give you but a *short* account of our voyage of discovery, as my time on re-arriving at Somerset will be wholly occupied in preparing to start for the east side of the gulf, Port Moresby, where I hope to remain three months. I beg to enclose you a chart of the Mai-Kassa, or Baxter River, that I have laid down, of which another has been made for the London Missionary Society.

I have the honour to be, Sir,

Your obedient servant,

OCTAVIUS C. STONE.

Sir H. C. Rawlinson, K.C.B., &c.

Somerset.

P.S.—I take this opportunity of informing you that I am sending

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a few curiosities of the Daudé Papuans to England by this mail; and thinking some of your Society might like to see them on their way to Leicester, have taken the liberty of addressing them to the Society's rooms to be detained at pleasure, and then kindly forwarded. At the same time I beg to send you specimens of the earth, and a few leaves of certain plants found on the banks of the Mai-Kassa, which I regret are not more numerous and better preserved. With these latter please do as you think well. I enclose herewith some photographs of Erub natives, who are of true Papuan origin, and similar in physique to all the other Straits' islanders I have seen.

The *Chevert* is at Somerset, having returned from Yule Island with Mr. Macleay and the remainder of the Sydney Expedition on board—many of whom are going back disappointed, including the leader.

We left Somerset, Cape York, on the 25th of August in the steamer *Ellengowan*, belonging to the New Guinea Mission, and after calling at several of the Straits Islands on our way, the Rev. S. M'Farlane and myself arrived at Boigu on the 30th of the same month. Our object was to penetrate as far as possible up a river lying to the north of Boigu some 6 miles, the existence of which we had accidentally heard of before leaving, as having a mouth 2 miles wide, and being very deep. This was confirmed on our way by some of the native teachers, who had ascended it for a short distance and found it did not alter in appearance. Four of those men—natives of the Loyalty Group—we took with us, having picked them up at Mabuagi, Saibai, and Tauan. We dropped anchor 1 mile north of Boigu, from which place the mouth of the new river was visible in a north-by-west direction, though at that distance it might have been mistaken for a bay or inlet of the mainland of New Guinea. The channel thither has recently been surveyed, but numerous reefs and sand-banks not marked on the chart cause the navigation of Boigu Pass to be one of risk and danger, although there is little or no doubt that when it becomes better known, a suitable passage to the mouth of the Mai-Kassa, or Baxter River, will be found. In the afternoon of the 30th we went sounding in a sailing-boat, taking some of the native teachers. A sand-bank lay 1 mile to the north, so we steered half a mile to the east of it and then took a new course for 3 miles, crossing over a reef, extending in a semicircle from the left (east) bank of the river for a considerable distance, at a radius of $1\frac{1}{2}$ or 2 miles. Although it was high-water at the time, we found but 2 fathoms in the shal-

lowest part, so that as the rise and fall of the tide is 8 feet, this entrance would seem to be impracticable. After passing this it deepened gradually, until we found ourselves entering the mouth of a large river situated in long. $142^{\circ} 18' \text{ E.}$, and lat. $9^{\circ} 8' \text{ S.}$ The sight of this large river-mouth delighted us, as it was seen extending far away in a northerly direction, being a mile in width, while its entrance was nearly double that breadth and 10 fathoms deep. Smoke was now observed arising from the adjoining mangrove-trees, and we soon noticed 14 natives, who we afterwards found were Boigu people, and two out-rigger canoes on the left bank. At a couple of boats' length from this bank we floated in 3 fathoms of water, and instead of finding swamps we landed on terra-firma. In this respect it differed so much from the Katau that we hoped to find it continue so all the way, but in this we were destined to disappointment. The trees grew to 50 or 60 feet in height, with tall straight trunks from 5 to 10 inches in diameter, but they were insignificant when compared with those we saw higher up. The natives brought coco-nuts and yams to us, but during our after-voyage we only noticed a dozen coco-nut trees. They had speared a dugong weighing half a ton, and were cooking it in pieces upon a log fire, supported on coral stones to convey the necessary draught. They seemed glad to see us, but were perfectly naked; a pearl shell, cut in the shape of a quarter moon, called a miari, being suspended from their necks, falling over a portion of the breast, while their ears were pierced all round, and the lobes artificially elongated and then cut so as to hang down nearly to the shoulder. Some wore wigs like mops, their heads being first shaved with pieces of glass or shell; and this wig is common among the Papuans and the islanders of the Straits and Gulf of Papua. We were told by these men of an immense bird that they said is found up the river, which can "lift up a dugong and turn over turtle"—though native statements are usually greatly exaggerated and not reliable. Can this, however, be the moa, thought to be extinct? The megapodius must be abundant, as we saw a nest of this fowl 10 feet high by 90 in circumference, and other smaller ones. The natives knew nothing of the river further up, for they say, "When we have sea here, what for do we want to go to the sea there?" It is evident that they believe it cuts the land in half, such is their ignorance. We returned to the steamer by taking a due southerly direction, and then turning to the east, when 1 mile distant from the island, and another day's sounding proved this to be the safest course. It was impossible, however, in the short time at our disposal to lay down these

reefs and innumerable sand-banks with any great degree of certainty—they seemed endless, appearing in every direction at low-water.

New Guinea—or Koi-lago (the Big Land), as called by the Boigu and Saibai people, and Daudé by the aborigines of that part of the land visible from the sea—is seen stretching out in the distance east and west as far as the eye can reach, in a low line of mangrove-trees rising from out of the sea, with no undulation or raised ground of any description in sight. Nothing could look less inviting than what we considered were great swamps, extending we knew not how far inland; but that uncertainty, combined with the prospects, however remote, of finding a road through them into the far interior, and perhaps bringing many new features to light, only gave us increased hope. The Boigu, Saibai, and Tauan people are one and the same tribe, speaking a similar tongue, which differs but slightly from the language spoken in the Straits, excepting Erub, Murray, and Stephens, which speak a perfectly different tongue from any of those before named. By nature these people are bloody and warlike among themselves, frequently making raids to the “Big Land,” and returning in triumph with the heads and jaw-bones of their slaughtered victims—the latter becoming the property of the murderer, and the former to him who decapitates the body. The jaw-bone is consequently held as the most valued trophy, and the more a man possesses the greater he becomes in the eyes of his fellow-men. When at Saibai I tried in vain to procure a jaw-bone from 100 others, placed together in a bundle upon a stick, together with five skulls; but I could only procure the latter, which the murderer sold for a piece of tobacco. While walking in the forests at Boigu I came upon some forty human skulls, covered with dead leaves: they were those of men and of women, but I saw none belonging to a child, and all were greatly decayed. Only a fortnight before our arrival, a war-party had gone over in three canoes to the mainland, armed with clubs, spears, tomahawks, bows and arrows. They suffered the loss of four men and returned. The Papuans on the mainland hold these people in great dread, for, in combination with the Saibai and Tauan tribe, they scour the country and return generally victorious.

On Wednesday, the 1st of September, we raised anchor and steered the *Ellengowan* towards the mouth of the New River. It was thought advisable to wait until low-water, in order that if she should run on any reef or bank the flowing tide would soon raise her. We steamed 3 miles to the west, and were then making for the mouth in a north-by-east direction, when she stuck upon a soft

sand-bank that ran north by south, curving round to the east at its northern extremity. The precaution was a good one, and in an hour we floated off and entered the Mai-kassa or Baxter River at 2:30 P.M., without further mishap, in 10 fathoms of water, to the tune of "*Marsch Herzliebchen mein*," played upon an organ brought to astonish the natives. In the whole course of our after-journey, however, only *one* native and canoe were seen, although the distance was 91 miles! Smoke was again seen rising in large volumes a couple of miles on the left bank, but no other signs of life were visible. All around presented an interminable forest of mangroves, rising chiefly from out of the water, though dry land was occasionally passed by which never exceeded 20 feet, even half this height being extremely rare, for at high-water the roots of the mangrove-trees were mostly submerged for a considerable distance inland. Six miles up we passed a wide river, nearly half a mile across, extending in an easterly direction, and then bearing to the north-east; and about 2 miles further we noted another river, half that width, on the opposite bank, flowing towards the west. Ten miles up we observed coco-nut trees growing near to the eastern bend of the river, and the native teachers who had been so far informed me there was fresh water to be procured at the spot. Shortly after, at a turning to the west, we remarked what appeared to us to be stone or rock rising out of the water. It was the first ground of this description we had seen, and we greeted its appearance with pleasure, as we hoped some change in the monotonous kind of scenery was about to take place shortly. The only circumstance that tended to damp our spirits was, that the water became no fresher as we proceeded, and that the tide continued to rise and fall, as heretofore at the sea. We anchored for the night 15 miles up, and early the next morning we sailed back to Stony Point, accompanied by Captain Runcie, of the *Ellengowan*, and we then perceived that the shore at that point is composed of pipe-clay, rising perpendicularly 6 feet above the water, and extending 8 feet beneath. Minute oysters, in the first state of formation, were adhering to it, and a few other shell-fish, common on the Australian coast. The soil 100 yards inland was of a rich vegetable nature, while that in close proximity to the river was dry and clayey. The ground rose to a height of 12 feet, and was covered with the customary tall trees, from 50 to 70 feet high, among these the mangrove being predominant. Patches of long coarse grass grew here and there upon the ground, moss clung to the roots and lower parts of the trunks of the larger trees, and undergrowth was plentiful, though not so dense as among the Australian bushes. A species of thistle and a

bush, bearing leaves not unlike those of the box, only armed with thorns, were common. A swamp, about a quarter of a mile inland, prevented us from exploring further. The bed of the river is composed of mud and clay, containing myriads of microscopic shells and particles of shell, but entirely devoid of any harder material, excepting a stone, somewhat resembling ironstone, scattered sparsely over it. At noon we continued steaming up the river, which at 25 miles' distance turned off from a northerly to a westerly direction, continuing to run in that direction for the next 20 miles through low and swampy country. At the twenty-second mile from the mouth two reefs projected above the water, and on taking the ship's small boat to examine them, they were found to consist of pipe-clay, similar to the bank at Stony Point. A few miles on we observed smoke rising in great clouds about 2 miles inland, but no canoe or other sign of life was visible. Numerous streams are passed on either side of the river, some being of considerable width and varying from 10 to 150 yards. At the fortieth mile we saw smoke again on the left bank, and a native in the act of paddling his canoe leisurely from the opposite side towards it. He had paddled a quarter of the distance, and was then seen to stop for a moment as though thunderstruck on observing the big machine coming quickly towards him. Orders were given to steam full speed; but before we could get up to him he turned back in evident terror, tied his canoe to a bamboo stuck into the mud, and ran off inland. This was the first and last man or canoe we had come across. It is a most difficult thing to get near these people, who regard all strangers as enemies. They seem to lead a roving life, like the bush-tribes of Australia, hunting with the bow and arrow, and spearing fish. The canoe in question was about 15 feet long by 18 inches across, hollowed from the solid trunk of a tree and pointed at one end, proving they are not ignorant of the advantage a boat of that shape possesses. It is evident that all this part of Papua is very thinly populated, no doubt accountable for by the malaria that rises during the rainy season and the heavy night-dews during the dry, which cannot but produce a most unhealthy atmosphere. I was assured that a night passed on shore was sufficient to cause fever; but notwithstanding this, I found the climate, while travelling through the country by boat, sufficiently agreeable, the temperature at noon in the shade being 87° , and in the early mornings and evenings 7° less, while in the sun it reached 115° : this, however, is the coldest part of the year. Forty-five miles up we came to the junction of a river flowing from the interior into the channel along which we had steamed, the junction being called the "Meeting of the Waters."

Here the current ran at 4 miles an hour, and the steamer drifted down until anchor was dropped, for we felt convinced that this current was produced by the river whose mouth we had just passed. In consequence of the rapidity of the current, one of the boats that was being towed behind came in contact with the propeller and was carried beneath the water, and although it was finally rescued, it was rendered useless for the rest of the voyage. I mention this incident merely as a caution to any who may hereafter ascend the Baxter. We anchored 2 miles further up, having returned and taken the turn eastwards.

On the following morning (September 3rd) our men went ashore to cut wood, and the Rev. S. M'Farlane and myself likewise landed to explore the neighbourhood. The ground rose to 30 feet, being thickly carpeted with a long coarse grass that made walking somewhat difficult. For the most part it was rich alluvial black soil; but at one mile inland we came to boggy land, when the soil became more of a peaty nature. Immediately adjoining the river's side red and yellow clay, and a stone, like ironstone, imbedded in it, were plentiful. We noticed the traces of wild boar, and evidence of the presence of natives at some period was visible in the charred trunks of a few trees and pieces of charcoal lying here and there. All, however, that I saw in the form of life were a few birds, butterflies, and dragon-flies. Fresh water was likewise found by the men, and our water-casks were replenished. Up to this time we had some doubts as to the supposed river turning out to be but a creek; but the indications of the salinometer cleared away all fear we entertained on that score. We steamed on the same day, and shortly discerned among the trees the first hut since entering the mouth, 50 miles away; but no signs of life appeared within or without it. The river now took a northerly direction, and the banks became higher, though never exceeding 30 feet, and the interminable mangroves were backed by forest trees, 70 or 80 feet high. The stillness and quietude of all around were striking, being only broken by the sound of an occasional bird. On the banks, where life in some form would certainly have been expected to exist among beast, fowl, fish, or reptile, all was silent as the grave, for not so much as an alligator or crocodile cheered us by his presence. Perhaps a dozen birds were as many as we had noticed in a single day, among which were the common white crane, white pigeon, black and white cockatoos, and parrots. As we proceeded, brown birds, having the appearance of hawks, were seen flying from one side of the river to the other, and palm-trees added a more tropical aspect to the scenery; but no more coco-nut trees, or other useful fruit or vegetable, were passed

to our knowledge. On arriving at the sixty-fourth mile—Wood Bay—we cast anchor, for the river there split into two, and narrowed so considerably that we were undecided as to which course to take. We sounded in a small boat and found that the silt from both rivers formed banks at either bend, though in the centre they were $2\frac{1}{2}$ and 3 fathoms—the river, branching to the north-east, being the deeper and wider of the two. We therefore sounded for 3 miles' distance, the average depth being $2\frac{1}{2}$ fathoms at slack tide, and the rise of tide 6 feet. The water is strongly brackish, so more fresh water was searched for and found about $2\frac{1}{2}$ miles up on the right bank. On the left bank, at the third bend, bamboos grew abundantly, some having been recently cut, not by stone hatchets or other rough instrument, but by some sharp instrument, no doubt steel hatchets. This was self-evident from bamboos, 3 inches across, having been severed in two strokes. The Katau people have many of these steel axes, procured by barter; hence it is probable that they have intercourse with these people, and that the existence of a white race is not altogether unknown among them. A raft, composed of a bundle of sticks tied together, was attached to some overhanging bushes; but although no owner was seen, it had disappeared the following day. I visited a shelter, constructed from the bark of the gum-tree, that was situated in Wood Bay, and saw signs of recent life in the remains of a kangaroo, which had been cooked upon a log-fire. These shelters seem to afford homes to these roving people, while wandering from one place to another; and I am in great doubt whether half this population has any sort of home or shelter at all. They pass two or three nights beneath them, hunting in the meanwhile, lengthening or shortening their stay, as game is found to be more or less plentiful. No wonder that, with such a scarcity of nourishment as they are able to get, they have a liking for human flesh.

Early on September 4th we sounded 3 miles up the north-western river; but at that distance it narrowed to 50 yards, although the depth was from $1\frac{1}{2}$ to 2 fathoms. Our minds were fully made up as to which course to take, so, when it was still early, the Rev. S. M'Farlane and I, accompanied by Captain Runcie, started off in the life-boat, as we found continuing further in the steamer would be accompanied with some risk of being unable to turn her round, notwithstanding that there was sufficient water to float her, not only in the centre, but also near the sides. The length of the *Ellengowan* is 80 feet, and she draws 6 feet of water. This confluent, at its junction with the recipient, was about 200 yards wide; but it narrowed so perceptibly and rapidly as we proceeded in the life-boat,

and took such sharp windings, that we should have experienced some difficulty in steering a large boat, although it could have been turned round in Wide Bay, some 8 miles further up than Wood Bay, where she was anchored. Palm-trees, or more properly leaves, 30 feet in length, now became numerous, growing out of the water on either side, while mangroves, hitherto abundant, became scarce. The water was tried and found to be brackish; but it became fresher and fresher, until, at 16 miles from the junction, the surface-water was found to be perfectly drinkable. The banks, too, were higher than they had been, and on landing at several places dry land, capable of being cultivated, and extending far inland, was seen; though running streamlets and patches of swampy ground here and there were visible. Where the latter abounded, broad coarse grass grew to a height of 4 or 5 feet, among which snakes were not uncommon. Elsewhere the ground was covered by a small species of bamboo, resembling cane, and strewn with their dead leaves, or else by forests of tall trees, having their lower parts hidden by bushes, small trees, and other undergrowth. Upon these, orchids and creepers find support; but the former cannot be called plentiful. Indeed, in no part of the world have I seen these so abundant as in the Mergui Archipelago and parts of Burma.

At the distance of 15 miles above the junction we noticed a clear space on the left bank that seemed to extend some distance inland, as was judged by the tall charred trunks seen rising one behind another, totally devoid of branches. It was evident that they had been subjected to the action of fire, so Captain Runcie and I landed to examine the neighbourhood, in the hope of discovering signs of life. Wending our way through grass 5 feet high, we suddenly came upon a neat fence, made of branches interlaced, 4 feet 6 inches high, and supported by poles driven in the ground, 3 feet 6 inches apart. It enclosed an area of no less than 6 acres, and was so compactly constructed that it was with difficulty a holding-place could be found to pull oneself up by. It had been erected some time past, as on climbing over it was unable to bear my weight, and fell in with a crash. The grass within was neither so coarse nor long as that outside, showing it had been more recently fired. In some parts it was cultivated with yams, sugar-cane, and, what most of all astonished me, tobacco. This was the first signs of cultivation (excepting the few coco-nut trees before mentioned) that we had seen, and it gave us renewed hopes of meeting natives further up. Outside the enclosure, and situated beneath overhanging shrubs on the river-bank near a bend a mile further up from where our boat was left, we found two bark-huts, but no inhabitants. The remains

of burnt stones that had formed a foundation for their last fire were still as they then left them, but the huts were perfectly empty. The height of these habitations was about 6 feet, width the same, and length 14 feet, the ends being left open, while the sides and sloped roof were of bark, supported on thick sticks. When I went there again, two days afterwards, I suspended a knife and a looking-glass from the roof of one of them, to delight and astonish the proprietors on their return, when the yam season sets in. A few miles further, we arrived at Cascade Point, 82 miles from the mouth, where a small stream of pure, sparkling water rushes through a gap in the left bank, and falls, from a few feet in height, into the river below. At this point the Mai-Kassa narrows to 20 yards, the banks becoming more perpendicular, while the depth is $2\frac{1}{2}$ fathoms in the middle, and from 1 to 2 fathoms at the sides. The same kind of forest scenery characterises the shores extending as far away inland as the eye is able to reach, which, on account of the undergrowth and flat nature of the country, is, however, extremely limited. On returning by moonlight, fire-flies congregated in thousands upon certain trees, for whose leaves they appeared to have a particular liking, which, being reflected in the smooth water, gave a natural illumination of striking beauty and brilliancy.

On the following Monday (September 6th), while more wood was being cut for the steamer, I borrowed the life-boat, and started at three o'clock in the morning, accompanied by Mr. Smithurst, the engineer of the *Ellengowan*, with the intention of proceeding as far as possible up the river within the limited time of one day. Two South Sea Islanders acted as rowers, and we soon arrived at Cascade Point, the furthest point reached two days previously. Immediately on leaving there again, birds of many kinds became numerous; each mile we went appearing to double in quantity those seen in the preceding one. Pigeons, half as large again as ordinary ones, and of a beautiful lavender colour, with chocolate wings and red eyes, flew about in every direction; while cockatoos and parrots of many colours, herons and king-fishers, were common, lending an air of life to the locality that differed very much from anything we had before come across. A large bird, which must have measured from 14 to 16 feet across the wings, with black and white about its body, was also seen flying high in the air, and the flapping of whose wings resembled the sound of steam issuing from the front of a locomotive. The river zigzagged considerably, and became so narrow, that at a distance of 9 miles past Cascade Point, or 91 from the mouth, the leaves of the palm met in the centre,

forming a natural arch, beneath which we rowed. Logs, trunks, and snags, were now so thickly scattered in the river as to entirely block us from going any further, and we returned to the nearest landing-place, at Snake Bay. At the furthest point reached, the Mai-Kassa was 10 yards wide, although the depth was still 2 fathoms. Even so far in the interior it is influenced by four half-tides daily, as when the first waters meet the sea a rebound is caused, so that the second half-tide is of slightly longer duration than the first. The rise of tide at the furthest point is from 3 to 4 feet, but its waters are entirely fresh. It is on account of the sluggish motion and continued depth of this river that I am induced to believe it may run for another 100 miles into the interior; and it would be interesting to further trace its course. Birds of Paradise, which we had occasionally seen in coming the last 4 miles, were found to be plentiful at Snake Bay, and three of these beautiful creatures were shot in the short time we stayed there. The body and wings are brown, top of head, yellow; throat, emerald green; breast, purple; while the feathers constituting the under part of the bushy tail are of a reddish tint, gradually dying off to brown at the extremity. A boa-constrictor was likewise shot, 15 feet 3 inches long, having a protuberance in his body $14\frac{1}{2}$ inches in diameter, which, when cut open, proved to be the body of a whole kangaroo only partially digested. We remarked, near the water's edge, footprints as of some large animal such as a bull would make, though the natives of Boigu inform us there are no such animals; but wild boar are often captured by them. The footprints in question were, however, 5 inches in diameter, and the same depth in the soft mud—though no hoof-mark could be seen. That they were those of some animal other than human is beyond the question of doubt, but the animal that produced them is a mystery. The trees in the vicinity of Snake Bay are of enormous height, many being more than 100 feet, though few exceed 4 feet across the trunk, which grows perfectly erect, and is devoid of lower branches. The height of these trees was characteristically expressed by the South Sea Islanders in the term "break-neck," as applied to them on account of having to bend the head back considerably when looking up; but, like many other of their expressions, it conveys an exaggerated idea of their grandeur. The wood is very hard, and suitable for cutting up into planks for ship-building and other purposes. The bark on most is smooth, and on some I observed a fatty, resinous substance adhering, reaching to a height of 40 feet from the ground, and forming a sort of buttress down one side, projecting 6 inches, and being from 3 to 4 inches in

width. When burnt in the fire it gave out a cheerful flame, and possessed all the requisites for making candles of. Flowers are scarce, and, indeed, the only two we have seen worthy of notice are the pitcher-plant and a white lily, several blooms growing at the extremity of a stem 2 or 3 feet long. The shades of evening were closing around us as we left Snake Bay, and after a long pull with the current, which there averages 2 miles an hour, arrived back safely at Wood Bay, being received by those on board with cheers that alone broke the silence of night. Here and there the reflection of large fires was seen in the heavens, and sometimes a flame would leap up above the dark trees; but no living thing was seen, and no voice or sound was heard, excepting within the iron walls of the *Ellengowan*. While waiting at Cascade Point and Snake Bay, Mr. Smithurst had succeeded in taking photographs with his apparatus, so that a good idea of the general character of the scenery in the interior will therefore be obtained.

At an early hour on Tuesday, September 7th, we steamed full-speed down the river, not stopping until arriving at its mouth, in 8 hours 55 minutes. Before leaving Wood Bay, however, the likeness of Her Majesty Queen Victoria was placed within a suitable niche cut out of the trunk of a tree, the flag was hoisted, and a royal salute of twenty-one guns fired. On the 12th of September we re-arrived in Somerset, having been absent only eighteen days.

In conclusion, I would remark that for the naturalist and botanist the shores of the Mai-Kassa, or Baxter River, present features of attraction that are rarely equalled, when we take into consideration the comparative immunity from danger while in the pursuit of scientific inquiry, combined with the ease with which they may be approached—both being considerations of no small importance. That the southern part of New Guinea is either cut up into a series of islands, or intersected by rivers and streams of considerable length, is beyond doubt; and, in a geographical point of view, the tracing out of these numerous effluents of the Mai-Kassa would afford an interesting study, and might lead to further important results; and, with a steam-launch drawing 3 feet of water, this could be easily accomplished in a few months.

OCTAVIUS C. STONE.

S.S. Ellengowan, on the way to Somerset.

Dr. MULLENS said the London Missionary Society had now been working at the head of the Papuan Gulf for very nearly four years. Until the year 1870, the coasts of New Guinea were neglected both by the English Navy and the commercial world. Ships belonging to the Navy had previously surveyed

certain parts of the coast, some of the islands, and the reefs in Torres Straits; and the information thus obtained had been of the greatest use in the navigation of those straits; but of the interior of the country scarcely anything was known until about five years ago. When the mission of the London Missionary Society was first planned, nothing was known about the character of the people, or of the races to which they belonged. Four years ago, however, Mr. Murray, a South Sea missionary of nearly forty years' standing, and Mr. M'Farlane secured a very pleasant settlement for several native missionaries on the two islands of Tauan and Saibai. They entered into relations with the people there, and found that they were closely connected with tribes on the mainland up one of the rivers, which they called the Katau River. The missionaries proceeded there in their boats, and visited the village of Katau, and saw with interest and amazement the houses in which the Papuans were accustomed to live, the modes of dressing their hair, and other things to which Mr. Stone had referred in his paper. Their dealings were of a very friendly nature with the people of that village, and of a neighbouring village, Torotoram. That was the beginning of their intercourse with the inhabitants of the mainland; and since that time separate stations had been established on no less than ten islands in the Papuan Gulf—immediately off the mainland—viz., Darnley Island, in the very middle of the Gulf; Murray Island, Banks Island, Jervis Island, Prince of Wales Island, and others. It had been found that the inhabitants of these islands, who had evidently originally come from the mainland, had not always been treated well by the pearl-shellers, and, in fact, had become very much degraded; but the nearer the islands were to the mainland, the finer, more heroic, manly, and kind-hearted were the natives, who were suspicious of strangers, but were very industrious in cultivating the soil.

The mission had been carried on with the help of the steamer *Ellengowan*; and Mr. M'Farlane's suggestion, that the river which they had discovered should be called the Baxter River, in honour of the lady who had provided them with the steamer, was a very good one, notwithstanding the fact that the river had already a native name, the Mai-Kassa. The immediate cause of the expedition which Mr. Stone had described was this: Mr. M'Farlane had endeavoured to extend the mission from the two islands of Tauan and Saibai and the village of Katau towards the west; about sixteen miles to the westward there was the island of Boigu. After making due preparation, Mr. Macfarlane took some of his most experienced men to form a settlement there. It happened that the inhabitants were connected with the people of Tauan and Saibai, and in this way the missionaries were enabled to extend their social relations with the different tribes; and it was hoped that they would steadily make their way into the interior. The people of Boigu gave Mr. M'Farlane and his men a hearty welcome, and told him of the mouth of a river coming down to the coast of the mainland, at a distance of four miles from the north coast of their island. Before Mr. M'Farlane left to return to Cape York, he said to the teachers whom he was going to leave on the island, "When you have got your houses in order, take the boat over and see what you can make of that river." This set them on the alert, and on his return to the island he found that they had crossed, and proceeded fourteen miles up the river. They informed him that they had seen the dugongs playing in the water; and they begged him to bring over the steamer, because the river was quite large enough to admit it. Mr. M'Farlane became greatly interested in the matter. He found Mr. Stone at Cape York, who was very anxious to accompany him; that was easily arranged; so that there were four Englishmen and six or seven natives in the expedition—Mr. M'Farlane, Mr. Stone, the captain of the steamer (Mr. Runcie), and Mr. Smithurst, the engineer. In one of his letters, dated May 12, 1875, Mr. M'Farlane had given

an interesting account of the Boigu people. Speaking of the village on the north side of the island he said :—

“The villages on the north of Boigu consist of a few miserable sheds, merely the roofs of houses. The natives, it appears, had abandoned the village and that part of the island, owing to attacks from their enemies, who cross over from the mainland. They are now, however, on friendly terms with the neighbouring tribes, and have only some unknown tribes away to the westward to fear. Their last battle with the savages is worthy of record, since it not only evinces their bravery, but gives evidence of a maritime spirit which Englishmen know how to admire. At first their enemies fell upon them at night unawares; last time, the Boiguans saw them coming, and considering their canoes superior to those of their enemies, determined to go out to sea and give them battle there. We may imagine the feelings with which the women and their daughters beheld their husbands, sons, and betrothed—all who could draw a bow or wield a club—leave the island to defend their families and homes. They knew but too well what to expect in case of defeat. Even should they conquer, who would fall? Doubtless they were unusually earnest in their incantations and prayers to their ‘dumb idols,’ and anxiously watched the combat. The Boiguans took as many stones as they could conveniently carry in their canoes with their weapons, and hastened out to meet the enemy (they must have had a pretty good fleet, judging from the fifteen canoes which soon made their appearance after our arrival), who were approaching in canoes too numerous for them to number—one party as anxious to get away from the land as the other was to approach it. First, showers of arrows; then spears; then crash! the canoes meet, the stones are hurled, a brief struggle, and the victory is won! Some of the enemies’ canoes have sunk, and the rest are in rapid retreat.

“The enemies whom the Boiguans most dread, however, are a tribe of notorious cannibals on a point of the mainland about six miles distant, whom they describe as being exceedingly fierce and cruel, who make raids upon the neighbouring tribes in order to obtain human flesh, and keep their victims alive as long as they can in order to preserve the meat, taking a limb as they want it! This is horrible. I have not heard of anything like it in the South Seas.”

With regard to the ascent of the Mai-Kassa, Dr. Mullens begged to read the following extracts from a letter of Mr. M’Farlane :—

“After entering the river on the following day, we went about 20 miles further up, and came to a place where the river branched off in two different directions as before: we anchored in the middle where the three arms meet, and determined to survey in the boat before we took the steamer any further, as the river was becoming too narrow for turning safely. Up to this point, a distance of about 63 miles from the mouth of the river, a steamer of 500 tons burden may go with perfect safety. We then commenced surveying with our small two-oared boat. Found one of the arms stretching away to the west, bearing a little southerly, and narrowing rapidly, which led us to determine to proceed up the other.

“Leaving the engineer in charge of the wood-cutting, we started early in the morning. From the first junction the salinometer indicated that the water was becoming gradually fresher. At the second junction, where the *Ellengowan* lay at anchor, the water had lost exactly half its saltness. Seven miles further it was quite fresh, and the country began to look quite different. The banks became lined with palms; the trees were larger and very much higher, and covered with creepers; the air was filled with sweet odours, and the forest with the notes of birds.

“Before leaving, we all went on shore, faced a large prominent tree on the

bank of the river, and with our stencil plate painted, '*Ellengowan*, London,' with the date, on the tree. We then took a portrait of Her Majesty the Queen, cut out a frame about an inch deep in the tree, and inserted the carte, which can be seen from the river; suspended an axe, a clasp-knife, and a looking-glass, to show our friendly feeling to any natives passing that way; and then fired a royal salute, and gave three hearty British cheers, which made the forest ring. Our native crew and teachers entered with spirit into the ceremony, and the whole thing reminded us of happy loyal meetings in the dear old country far away."

Previously to Mr. M'Farlane's visit no one had penetrated the interior of New Guinea in this part, though the Fly River had been visited and ascended for about fifteen miles. Those who had gone up it at all had seen many natives, and met with a cordial hospitality from them. He hoped that in due time the *Ellengowan* would make its way to the Fly River and gain some knowledge of the country there. All along the coast of New Guinea there was an immense amount of swamp and mangrove. Many of the islands were not formed of ordinary clay soil or common earth; some of them immediately opposite the coast were very rocky. Boigu had not much rock; but the island of Tauan was very rocky, being nearly 2000 feet high. The crest of the island was about the centre, and the slope was gradual towards the seashore. It was covered with immense blocks of sandstone which took all sorts of shapes, forming great arches, great windows, mighty pillars, there being on the tops of some of the pillars long slabs looking like cornices, and so exactly placed that they almost appeared to have been put there by the hand of man. Jervis Island, to the south of Tauan, was also rocky, and Yule Island was 800 feet high. Darnley Island, in the very middle of the gulf, was also rocky. Other islands were mere sandbanks. Warrior Island was a mass of sand enclosed within the coral reefs.

It appeared to him (Dr. Mullens), from the immense extent of the coral reefs spreading in all directions all over the gulf, that the land had been settled for a very long period, and the coral insects had been allowed to work in an almost uninterrupted fashion for a great length of time. The coast of New Guinea itself was flat. There was only one hill between the mouth of the Katau River and the mouth of the Baxter. All the rivers had bars, their mouths being blocked up by the silt that was continually washed down and could not get away because of the swirling tides. It appeared to him that, as on the coast of Madagascar, the accumulations of sandy material during many ages on the leeward side of the south-east trade-wind had retained the water, and the growth of the mangroves had tended in the same direction. All this, of course, made the place exceedingly unhealthy. It was clear from Mr. Stone's account that the Baxter River was not a part of the Fly River. It had been supposed that many of the rivers would turn out to be simply portions of the Fly; but the Baxter had evidently an independent origin in some of the fountains near the highest spot which Mr. Stone had reached. The river there had narrowed to ten yards wide and two fathoms deep, and he was of opinion that they were then near some very high land, clay banks, or otherwise, from which the river took its rise. He did not think that Mr. Stone's supposition that it extended another hundred miles inland was probable, because at the point which the explorers reached the stream was so small. The Fly River probably turned much more to the north and approached the backbone of the island, of which, hitherto, nothing was known. Navigators had seen the mountains far away, but no one had been able to visit them. As the London Missionary Society obtained further information with regard to New Guinea, it would regard it as a matter of course that they should make the

Fellows of the Society acquainted with it. On the eastern side of the gulf there was a second series of missionary stations. On Yule Island the Italian naturalist, Senor D'Albertis, was living. He paid visits to the mainland, and had found his way to a small extent up a river. Thirty or forty villages had been discovered in the immediate neighbourhood of that island, and the missionaries were on very friendly terms with the population. That would form a foundation for further journeys into the interior, until some traveller was able to reach the great Owen Stanley Range.

Captain EVANS (Hydrographer to the Admiralty) said he had spent the greater part of three years in the neighbourhood of New Guinea, and had visited the Fly River. In the surveying ship that he was engaged in (*H.M.S. Fly*, 1843-5), they commenced a little to the east of the Baxter River, and traced the land for nearly 100 miles round the head of the Gulf of Papua. In this extent of coast there were numerous arms, 4, 3, or 2 miles wide. Off the Fly River the water was fresh 10 miles from the mouth at low-water. The boats attempted to ascend the Fly River, but the natives were so numerous and hostile, that they were forced to retreat. They lost two boats for a considerable time on this line of coast, and were eventually obliged to send in search a cutter of some 100 tons, attached to the Survey, drawing 12 feet; that vessel reached about 10 miles up one of the rivers, while a third expedition went about 20 miles up another on the north. The whole of that part of the country was one vast congeries of rivers. The water was occasionally fresh 4 or 5 miles out at sea at ebb-tide, and a vessel drawing 14 feet could certainly get into the Fly River, but the difficulty would be great during the south-east monsoon. Mr. Macleay, of Sydney, at the commencement of the present year, left with a well-organised expedition for the express purpose of ascending the Fly River and examining that part of the head of the Gulf of Papua. Mr. Macleay's Report, published in Sydney, had just arrived, and it was curious to notice how the want of success was caused by the season of the year at which they went. His expedition spent a considerable time near the Katau River. Then finding that the sea was very heavy, they decided upon waiting in Torres Straits until the weather abated. After some time, as there did not seem to be any likelihood of improvement, they proceeded to Yule Island, and with the naturalists there explored the country in a small way. The captain of the vessel finally decided that it was too hazardous to attempt to ascend the Fly River, and therefore that stream and the other gigantic openings into the interior still remained unvisited. All who had visited that particular part of New Guinea,—from which alone the interior could probably be reached,—must have been impressed by the large population residing on the banks of the rivers; the Baxter River, in comparison, appeared to be scarcely more than a desert.

Mr. NICHOLLS said he had sailed along the coast to the westward of the Island of Boigu, nearly to 140° E. The shore resembled, in many respects, the coast of Australia adjacent to the Gulf of Carpentaria, consisting mainly of mangrove-swamps, which appeared to have been formed by the alluvial deposits brought down from the interior mountain-ranges. With regard to the climate, it was only reasonable to imagine that the great heat of the sun, acting upon the low swampy country, would produce an atmosphere pregnant with malaria; but that was no reason why the whole island should be considered unhealthy. In such a country, with high table-lands and mountain-ranges, large rivers, and spacious bays, there must be a great diversity of climate. He believed the south-eastern and eastern side of the island better adapted to a settlement than any other part, as those districts were more immediately under the influence of the south-east trade-winds. The native race had been represented as very bloodthirsty. No doubt they

were warlike and difficult to approach, but he thought the impression which appeared to be gaining ground about their cannibalism was rather exaggerated. He had travelled through the principal islands of the South Seas, New Hebrides, Banks Islands, Santa Cruz, and the Solomon Islands; but although many of the natives had cannibal propensities, they always led him to suppose that the love of human flesh only extended to their enemies, probably on the principle that "Revenge is sweet." He did not think any race of people were deliberate cannibals, destroying white people for the mere love of their flesh. He had landed in New Guinea in $9^{\circ} 15' 30''$ s. lat., and $141^{\circ} 9' 20''$ E. long., upon a sand-spit. After following its course for about two miles and a half, he found that it ended in a raised plateau which was densely wooded, many of the trees resembling the cabbage-palm of Australia. There was a village there, the natives of which received him in a friendly way, and gave him plenty of provisions—coco-nuts and yams. Their arms consisted of bows, spears, and poisoned arrows. Great taste was displayed in the manufacture of the arms. Their war-clubs had at the head a round stone, which passed through the shaft. They also used a very sharp axe made of stone. Probably with these hatchets the natives had done the work which had led Mr. Stone to imagine they must have European axes. The kangaroo spoken of was the tree-kangaroo, and, unlike the Australian animal, possessed the power of ascending trees. Mr. Stone supposed that the absence of cultivation accounted for the liking of the people for human flesh; but it was the practice of the Papuan race to cultivate the land; and in some places fences, similar to that described by Mr. Stone, were built, to keep the wild pigs and other animals from destroying the young crops. He had seen these fences in nearly all the islands of the South Seas which he had visited.

Mr. BARRINGTON D'ALMEIDA did not think the swamps on the coast were caused by the alluvial deposits brought down from the interior. On the coast of Java there were no rivers of any magnitude to bring down the deposits, and yet similar swamps existed. He rather ascribed them to the comparative stillness of the Banda Sea, where the action of the wind was not so great as on the east side of New Guinea and the west side of Java. On the north-east of New Guinea, where the land was exposed to the bracing action of the sea and wind, the coast was rocky and hard. The same state of things prevailed on the west side of Java, where it faced the Indian Ocean.

The PRESIDENT, in conclusion, said: New Guinea offered one of the most promising fields at present open to the explorer; and he would recommend any traveller animated by a spirit of research to try his hand on that island—the central interior of which was still an absolute *terra incognita*. He understood that Mr. Stone, who was a Fellow of the Society, was visiting that part of the world for the express purpose of geographical discovery and scientific research; and he gathered from the paper just read that that was but an earnest of future communications. He was therefore sure that the Meeting would empower him to thank Mr. Stone for the interesting letter they had received from him. They were also indebted to Dr. Mullens for his lucid statement, and wished all possible success to the Society which he represented, and which had been the pioneer of discovery on the southern coast. So far as the authority of the Society extended, the name of Baxter River would willingly be adopted, in commemoration of the noble-minded liberality of Miss Baxter, of Dundee.