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Further Explorations in the Solomon Islands

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ROBINSON, K.C.B., F.R.S., a recognised authority on many subjects connected with the Navy, who died on the 27th of July last; Mr. Serjeant ROBINSON; General W. F. RENWICK, R.E.; ROBERT P. SPICE; CONWAY M. SHIPLEY; Sir CHARLES FARQUHAR SHAND; W. CASTLE SMITH; Alderman DAVID H. STONE; JOHN SILTZER: JOHN TEMPLETON; ARCHIBALD TRAVERS; GEORGE TURNBULL, F.R.A.S.; P. G. VANDER BYL; G. N. VICKERS; WILLIAM WAKEFORD; THOMAS WALKER, J.P.; Sir JAMES WATSON; FOVEAUX WEISS; JOHN ROBERT WILLIAMS.

Further Explorations in the Solomon Islands.

By C. M. WOODFORD.

(Read at the Evening Meeting, February 24th, 1890.)

Map, p. 444.

NOT quite two years ago I had the honour to read a paper before this Society giving an account of my two former visits to the Solomon Islands. Since then I have paid the islands a third visit.

Leaving London on the 8th June, 1888, in the Orient Line steamer *Ormuz*, I arrived in Sydney on the 23rd July, and was fortunate enough to find a schooner sailing for the islands on the 6th August.

We left Sydney with a southerly wind which we carried with us until August 11th, when we ran into the south-east trade, and on the evening of August 16th we arrived off Rubiana, at the south-west end of the island of New Georgia.

The following morning we passed the reef which extends without interruption for miles, except at one place where there is a gap perhaps 300 yards across, over which there is at its deepest part two fathoms of water. With a man at the masthead to look out for patches with which the lagoon is studded, we ran down about three miles and anchored off the village of Sisieta. Along the coast as far as the eye can reach stretches a thick fringe of coco-nut palms; behind them the deep green of the virgin forest, on the shore among the palm-trees the villages of the natives, each with its large canoe-house conspicuous above the others for its size. At every village a neatly built jetty of blocks of coral, planted on the top with grass, projects for some distance into the sea. Around us is the pale blue water of the lagoon, where we are anchored in 15 fathoms. To seaward, numerous small islands, each with its centre of tall forest trees and fringe of coco-nut palms, and beyond them to seaward a white line of foam on the coral reef whence the roar of the surf falls upon the listening ear.

At Rubiana I found things without much alteration since my last visit. A few old people had died and some had been killed. I noticed also that some new heads ornamented the rafters of the canoe-houses. An old acquaintance, a chief named Paravo, had met with an untimely end. He was an inhabitant of the Maravo lagoon, about 30 miles from

Rubiana. At the beginning of the year (1888) he, with a canoe-load of his companions, had gone from Maravo to the west end of Guadalcanar to get heads. Their expedition met with reverses, and instead of getting any heads they lost some of their own men. On their return they were detained by bad weather at the uninhabited Murray Island for some weeks. Food was scarce, and Paravo first sickened and then died. His faithful followers turned him to good account by eating him, and preserved his head, which they left behind them at Murray Island. At the time of my arrival they had made overtures to a trader resident at Rubiana to fetch the head home for them.

Leaving Rubiana on the 4th September we passed through the passage known as Hathorn Sound leading from the Rubiana lagoon into the sea to the north of New Georgia. This is a narrow channel of coral formation, like a river or canal. In places the banks are so steep that a ship can lie alongside as if at a wharf. The depth is from 15 to 20 fathoms. A dense growth of forest-trees fringes the passage on either side and their branches overhang the channel.

On one occasion when drifting through this passage with the tide our yards became entangled among the branches of the overhanging trees. Something was bound to give way; fortunately it was the branches of the trees that came crashing down on deck to the imminent risk of our heads. They were soon thrown overboard, but the legacy of ants that they left behind them was not got rid of until the ship reached Sydney.

The scenery in this passage is most romantic. The trees tower on either side high above the ship's masts, overhanging and dropping their ripe fruit and blossoms into the water. Along the banks the branches of dead timber are often noticed covered with the white blossoms of an orchid, a species of dendrobium. Below these, half in and half out of the water, looking itself like a dead log, may frequently be seen the ugly carcase of a crocodile, apparently asleep, but as the ship approaches it will slide off quietly into deep water. Cockatoos scream defiance from the trees at the invaders of their solitudes, and startled fruit-pigeons take to flight with a great clatter of wings as the unwonted appearance of the ship disturbs them from their repast among the nutmegs.

Crimson lorries in flocks of half a dozen fly across high in the air with ear-piercing screech on their way to a honeyed feast from the bright crimson blossoms of a coral-tree (*Erythrina* sp.), a conspicuous object among the uniform green of the surrounding forest, rivalling in brilliance of colouring the plumage of the lorries themselves. Great ornithoptera butterflies flap leisurely across the channel from tree to tree, seeking for the fragrant white blossoms of which they are so fond; and a sapphire flash that the eye can scarcely follow is seen for a moment as a kingfisher disappears round a bend of the channel.

Down among the deep blue depths of the clear water may be seen

the branching stems of the growing coral, with quaintly shaped and brightly coloured fish passing in and out. Once, when going through this passage, a couple of whales kept us company for some time, passing and repassing us as though they thought the ship was one of themselves. The clearness of the water allowed us to trace their course beneath it, and watch them as they sank into the depths or came to the surface to blow.

I can conceive no more delightful surroundings for a yachting cruise than the scenery presented by the archipelago of small islands adjacent to this passage, among which a vessel might wander for weeks borne in whatever direction the wind or currents listed, finding each night a fresh anchorage where the vessel might be moored almost among the branches of the overhanging trees, and where tropical nature might be studied in all the exuberance of its botanical and zoological wealth. But these low-lying islands, elevated but a foot or two above the water, are the chosen haunt of fever and ague, and the deadly mist that rises after sunset among the trees and spreads in white wreaths over the surface of the water, warns the voyager to seek with as much speed as may be, the fresh breezes of the open sea. Another possible source of danger exists in the fact that this passage is the highway used by the head-hunting canoes from the Rubiana lagoon and the islands adjacent on their expeditions to Ysabel. Personally I should not care to meet a canoe-load of these gentry returning unsatisfied from one of their expeditions, while wandering alone and separated from my companions among the islands surrounding Hathorn Sound.

I believe that pigeons have never been sufficiently credited with the important part they take in the distribution of plants from island to island. Throughout this part of the western Pacific there are numerous small islands of coral formation and sand-cays, many of them probably of recent formation, frequently at considerable distances from other land, but covered with a dense growth of large forest trees. Among the numerous groups of islands of coral formation that are removed by many hundreds of miles of sea from islands having a heavy forest growth and an indigenous avifauna, the vegetable productions are found to be such as have seeds that float and retain their vitality for a long period in salt water, such as *Casuarina* sp., *Tournefortia argentifolia*, *Scaevola kœnigii*, *Guetarda speciosa*, *Calophyllum inophyllum*, some species of pandanus, and the mangrove (I, of course, purposely exclude such as may have been introduced by human agency). These, with a few others, are the first vegetable productions of a coral island or sand-cay so soon as it is sufficiently elevated to support vegetable life. If such an island is too far removed from other islands having a more varied flora, to admit of the visits of land birds, the flora will remain confined to such plants as I have mentioned above with some others that have been similarly transported by the action of waves and currents.

If, however, the island happens to be within reach of land birds,

especially pigeons, from an island covered with a forest growth, it will of course be first covered with the plants resulting from the floating seeds above mentioned, after which it will be resorted to by pigeons and other land birds, that will bring with them the seeds of forest trees from which the island will speedily be covered with a dense forest growth. Favoured the dispersal of seeds to small islands, I have noticed a singular habit among the large fruit-eating pigeons of the Solomon Group: this is their propensity for leaving the mainland at night to roost on the small islands lying off the coast. Should one happen to be in the neighbourhood of one of these small islands about four or five o'clock in the afternoon, the pigeons will be noticed arriving singly or in pairs, and in parties up to eight or ten in number, until the trees are crowded with birds. I can assign no very satisfactory reason for this habit, unless it is that upon these small islands the pigeons find themselves freer at night from the disturbance of the large monitor lizards. I am aware that the reason assigned is an unsatisfactory one, but it is the best I have to offer.

The pigeons arrive gorged with figs and other fruits, and especially with the fruit of the canarium nut. Of these nuts the pigeons are especially fond. It is a nut in size and shape not unlike a green walnut, and it appears at first sight almost incredible that the pigeons could swallow them. The soft outer husk is rapidly digested, and the intensely hard nut is then disgorged. The natives take advantage of this habit of the pigeons to search for the disgorged nuts beneath the trees where the birds are in the habit of roosting. That wide ranging handsome species *Calenas nicobarica*, better known as the Nicobar pigeon, crossed boldly long distances of sea. On one occasion, when approaching the Solomons from Sydney, one of these birds flew on board the ship, and rested for some minutes. We were at the time more than forty miles from land, the nearest islands being Rennell and Bellona, outliers of the Solomon group.

Passing into the sea to the north of New Georgia we turned eastward, and on the 16th September reached the small island of Gavotu, off the coast of Gela, or Florida Island, where was then living Mr. Lars Nielsen, a trader. I decided to take up my residence with him for some months, as I was anxious to make collections upon the island of Gela, and the place was centrally situated for visiting Ysabel, Guadalcanar, and other islands.

In Nielson's small trading vessel, a ketch of about five tons, I made several voyages; among them being one round the coast of Gela, and through the Boli Passage, a passage not unlike Hathorn Sound above described, several voyages along the coast of Guadalcanar, a visit to the island of Savo, and lastly, a visit to the island of Ysabel, on which occasion I made a compass survey of about sixty miles of the north-east coast of the island.

It is with deep regret that I have to record that since my return to England, Nielsen and three of his boys have been killed and eaten by the natives, but where this occurred I am at present without information. Since last June, no less than six white men have been murdered by the natives of the Solomon Group, out of a total white population fixed and floating that I estimate at about thirty.

My principal object in visiting the islands mentioned above was for the purpose of endeavouring to identify the places visited by the Spanish expedition, under Mendaña, that discovered the Solomon Islands in the year 1568. In this I think I may say I have been entirely successful.

The Spaniards relate that when they were between Florida and Guadalcanar they passed an island in the centre of which was a burning volcano. This island is now conclusively identified with the island of Savo.

One morning I left Gavotu with Nielsen in his vessel to pay a visit to this island. The following morning at daylight we anchored off Sisipi, a village on the south-east coast of the island, my object being to explore the crater. Savo is an island roughly circular in shape about four miles in diameter, the highest point rising to a height of about 1800 feet.

The volcano is now in a state of quiescence, no eruption having taken place for a period of about forty years. Soon after anchoring I landed and made arrangements with some natives to guide me to the *biku* or fire, as the crater is called. We immediately started, and a walk of a few minutes brought us to a boiling spring, in which the women of the village were in the habit of cooking their vegetables. After inspecting this for a few minutes I told my guides to proceed. They assured me that this was the *biku*. I said it might be so, but it was not the *biku* I wanted to go to. They said that natives never visited the other, as it was haunted by some enormous devils, who would be certain to take offence at any one trespassing upon their dominions.

I represented to them that native devils had no power over white men. They then urged that they were at war with the natives from the other side of the island, and they were afraid of meeting some of them. I pointed out that if the *biku* was a locality habitually avoided by natives, we were not at all likely to meet any of the enemy. Having grasped this fact they said they must at least return to get their shields and spears. To this I assented and walked on, and they soon afterwards overtook me.

Passing some native gardens the track ascended steeply through some undergrowth that had sprung up on the sites of former plantings, with here and there a clump of two or three coco-nut trees. Looking back across the sea, the coast of Florida from Vati Lau to the Boli passage appeared on the left, and on the right the mountain-tops of

Guadalcanar loomed indistinctly through the haze. At our feet, our tiny vessel at anchor, upon a sea of the intensest blue, and at one place a cloud of steam rose from the hot spring that we had just left. As we climbed higher signs of previous cultivation disappeared until we entered a growth of wild ginger with stems eight or nine feet high that effectually prevented an extended view. Through this the boys had no difficulty in slicing their way with their long heavy knives.

Following the top of a ridge that sloped steeply down on either side, we presently came to a spot where a small landslip had taken place, carrying with it the vegetation, and leaving an open space. At this point the aneroid indicated a height of 1000 feet, and I was able to see that I stood on the edge of a circular depression about a mile in diameter. This was evidently the crater. On the north side a blunt cone, the highest point of the island, rose several hundred feet above my point of observation. Scrambling down the bed of a steep dry watercourse, I found myself on the floor of the crater at a height of 800 feet above the sea.

Near the western side an immense heap of blocks of stone rose to a height of 200 feet, about level with the edge of the crater; but with this exception the floor of the crater was quite flat. I can compare this heap of stones to nothing better than to a gigantic load of broken stone shot out of a cart for mending the road. A somewhat winding track led across the crater to the western side, and here, at the base of the crater-wall, the natives pointed out to me two spots whence a little steam was issuing. A white incrustation covered the surrounding stones, and the ground felt hot to the touch. Some lovely little creeping ferns (*Lygodium* sp.) were growing almost in the steam, and apparently revelling in the warm moist atmosphere.

Accompanied by three of the boys, as the others were frightened, I then forced my way through the undergrowth to the base of the stone heap. From one place at the base of the heap quite a respectable puff of steam was rising, the stones around being covered with the same incrustation previously observed. The heap appeared to be circular and about 500 feet in diameter at the bottom. A peculiarity about it was that the stones increased in size towards the top. At the base they were about a foot in length, but at the top they were great irregular blocks weighing several tons.

Two only of the three remaining boys ventured to approach the heap, and when I announced my intention of climbing it, they tried to dissuade me. Finding that their remonstrances were of no avail, the whole party took up a favourable position for watching my movements. Scrambling over the blocks of stone, and through the growth of thick ferns and shrubs that covered the upper part of the mound, I soon stood on the top, but found no sign of any smaller crater or even any issue of steam. At the extreme apex I found growing a pretty little yellow orchid, a dendrobium, which I brought away with me.

Floundering among and over the huge blocks of stone I made my way back to my companions, who, I firmly believe, never expected to see me again; and, as it was, assured me that I should eventually suffer in health for having trespassed upon the domain of the spirit presiding over the biku. The whole crater, except in a few places, is so covered with undergrowth that it is difficult to ascertain from a cursory examination of what it is composed. I looked unsuccessfully for signs of lava streams, but although I saw none, it is possible that a more careful examination might discover them. I came to the conclusion that recent eruptions have been explosions of imprisoned steam, rather than molten matter, and the fact that the Spaniards in 1568 mention only smoke and not fire, although they were whole months in sight of the island, lends colour to my supposition. Had there been fire they must have noticed its reflection at night.

We returned the way we came. On our arrival at the village I was anxiously questioned by the old men as to whether in my opinion there was any probability of an eruption in the immediate future. On this point I thought myself justified in calming their fears. Having paid my guides I returned on board, and we left for the other side of the island.

About the same time I made an expedition inland on Guadalcanar, starting from the village of Tasimboko. I was well known by name to the natives of this village through my previous residence at Aola. They tried hard to dissuade me, saying that on two out of the three occasions that I had gone to the interior from Aola the natives had intended to kill me, once at Vale Menga and once on the Bokokimbo river. I was aware of the former attempt but I had no positive information until now of the latter, although at the time I suspected something wrong.

Eventually I persuaded some of them to accompany me, and in company with Nielsen and some of his boys we started early one morning from Tasimboko. I will not here detail the incidents of the trip, which presented no special features of interest, beyond saying that we visited several villages situated on or near the Berande and Balesuna rivers, and I was able to trace the courses of these rivers with fair accuracy.

During our journey we visited the villages of Ipou, Veramusu, Kombebe, Tinabinalu, Tuguruna, and Misua, where we slept the first night. So far all had gone well, and we had endeavoured by paying for our night's lodging and entertainment on a very liberal scale, to leave a good impression behind us. Naturally the bush natives evinced great curiosity as to who we were and the causes of our visit. Nielsen was, of course, described as the trader from Gavotu, while I was said to be the man who previously lived at Aola and ate snakes. (I beg leave here to declare that this was a base calumny. A taste for snakes has more than once been put forward to me as a good and sufficient reason for attacking a native village. I visited the site of a former settlement at Estrella Bay

on the island of Ysabel, and on making enquiry as to why the natives had been exterminated was told "They were no good, they ate rats and snakes.")

I had great hopes of being able to reach Mount Lammas or at any rate the Lion's Head, but shortly after leaving Misua on the second day of our trip our principal guide showed signs of jibbing. From a village named Aroti, 950 feet above the sea, we had a fine view of the mountains, as the village was situated on the edge of an almost precipitous ridge. Immediately beneath our feet to the southward the Berande river wound in a southerly direction, apparently taking its rise from a mountain near the south coast of the island called by the natives Lambugila. Behind another ridge that we were about to cross was the valley of the Balesuna river which flows to the foot of the Lion's Head (called by the natives Popomanisao), and then bending in a westerly direction, rises apparently from the eastern slopes of the Lammas Range.

The view from Aroti was one of the most beautiful that I have ever gazed upon. Close to Aroti is another village called Vatumbulu whence again we had a fine view of the mountains. From here a steep descent to 300 feet and a rise again to 800 feet brought us to the top of the ridge forming the east side of the valley of the Balesuna. We ought to have followed this ridge in a southerly direction, but our guides purposely misled us, and we descended to the Balesuma river near to the village of Koliase. At this point the bed of the river is 300 feet above the sea. Although there had been no rain on the coast for three months, the river was running breast high with a very swift current, and was full of huge boulders. We made several attempts before we found a place where it was possible to cross. I and some of the boys were carried off our legs, but as I was carrying my instruments and revolver fastened to my head nothing suffered damage.

We spent the remainder of the day at Koliase trying to get our guides to reconsider their refusal to proceed. It was useless to attempt to go on without them as we were entirely dependent upon the natives for food, so, much to my disgust, although within about five miles of the Lion's Head, we had to consent to return. I afterwards found that our guide never intended to take us any further than this point, and had made use of us as an escort for himself for the transaction of some native trading in a district which he would have been afraid to enter alone. Sleeping that night at Koliase we left the next morning for the coast.

Following the river down for some miles we came to the village of Linge and shortly afterwards to a river called the Tavithane that joins the Balesuna on its right or eastern bank. Turning eastward from this point along a good track over some open grassy hills, we came to a village with the euphonious name of Ombokonamarassa. A mile north-east from this village we again came to the Berande river, and crossing it we entered a rich alluvial flat country extending to the coast. We

reached Tasimboko late in the afternoon. To any one making an attempt to travel in the interior of Guadalcanar in future I would recommend them to take as the medium of exchange with the natives, a plentiful supply of dog's teeth. They are of course extremely portable, and the natives will move for them when tobacco and even knives and axes will fail to rouse them from their ordinary indifference.

NOTES ON THE DISCOVERY OF THE SOLOMON ISLANDS BY THE SPANISH EXPEDITION OF MENDAÑA IN 1567-69.

Under orders from Lope Garcia de Castro, Governor of Peru, an expedition, consisting of two ships, the *Almirante* and the *Capitana*, left Callao on the 19th November, 1567, under the command of Alvaro de Mendaña, for the purpose of prosecuting discovery in the Pacific. This expedition discovered and named the Solomon Islands. The published accounts of this voyage have been until very recently of the most meagre description. The most important were an account given by Herrera in his 'Descripción de las Indias Occidentales,' published at Madrid about the year 1601, and an account by Dr. Christoval Suarez de Figueroa, published at Madrid in 1613.

In endeavouring, by the light of these accounts, to identify the places visited, the French and English geographers about the close of the last century have in some cases been led to erroneous conclusions, but on the whole their inferences have proved correct.

About sixty years ago, however, a journal kept by Hernando Gallego, chief pilot of the expedition, came to light, giving a minute account of the events of the voyage and of the proceedings in the islands. This journal is now in the British Museum, and a translation of portions of it is published by Dr. Guppy in his book 'The Solomon Islands and their Natives.' The charts belonging to this journal have unfortunately been lost.

Another journal of the expedition was kept by Pedro Sarmiento, who was second in command of the soldiers, but this and the charts belonging to it are also missing.

But a third and still more voluminous account of the expedition is extant, viz. a journal kept by Gomez Catoira, chief purser of the fleet, which contains much information not given by Gallego. The original manuscript is in the possession of Mr. W. Amherst Tyssen Amherst, M.P., and has never been published. On my last visit to the islands I had the good fortune to be furnished with a translation of this journal, by the light of which, and by Dr. Guppy's translation of Gallego, I was enabled to satisfactorily identify almost every place visited by the Spaniards.

I propose in this paper to trace the course of the Spaniards in their approach to and passage through the Solomon Group.

The command of the expedition was entrusted to Alvaro de Mendaña, who was nephew of the Governor of Peru. The commander of the troops was Pedro de Ortega Valencia. Second in command of the troops was Pedro Sarmiento, who had already greatly distinguished himself in Peru, and who afterwards was engaged upon a survey of the Straits of Magellan. In the year 1585 he was taken prisoner off the Azores by Sir Walter Raleigh, and brought a prisoner to England, where he was presented to Queen Elizabeth and afterwards set at liberty. Hernando Gallego, the chief pilot, was one of two brothers who, ten years before, had taken part in an expedition from Chile to survey the Straits of Magellan, and was perhaps the most able navigator to be obtained at the time on the Pacific coast. The confidence imposed in him was amply justified by the events of the voyage. Lastly, Gomez Catoira, the chief purser and comptroller for his Majesty Don Philip II. of Spain.

Sailing from Callao on the 19th November, 1567, they voyaged to the westward, and on the 16th of the following January sighted a small low island, inhabited and covered with palm-trees, "with a great reef on the north side and another on the south side" (Catoira), and "with a bay of the sea in the middle of it" (Gallego). This description points to its having been one of the coral atolls that dot this part of the Pacific. To this island they gave the name of the Island of Jesus. I pointed out in my former paper* that this island was probably one of the more northern islands of the Ellice Group, nor, on consideration, do I see any reason to change my opinion. Gallego gives the latitude $6\frac{3}{4}^{\circ}$ S.; Catoira 6° barely. It will be found that nearly all Gallego's observations of well-ascertained places in the Solomon group are in excess of the proper latitude, and in only two unimportant instances are they less, the average being about $30'$ in excess,† so that I can see no grounds for attempting to identify Motuiti or Kennedy Island, an island supposed to be in latitude more than $8^{\circ} 30'$ S. (but the existence of which is altogether doubtful, as it was unsuccessfully searched for by a German man-of-war in 1884), with the Island of Jesus of the Spaniards, an island that Gallego declares to have been in $6\frac{3}{4}^{\circ}$. The suggestion of Dr. Guppy that there may be another island at present unknown between 6° and 7° S. and near 172° E. long. I consider equally untenable. This part of the Pacific is too well known at the present day to admit of such a supposition. Not only do traders occasionally visit it, but it is almost in the track sometimes taken by sailing vessels between Sydney and China. On the other hand, both the latitude and the description of the island agree well with one of the northern islands of the Ellice Group, and the fact, mentioned by Catoira but omitted by Gallego, that they fancied they saw another island while they were standing off and on, is consistent with my supposition. There are three islands at the north of the Ellice group, either of which may be the Island of Jesus, viz. Nanomea or St. Augustine, lat. about $5^{\circ} 40'$ S.; Spieden or Niutao, about $6^{\circ} 8'$ S.; and Hudson Island, about $6^{\circ} 15'$ S. I incline to the first one myself.

Some canoes came off to them, but did not approach close. Being unable to communicate with the land the Spaniards stood off and on through the night of January 15th. They saw what they supposed were signal fires. It may have been so, as the natives of this group are in the habit of sometimes using signal fires at night, or it may have been the torches used by them while fishing at night for the flying fish, which constitute the chief part of these islanders' food.

During the 16th, having drifted to westward of the island, they found they were unable to beat up to it again. This was on account of the strong westerly current that prevails in these latitudes.

During the next fortnight they made a westerly course with variable winds, and on the 1st February, sixteen days after leaving the Island of Jesus, they sighted some reefs, to which they gave the name of Candelaria, because they sighted them on Candlemas eve. Gallego gives the latitude as $6\frac{1}{2}^{\circ}$ when the centre of the reefs was bearing west of them; Catoira says 6° . M. Fleurieu, the French geographer, has identified these reefs with the Roncador Reefs, discovered by Maurelle in 1781, and on the present Admiralty chart they bear both names. With this opinion I now thoroughly concur, although I at first felt inclined to agree with Dr. Guppy in identifying them with the reefs of Ongtong Java, lying almost in the same longitude but not extending further south than $5^{\circ} 30'$.

Dr. Guppy, in objecting to the identification of these reefs with the Roncador Reefs, bases his objection upon the description given by Gallego, who estimated them

* See 'Proceedings R.G.S.,' 1888, p. 351.

† See comparative table of latitudes at end of paper.

to extend more than 15 leagues. Catoira says, "There did not appear to be anything but some reefs, which might be six leagues in extent . . . the sea appeared to be breaking over them in all parts." There is no mention of islands, as there would have been if the discovery had been Ongtong Java. I may here mention that throughout the journals of both Gallego and Catoira, their estimated distances in the Solomon Group, given always in leagues, prove to be little more than miles.

By dead reckoning the Spaniards had only gone 165 leagues from the Island of Jesus, but they had been sixteen days about it. Now the distance from the Ellice Group to the Candelaria Reefs is, roughly speaking, 1000 miles. Those who have sailed in these latitudes, as I have, are well aware of the strong westerly current that prevails, and as the Spaniards had no means of calculating longitude, a westerly drift of only two knots per hour would in sixteen days have put them more than 750 miles ahead of their reckoning, and (supposing the Island of Jesus to have been in the Ellice Group, and I entirely fail to see where else it could possibly have been), would have brought them somewhere near the Candelaria Reefs.

Leaving these reefs on the 2nd February, they steered south-west, but with the wind westerly, and thunder squalls, they made but little way, and at night furled all sail. The same wind continued for some days. They had on the 5th, as Catoira says, seen signs that made them think they were approaching land. "Coco-nuts and palm-branches and sea-snakes and toads and crayfish and oranges, things of the land from which we derived much pleasure;" and on this day Gallego makes their latitude $7^{\circ} 8'$. By the 7th they estimated that they had only gone 15 leagues from the reefs, and were still beating first on one tack and then on the other against the westerly wind, or drifting with calms, and at night with furled sails.

At this time of year there would be a strong current running to the south-east off the coast of Ysabel, which probably took them further south than they intended to go. On the morning of that day (the 7th) high land was sighted from the mast-head towards the south. They did not approach it until the evening of the following day, and then sent a boat to try and find a harbour, but it returned unsuccessful. During the night they drifted over or near some reefs which are off this coast. The following morning the boat was again sent to look for an anchorage, but during its absence Gallego determined to attempt the passage of the reef himself. He was fortunate enough to find a passage, though Catoira says that at the place where they crossed they had as little as four fathoms of water.

Both the journals of Gallego and Catoira describe the coast so minutely, that I have had little difficulty in identifying the bay where the Spaniards anchored, and to which they gave the name of the Bay of Santa Isabel del Estrella. It will be seen on reference to the accompanying map, made from my survey, that at this place a barrier reef from two to three miles off shore fringes the coast. At the time I visited the coast there had been a long succession of calm weather, and the reef presented several wide openings where the surf was not breaking, but in rough weather these passages would be very much curtailed, and indeed if, as Catoira says, there was as little as four fathoms at the place where they crossed, the passage would be extremely dangerous. I expect the place where the ships crossed was the passage to the west of the little island of Hakelaki, which is situated upon the reef itself. Once past the reef, the ships found themselves again in deep water. The boat had in the meantime found a good anchorage in the bay, and the ships shortly afterwards cast anchor.

Gallego says, "at the entrance of the port is a rock (or islet) in size larger than the ship." This may refer to the little island of Hakelaki on the barrier reef, near which the ships crossed, or more likely to the rocky islet off the point forming the western side of the bay. The latitude of the bay as given by Gallego is $7^{\circ} 50' S.$, and this is very nearly correct.

The Spaniards found a considerable native population living at the time of their visit round the shores of the bay, but at the present time the neighbourhood is quite deserted, the last inhabitants having been exterminated by head-hunting expeditions.

From the natives Gallego ascertained that the island was known as Camba. Catoira says Camball was the name of the village close to the bay. I could find no trace of these names among the natives that I met near this place. Soon after their arrival the Spaniards landed, and it was determined to build a small vessel to better explore the island while the ships remained at anchor at the Bay of Santa Isabel del Estrella, now known as Estrella Bay. This vessel, which they called a brigantine, was an open boat with one mast. The building was begun February 13th, and finished on April 3rd. It was constructed of timber felled and sawn on the spot.

During the building of the brigantine, Sarmiento was sent inland with sixteen men on February 16th. On arrival at the village, whence had come the natives who had visited the ships on their arrival, he finds the chief, a man named Vylebanara, absent, and is told that he has gone to a place called Baso. This is described as a village in the interior. I found a place named Baso on the coast near the Maringè Lagoon, about 20 miles from Estrella Bay, but it can hardly be the place intended by the natives, still it is interesting to find that the name still survives. During their intercourse with the natives living adjacent to Estrella Bay the Spaniards became familiar to a certain extent with some words of the native language. In a locality like the Solomons, where dialects are confined to tribes occupying but a few villages, and where in, say, 50 miles of coast, it is no uncommon thing to meet three or four different dialects, it is extremely interesting after a lapse of over three hundred years to be able to identify even some of the words recorded by the Spaniards.

On my voyage in November 1888 along the coast of Ysabel, for the purpose of identifying the places visited by the Spanish expedition, it was not until I arrived within 20 miles of Estrella Bay that I found the natives speaking a language in which I was enabled to identify words recorded in the very carefully kept diary of Catoira. Catoira records that during their stay at this port, the natives frequently brought them off certain roots which they called *vinahus*. This word I found still in use among the natives that I met with at the Maringè Lagoon. It is the well-known taro root of the Pacific Islanders. This food is extensively grown, and is the staple food upon the island of Ysabel in place of the various kinds of yam that are more frequently met with upon the other islands of the Solomon Group. From the same natives I ascertained that the name for the conch shell, used by them as a trumpet, is called *hofilis*. In Catoira's journal he speaks of the instrument as *coflis*. The word signifying woman, *gase*, is also in use at the present day.

On the 4th March another expedition, under the command of Pedro de Ortega Valencia, consisting of 30 fusiliers, 15 common soldiers, and 15 carriers, was despatched into the interior. He reached the central range of the island, and so far as to see the sea on the southern side. During their return march they were much harassed by the natives who, as Catoira says, "after they had shot away all the arrows that they had, they threw stones, and when they did not find any, earth, and when there was no earth, their bows, and when they had thrown everything, they spat at us, shaking their heads at us and turning their hinder parts." Two Spaniards were wounded, one of whom afterwards died, and a native was shot with an arquebus.

On the 15th March some canoes arrived from the eastward (Gallego says fourteen, Catoira says eight). They came from the district of a chief named Meta, whose territory I identify as being situated about 10 miles to the eastward of the anchor-

age, commencing at the point that forms the eastern extremity of Estrella Bay and extending to the now deserted village of Kokota. These natives brought with them as a present to the commander, the quarter of a boy. Catoira says it was "the right arm with all the shoulder." The Spaniards expressed their great disgust at this barbarity, and buried the arm on the sandy beach at the head of the bay. The natives retired, with the remainder of the body, to a small island, which I identified with the small reef island Hakelaki, and presently a smoke was seen, from which it was concluded that they were cooking the remainder of the body. The name of this island at that time was Cuia.

On the 18th of March an expedition started from the ships to visit the territory of the chief Meta, above referred to. They proposed to walk along the shore, but on the advice of some local natives whom they took as guides, they took a boat with them to pass certain "arms of the sea." On the first night they slept on an island that I identify as the island of Ninuha. Next morning they left the island, and passing an arm of the sea, proceeded to walk along the coast. They captured four natives, two of whom they retained as hostages, and returned to the ships.

On the 7th April, Ortega, Gallego, and 30 men started in the brigantine on a voyage of discovery. During the absence of the brigantine the Spaniards continued their friendly relations with Vylebanara. Catoira here enters into a description of the birds and certain of the vegetable products of the country. He describes a pigeon that has wings like the wings of the peacock, and on its beak a fleshy substance like a cherry very red. One of these handsome birds, *Carpophaga rufigula*, brought home by me, is now in the gardens of the Zoological Society. He also minutely describes the practice of chewing betel-nut, to which the natives were then, as now, addicted. The brigantine was away from the ships four weeks, and returned about the first week in May. She returned from the westward, and the natives gave the first intelligence of her approach, as they saw her coming from the high ground on which Vylebanara's village was situated.

On reference to the chart, it will be seen how the natives were able to give this intelligence, as from the place where I suppose Vylebanara's village to have been they would have had a clear view to the westward, while the ships anchored in the bay, with the high land to the west of them, would not have seen the brigantine until she rounded the point into the bay.

The brigantine brought the following report. They left the ships in the evening of the 7th April, but because the wind was against them, they anchored at midnight. Next morning with the land breeze they arrived at the little island where they had slept when they went to visit the chief Meta, which I have above identified as Ninuha. Gallego gives the latitude as 8° , which is not far wrong. He speaks of two islets here, Catoira only mentions one, but the latter did not take part in the voyage of the brigantine. The second islet will be Keaba, and the Point of Meta will be the point of mainland between the islands of Ninuha and Keaba. Proceeding on their voyage, they passed many islands. These will be the islands surrounding the Maringé lagoon. Following the coast along, they anchored in latitude $8^{\circ} 10'$, and leaving this anchorage, they again proceeded on their voyage. The mast was sprung, and nearly went overboard, but was secured with a tackle, and at night they found themselves off a coast fringed with reefs, with thick weather. Guided by the white appearance of the breakers, they rounded a point, and found themselves in a large bay, where they got safe anchorage. I identify this point as Flokora. The coast from this point to the village of Gau is fringed by a shore reef close under the cliffs, upon which there is a heavy break. The bay is described by Gallego as capacious, and having six or seven inhabited islands. These are now uninhabited.

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From this bay they saw another large island, the western extremity of which is said to bear east and west with the Point of Meta. Gallego estimates the latitude of the western end to be in 8° , and says that it has five or six islets off its extremity. It will be noticed that from the position the Spaniards were now in the four small islets marked in the chart would appear to be off the end of the large island, while the island incorrectly called Ramos in the Admiralty chart, would appear to be, as Gallego describes, between the large island and themselves. Gallego speaks of two islets between them and the large island, and the island called Ramos on the chart has the appearance of a double island from this position. From a native they had with them they ascertained that the name of the large island was Malaita. The name by which this island is universally known among the natives at the present day, and by which it is afterwards referred to by Catoira in his journal, is Mala. It has occurred to me that their native companion, pointing towards this island, may have said, "Mala ita" ("There is Mala"), and that Gallego put this down as the name of the island.

The name of Ramos which the Spaniards gave to this island of Mala, because they sighted it on Palm Sunday, has been erroneously applied in existing maps to the two small islets in mid-channel.

They arrived at the end of Ysabel on the 16th April, and gave it the name of Cape Prieto. Gallego says the latitude is 9° , but this is nearly half a degree in excess. He says there are some islets near the point, but makes no mention of the island to which the name of Ortega Island has since been applied. The native name is Mahigi. The islets referred to are some rocks, one of which forms an archway, situated between Mahigi Island and the mainland.

From Cape Prieto they sighted some islands to the south-east, at the estimated distance of nine leagues from the cape. With a fair wind they reached them at nightfall, and anchored off one, to which they gave the name of La Galera, because it resembled a galley in shape. The comparison is, I consider, rather far-fetched, but I identify this with the island called on the present chart North Island. In the morning they proceeded to another island, said by them to be a league distant. To this they gave the name of Buena Vista. The native name they declared to be Pela. The native name of Buena Vista is at present Vati Lau, but the name Gela is applied by the natives to the whole group of islands comprising what is known on the present chart as Florida.

From the natives of Buena Vista they obtained some roots called *panas*, compared by Catoira to truffles or to the "Potatoes of Peru." This is perhaps one of the first references to potatoes. This was some years before the introduction of potatoes into England. The word *pana* is still in use on Gela. It is applied to a kind of yam which is the staple food of the natives. They also got some pigs which they called *namboles*. *Bolo* is the word now in use on Gela signifying pig, *na* being the article. From Buena Vista the brigantine proceeded to an island of about the same size, and described as lying to the east of it. To this island they gave the name of La Florida. I identify this with the island known as Olevuka.

Proceeding further to the eastward they gave the name of San Dimas to the land to the east of the Sandfly Passage, and then finding they could not get any further to the eastward against the south-east trade, they stood to the southward. They supposed they saw two other islands eastward of the land to which they had given the name of San Dimas, and gave them the names of San German and Guadalupe. Now, when at sea off the south coast of this land, it has the appearance of being three islands, as the land is in places low, and it appears to be cut near where is situated the village of Halavo, and again near the Boli Passage. Hence I identify the San Dimas of the Spaniards with the land east of the Sandfly Passage, and

west of the village of Halavo, San German with the land east of Halavo and west of the Boli Passage, and Guadalupe with the land east of the Boli Passage.

Steering to the southward they passed an island in the middle of which was a volcano emitting a great smoke. This was the island of Savo. To this island Gallego gave the name of Sesarga, because it resembled in outline an island of that name situated off the coast of his native province of Galicia.

When cruising off the coast of Spain in his yacht a few years ago, Mr. Amherst had an outline sketch of Sesarga made, and comparing it with outlines made by myself of the island of Savo the resemblance is at once recognised. Gallego records that the native name of this island was Guali. A district on the south-west side of the island is still known as Quoila. During my last visit to the Solomons I ascended to the crater of Savo.

Next day, the 19th April, they reached the great island that they had seen from Florida. They gave it the name of Guadalcanal, Guadalcanar of the present charts. They landed at a river to which they gave the name of Río de Ortega. From this river Buena Vista bore north, and Sesarga north-west. I have identified this river with the Tu-umbuto river. Gallego gives the latitude as $10\frac{1}{2}^{\circ}$. There is here an error of about one degree, for which I shall endeavour to account later on. From this river the brigantine started to return to the ships.

Sailing along the south coast of Ysabel, they came to an island seven leagues from Cape Prieto, the native name of which, Gallego says, was Veru or Beru. Catoira says Borru. I can find no trace of the survival of any similar name for this island at the present day. To this island the Spaniards gave the name of San Jorge. It is the St. George's Island of the present chart. Here was living a powerful chief named Beneboneja or Ponemonefa, of whose fame they had already heard while the ships were at anchor at the Bay of Santa Ysabel del Estrella. They describe his town as consisting of over 300 houses, with more than 100 canoes. At the present day there is no permanent settlement upon St. George's Island, the natives having been nearly exterminated by head-hunters. The natives brought them some tusks that seemed to belong to some large animal. I have no doubt that these were teeth of the dugong. I am told that formerly these teeth were highly prized by the natives of this part of the group, but have now gone out of fashion.

Proceeding on their voyage along the south coast of Ysabel, they saw no natives. Two islands were seen bearing west from St. George's Island, which they named San Nicholas and Arracises. They could not approach them, as they were hemmed in by reefs. The brigantine appears to have been keeping close to the coast of Ysabel, which at this point has some reefs lying off it. These two islands were the New Georgia Group, which, as the Spaniards rightly supposed, extended much further to the westward than they could see. On account of the numerous reefs, they were forced always to anchor at night.

After sailing for four days they found themselves, on April 26th, among an archipelago of small islands. They saw a large island lying to the W. by N., to which they gave the name of San Marcos. This was, of course, the Island of Choiseul. At this point Gallego gives the latitude $7\frac{1}{2}^{\circ}$. They found a passage leading among the islands, and bringing them out on the north side of Ysabel. This was said to be about six leagues from the extremity of the island, and is doubtless the passage marked on the present chart leading through into Port Praslin.

At this point Catoira records:—"At daybreak they saw a thing worth noticing and a positive fact, which was that at the end of the island, at the other side, they passed on the wing flocks of bats, in numbers about 2000, as large as kites, and the smallest as large as pigeons; and it is a fact that at the entrance of the harbour of La Estrella, where they built the brigantine, a soldier killed one which was four feet

long from tip to tip, and the head larger than a hedgehog, and claws like those of a hawk, and larger, and on each wing at the end a claw larger than the aforesaid, and certainly if they bite like those on the Continent they could depopulate a kingdom."

By Wednesday, the 27th April, they had got clear of the archipelago of islands, and had got into the sea to the northward. They now found the wind dead against them for returning to the ships, and as they were afraid to sail at night with the land breeze, on account of the numerous patches and reefs, they made but slow progress.

Catoira here speaks of:—"Reefs and ledges of rocks which exist all round the island, 2, 3, 10, 20 leagues out at sea, and many points of land jutting out, which is a thing to frighten one coming with ships among these islands."

My own experience on this coast agrees well with this description. Not only is there a fringing reef along the shore, but there are outlying patches, some of which, even in calm weather, occasionally break.

Finding that the brigantine made but little progress, it was determined to send a canoe that they had taken from Ponemonefa's town on ahead to announce the approach of the brigantine at the Bay of Santa Ysabel. Six soldiers, one sailor, and one native were sent in her. With such a crew it is almost needless to say that they came to grief. The canoe was broken to pieces on a reef, and the crew managed to reach a small island. The native, of course, took the opportunity of running away. I expect that this occurred at the place on the map that I have marked (X). At this spot I myself very narrowly escaped having a similar experience. Some of them could not swim, so a raft was made for them out of the broken canoe, and they managed to reach the mainland, and then, barefooted as they were, they started to walk along the coast over the coral to the westward. Next morning they were picked up by the brigantine.

When the brigantine reached the place where the canoe had been wrecked, she went inside the reefs. Reference to the map will show that this is possible from the island where I suppose the wreck to have been, as the barrier reef commences there, and westward of this place it is impossible to pass between the reef and the shore.

Next day, the 5th May, the brigantine reached the ships. She had been seen by the natives at Vylebanara's village the day before and her approach announced, and I have above described how this was possible.

The brigantine brought three pigs and a considerable quantity of roots, *ynames* and *panas*, which Catoira says did not exist on Ysabel, where, as I previously mentioned, the *vinahú* or taro is the staple food. This native food enabled them to economise their biscuits, each man's daily allowance being now eight ounces of biscuit and some native food.

On May 8th the ships left the Bay of Santa Isabel del Estrella, and sailed for Guadalcanar, beating to windward against the south-east trade wind. The brigantine was unable to keep with the ships, so during the second night Gallego decided to turn back for her in the *Capitana*, allowing the *Almiranta* to continue her voyage.

Catoira here relates:—"It was one hour of the night, and the brigantine had not arrived, and to show the *Almiranta* where the chief pilot was going, he took the compass and placed it on the side, because it was very clear moonlight, and whilst they were watching it, he said that he saw the bottom shining white." Gallego says that sounding with the lead he found six fathoms, and that at the time they were six leagues from the shore. They shortly afterwards found themselves in deep water.

This is a most interesting record, as it establishes the existence of some at least of the extensive reefs that have been reported off the coast of Ysabel. Catoira has previously mentioned that reefs existed 10 and 20 leagues out to sea.

A reference to the present Admiralty chart will show a large area of reported

reefs off this coast, and although it is not to be supposed that they are anything like what the chart represents, still the above is additional evidence that reefs do exist. A trader told me that once sailing along this coast they got 15 fathoms at a distance that he estimated as 20 miles from land. Others have told me that they have seen nothing. The natives of Gau told me that reefs did exist, to which they occasionally went for line fishing.

On the 12th May the *Capitana*, with the brigantine in tow, arrived on the coast of Guadalcanar, about two leagues to the westward of the river to which the name Rio de Ortega had been given during the cruise of the brigantine. The *Almiranta* had already arrived. They found the anchorage exposed and insecure, so they went a league further to the westward under the shelter of an islet, as Gallego calls it—Catoira says a point. There is a small coral islet here, connected with the mainland by a sand-spit, so that either description is correct. There is no other islet of any sort upon this part of the coast of Guadalcanar, so that the identification of the spot is open to no doubt. To the westward of this islet is indifferent anchorage, but protected from the prevailing wind. The general landed, and took formal possession in the name of the King of Spain, and erected a cross. To their anchorage they gave the name of the Puerto de la Cruz.

An expedition to the interior found the country thickly peopled and well cultivated, many fields or patches of *panas* and *names* being seen. I have pointed out above that the word *pana* is still in use for one kind of yam; *names* were probably another kind of yam. The natives cultivate two or three varieties. At the present day the neighbourhood near the anchorage is but thinly peopled. There are no natives living now on the coast close to the Puerto de la Cruz. In my book 'A Naturalist among the Head-hunters,' I give an account of the extermination of the last inhabitants.

On the 19th May, after the ships had been a week at the Puerto de la Cruz, the brigantine was again despatched on a voyage of discovery, Gallego again taking charge, under Don Fernando Henriquez. The same day an expedition under Andres Nunez, consisting of twelve musketeers and ten shield-bearers, went inland to prospect the country for gold. They were absent six days.

Catoira describes the country near the coast as consisting of plains covered with grass, and that much smoke was noticed from fires on the plain. From the place where the Spaniards were anchored to Ruavatu, about 30 miles to the eastward, there is a great alluvial flat extending in some places 10 miles inland. This is covered with a rank growth of coarse grass and weeds. Along the coast-line a narrow belt of coco-nut palms and trees gives the coast an appearance from the sea of being well wooded, but the belt of timber is in some places only a few yards wide. In some places patches of timber may be seen, and the river banks are generally well wooded, but unlike most of the remainder of the Solomon Group, this part of Guadalcanar may be described as open country. Either by accident or design, the natives are constantly starting fires among this grass, and the thick white smoke may be seen almost any day from a long distance. These fires, continued, as we here have evidence, for over 300 years and probably long before, have probably brought the soil into such a condition that it will now produce nothing but the rank coarse growth which covers it. I never saw the natives make any attempt to plant on this open land. They probably have good reason for not doing so.

At this time the store of native food brought by the brigantine on her return from her first voyage was exhausted, and the daily allowance for each man was 8 oz. of biscuit and the same weight of salt beef. Sarmiento was accordingly despatched on the 23rd May with 32 men to try and get food. They took a ship's boat and went about a league to the eastward, where there was a small river, to which they gave

the name of San Urbano. They say that it was so small that the boat could not pass the mouth of it. I suppose this to have been one of the two small streams that I have marked between the Tuumbuto river and the Nanago river, though I am surprised that they should have thought it worth naming.

They met the expedition of Andres Nunez returning. They had penetrated to a village called Togla, in the mountains. I have never been inland in this part of Guadalcanar, so cannot say whether the name still exists. Neither Nunez nor Sarmiento brought an adequate supply of food.

On Thursday, 27th May, Ascension Day, the steward of the *Capitana* took a boat's crew to get water. They went to the river to which they had given the name of the Rio Gallego, which I have identified with the Nanago river of the natives. The Spaniards had incautiously allowed their boat to get aground, a most foolish thing, as any one knows who has had any experience with strange natives. While the boat was aground, the natives attacked them and killed nine men, the only person who escaped being a negro slave, who took to the sea and swam off to the island. The natives had been seen from the ships to be collecting on the shore and coming from the Rio San Urbano to the Rio Gallego. A reference to the map will show that from the position of the ships the mouths of these two rivers would be visible to those on board. Assistance was sent from the ships, some soldiers getting ashore in the *Almiranta's* boat, and Ortega and some others reaching land on a raft. The natives had all fled, but they found the bodies of their comrades "cut in pieces, some without legs and without arms, others without heads, and the ends of the tongues of all of them cut off, and the back teeth drawn, and those whose heads were left they left them with the skulls open and the brains eaten." Next day Sarmiento landed with a force to administer chastisement. More than twenty natives are said to have been killed and many wounded. Next day he again landed and scoured the coast to the westward. From a prisoner whom they took they ascertained that the attack was planned and carried out under the command of Nano, the chief of the district of Lunga. The district between the Tuumbuto river and the Nanago river is still known by this name.

On the 6th June the brigantine returned from her second voyage, and reported as follows:—They found the wind strong against them every day from the south-east, but at night it died away and came off the land. This is the usual state of things at this time of the year on the coast of Guadalcanar.

At one place on the coast where they landed they found that near the houses the natives had planted "many herbs of different colours fenced with canes." At the present day the natives plant variegated crotons and coleus near their houses, which are fenced with bamboos and rattans to protect them from the pigs.

They got food from the natives of a village where they say there was a small river. These natives were friendly until the Spaniards attempted to depart, and then tried to prevent them by pulling the rope by which the brigantine was anchored. I identify the village where this occurred with Lango (not the district of Lunga above referred to).

Proceeding at night with the oars, they saw a large river, to which they gave the name of San Bernardino. This I identify with the Nalimbiu. Gallego says "there is a very high round hill here." From off the mouth of the Nalimbiu the high, round mountain of Popomanisao, or the Lion's Head (5000 feet), is a very conspicuous object, and seems to stand out from everything else.

Two leagues further on they came to a great village on the banks of a small river. This was probably the Metepona river. The natives brought them a bundle of grass on a pole in imitation of a pig and placed it on the beach, telling the Spaniards to come and fetch it in exchange for a canoe that they had taken.

The natives followed them along the beach to another large river. This was probably the Balesuna river. They named it Santa Elena. That afternoon they anchored under the shelter of a point probably near the village of Tasimboko. Proceeding on their voyage they passed a large village, where the natives exchanged the canoe the Spaniards had with them for two pigs.

Continuing their voyage for another six leagues, they anchored off a town of more than 3000 inhabitants. The natives here filled their water-jars and brought them food. Gallego here says, "Close to the shore are two inhabited islets half a league to sea, and to the north-west of them an islet of sand." This is quite sufficient for me to identify the town with Aola. The population, as given, is probably much exaggerated. It is a matter of considerable satisfaction to me to find that, upon the three occasions that the Spaniards communicated with the natives of Aola, they were enabled to do so on a friendly footing. Their behaviour to me I have previously described.

The two islets are the small islands of Kokobara* and Vulelua. The islet of sand is doubtless the coral patch that dries at half tide, situated to the north-west of Vulelua. Possibly, at the time of the Spanish visit it was covered with sand from the Kombua river, but the sand off this river mouth may have shifted, and so changed the deposit of the banks.

Proceeding on their voyage they saw two other islets and another islet of sand. These are said to have been then, as now, uninhabited. There is no difficulty in identifying these with the Rua Sura of the present Admiralty chart. This is not correctly named in the chart. There are two islands, one larger than the other. These are known to the natives as Rura Suli and Rura Kiki, or Big Rura and Little Rura. I have no doubt that the word Rura is an abbreviation for Rua nura; Rua, of course, meaning two, and nura doubtless meaning island. A small island a few miles further to the eastward is known as Nura.

From the large village above described to the south-east end of the island Catoira describes it as all high mountain land, and this agrees well with the description of the coast between Aola and Marau, for the flat land that extends along the coast beginning from the Port of the Cross here ceases, and the mountains rise from near the sea.

On the 24th May the brigantine reached the end of Guadalcanar. Gallego says, "we found many islets with shoals between them. Among them is a large island with a good port." Catoira says, "between this island and the mainland there is a great bay." There is no difficulty in identifying this place with Marau Sound, and the large island with Malapa. They found many shoals and reefs, and watered the brigantine at an uninhabited island in order to avoid molestation by the natives. Catoira says that on coming out of this port they saw three islands, one on the south side, the second nearly in the same course with Guadalcanar, and the third on the north. There is here some slight confusion. Catoira's narrative is most carefully written, and in most instances more particular and fuller than Gallego's, but it must be remembered that his accounts of the voyages of the brigantine are only at second hand. The first island here mentioned may probably be the mythical island afterwards called San Urban by Gallego. Gallego says they saw an island to the south east by east, estimated to be distant seven leagues, but they did not attempt to go to it. No name was at this time assigned to it. This was, of course, the island now universally known as San Christoval, but which during this paper I shall refer to as Lauro. The reason will appear further on.

* Kokobara, literally the island off Bara. Kokomo, an island; Bara, a village of the mainland.

Steering to the north-east by east for 16 leagues, they came to the island to which they had hitherto referred as Malaita, but Catoira here says, "which the Indians of Guadalcanal call Mala." Mala is the name by which the island is still universally known among the natives, and I have above pointed out how I suppose the name Malaita to have arisen. Next day (Wednesday 26th May) sailing all the time close hauled, they reached it, and found an anchorage to which Gallego gave the name of Escondido, because it was enclosed within reefs. I personally know little of this part of the coast of Malaita, but the master of a trading vessel who is well acquainted with it, tells me that the description given by Catoira agrees well with a place known as Oho, situated about 5 or 6 miles to the north west of the mouth of the Maramisiki Passage. Catoira describes it thus:—"outside it has reefs, and at the entrance two points make it narrow, although within it widens, and makes itself an islet, without letting itself be seen outside."

Leaving the Port of Escondido they sailed to the south east for four leagues and found an inlet like a river. This was evidently the southern entrance of the Maramasiki Passage.* On account of the strong current running out they were unable to enter. They accordingly went on for another four leagues where they found a good anchorage, to which they gave the name of the Port of La Asuncion, because they were there on that day. Gallego says, "It has an islet at the entrance which should be left close on the starboard hand in entering the port." I identify this place with Tavaniahia, the Ariel harbour of the present chart. Proceeding further along, they put into a small bay close to the extremity of the island. This is probably at the place marked on the chart as Suoroca. I am informed that small vessels can anchor there in the south-east season when there is too much sea at Saa, just round the point. From the extremity of Malaita another island is seen lying east and west, with it, distant according to Gallego's computation 8 leagues. They arrived at it during the night. The native name was found to be Uraba. It remains but little, if at all changed, and is still known among the natives as Ulava. The Spaniards named it La Treguada. Some natives were seen wearing bracelets of bone, and stars of shell in their ears, and others of teeth of fish, and with girdles of shells and beads. A temple is also described having a breastwork of boards like a counter. These descriptions, although written over three hundred years ago, might equally well describe what I saw at Ulava last year.

Leaving Ulava they came to three uninhabited islands, upon which Catoira says they landed for the purpose of obtaining water, but were unsuccessful. Gallego says that these islands were inhabited, and that they obtained water there, but I suspect this to be a mistranslation. These islands are uninhabited and uninhabitable, and there is no water on them. To these islands they gave the name of Las Tres Marias.

Leaving them, they went to another island three leagues away, to which they gave the name of San Juan. From San Juan they sailed towards a very large island that they saw ahead. They found it very thickly populated, and of good appearance. The brigantine approached the shore to try and effect a landing, but

* On reference to the chart it will be seen that this passage goes right through to the north side of the island dividing it in two, and that the part to the eastward of the passage is called Maramasiki. I would suggest that the origin or meaning of this name is probably Mala Masiki, or little Mala. R and l are frequently interchangeable. I know nothing of any Malaita dialect, but from a comparison of some of the vocabularies in Dr. Codrington's 'Melanesian Languages,' I think it quite possible that Masiki may have the meaning, I suppose, in some Malaita language. Compare also the name "Maligi" applied to the island off the south-east end of Ysabel.

they found such a surf breaking upon the shore that they were unable to do so. Several canoes (ninety-three) came off to them, making a hostile display; a native was taken prisoner.

The coast of Bauro, to the S.S.W. of Las Tres Marias, agrees well with the description. A heavy surf breaks upon a rocky shore, and landing would be certainly difficult for a boat; to a vessel of the size of the brigantine impossible. To this land they gave the name of Santiago. Finding they could not land, they returned to the island of San Juan. There is no difficulty whatever in identifying the island of San Juan with Ugi, the Ile du Golfe of Surville, the French explorer.

Gallego relates that the prisoner they had with them was here ransomed for three pigs. I suspect that he was bought to be eaten.

They remained at the island of San Juan during the night of the 1st June, and on the following morning crossed over and landed upon the large island to which they had given the name of Santiago. They took possession of it in the name of the king, and Gallego here relates that when they had embarked to resume their voyage a violent north-east wind drove them to the extremity of Santiago, whence they saw a large island to the south-east that trended westward, and was said to be only four leagues distant from the island of Guadalcanar.

Gallego here falls into an error, and Dr. Guppy, in endeavouring to explain his meaning, has entirely misapprehended it, and made matters worse. We must not forget that the weather was thick and squally, and at the time Gallego was suffering from a severe attack of fever. The Spaniards were overtaken by a violent *north-east* wind when on the coast of Santiago opposite Ugi, which drove them to the extremity of the island, whence they saw what they thought was another island, to which they gave the name of San Urban. This, of course, must have been the western extremity of Santiago, and near the place marked on the present chart Cape Recherche.

It is evident that with a north-east wind they could not have been driven to the eastward, as Dr. Guppy would seem to suppose when he attempts to identify the land to which the Spaniards gave the name of San Urban as the Cape Surville peninsula.

Whether the Spaniards really saw any land at all after passing Cape Recherche, or whether they thought the land about Hada Bay, or possibly the high land near Cape Henslow, belonged to a separate island, I cannot say. I am inclined to suppose that what they saw was a bank of clouds. I have above noticed that the weather was squally and thick, and Gallego ill. At all events, next morning, running before the north-east wind, they arrived back at Guadalcanar.

They coasted along Guadalcanar with the wind always astern, anchoring one night at the island of Bara, or perhaps Vulelua, where the natives again gave them *panas* and a hog, and filled their water-jars.

Continuing their return voyage, on the 5th June they visited a village on the river that they had named Santa Elena on their previous visit, and the following day, June 6th, they returned to the ships.

On the 9th June the natives made an attack upon some men who were at work upon the small island near the ships making a new top-mast. They were repulsed with loss.

On the 12th June the general landed to inflict punishment for this attack upon the natives living on the Rio de Ortega, but found the place deserted. Several villages were, however, burnt.

At midnight on the 13th June the ships set sail from the Port of the Cross. They found the wind against them during the day, and on the 16th they anchored near the shore, and again proceeded during the night with the land breeze.

On the 17th, at daybreak, they anchored under shelter of an islet. Gallego says

this was half a league to windward of where they had anchored in the brigantine, so I have no difficulty in identifying it with the island of Kokobara. Gallego and a boat's crew went to the other islet (Vulelua) to shoot pigeons for the sick. Again they had friendly intercourse with the natives of Aola.

Leaving this anchorage on the 18th June, they continued to beat along the coast, and the following day had to take the brigantine in tow. They intended to make for the island of San Juan or Ugi, but meeting with continual head winds, against which they beat for a fortnight, they found themselves off the south coast of Bauro, to which they gave the name of San Christoval, as they were in doubt whether or not it formed one with the island to which they had given the name of Santiago during the voyage of the brigantine. Catoira says, "We discovered another great island adjoining that of Santiago, although it did not permit itself to be seen easily, for it seemed to be all one, or to be divided only by a small arm of the sea." (Observe that no mention whatever is here made either by Gallego or Catoira of the island of San Urban, supposed to have been sighted by the brigantine.)

On the 30th June they found an anchorage on the south side of the island, to which they had given the name of San Christoval. Gallego supposes this harbour to have been near the west end of San Christoval and in close proximity to Santiago. On reference to the present chart it will be seen that the name of San Christoval is applied to the whole island of Bauro. Catoira suspected, but was not certain of the identity of Santiago and San Christoval. There is a good harbour near Cape Sydney on the coast of San Christoval which I identify with the Spaniards' anchorage. The native name is Hanono. To their anchorage the Spaniards gave the name of "Puerta de la Visitation de Nuestra Señora." The north coast of the island west of Cape Kibeck, and the south coast as far as Cape Jackson, will consequently constitute the Santiago of the Spaniards. The whole island is now known as San Christoval. Then, as now, the native name for the island was Bauro.

On the 6th July the brigantine again left the ships on a voyage of discovery, and sailed along the coast to the eastward. On the supposition that their anchorage was near the west end of the island, Gallego says, "The coast until the middle of the island trends N.W. and S.E. for 20 leagues and a point nearer east and west, and the other half west by north and east by south. This is very nearly the trend of the coast of Bauro east of Cape Sydney to the east end of the island.

On the 11th July the brigantine reached the end of the island, and discovered two islands lying off the coast. To these they gave the name of Sta. Catalina and Sta. Anna. Next morning they landed upon Sta. Catalina, and scanned the horizon to the south and east, and came to the conclusion that there were no more islands in that direction. In the afternoon they went to the other island to which they had given the name of Sta. Anna, and on the following morning 13th July at 9 o'clock they left for the ships with a fair wind. Some men had been wounded by the natives at Sta. Anna, and they were anxious to make a quick passage. At night they put into a harbour to which they gave the name of La Palma, and left again at midnight. I am unable to identify this anchorage. The following evening they arrived at the ships—14th July. As the ships were in a bad condition, they were careened to fit them for the return voyage.

On the 11th August the ships left the Port of la Visitacion de Nuestra Señora, on their return to Peru. They took with them a native with his wife and son, and a tame cockatoo. They beat against the south-east trade for seven days, but at last, on the evening of the 17th August, they got a slant, and were enabled to weather the two islands of Sta. Catalina and Santa Anna. The following morning the islands were out of sight. The brigantine was abandoned at sea because they found it impossible to tow her. After a voyage of incredible hardship and the loss of their

boats they reached Callao on the 11th September 1569, just thirteen months after their departure from the Solomons.

It will be interesting here to compare the latitudes of Gallego with the latitudes of the places that I have identified with his discoveries, and to endeavour to account for the discrepancies that exist. The instrument used at this period for taking the sun's altitude, was the cross staff, and I think the wonder is not that the latitudes are incorrect, but that they are so correct as we find them to be.

Gallego's Latitudes.	Approximate Actual Latitudes.	Error of Gallego's Latitudes.
	° ' "	° ' "
Candelaria Reef	6 15	..
Bay of Santa Ysabel del Estrella	7 50	- 0 2
Point of Meta	8 0	+ 0 2
Two islets near Bay of Santa Ysabel	8 0	7° 57' and 8°
North-west end of Malaita	8 0	- 0 18
Cape Prieto (barely)	9 0	+ 0 28
Buena Vista	9 30	+ 0 35
Florida	9 30	+ 0 32
Savo	9 45	+ 0 38
Rio de Ortega	10 30	+ 1 7
Island of San Jorge	9 20	+ 0 50
West end of Ysabel	7 30	..
Puerto de la Cruz	10 8	+ 0 50
Rio San Bernadino	10 20	+ 0 57
Anchorage identified with Marau Sound ..	10 45	+ 1 0
Escondido	10 15	+ 0 41
Puerto de la Asuncion	10 20	+ 0 40
South-east end of Malaita	10 15	+ 0 45
(probably an error for 10° 30')		
La Treguada (Ulava)	10 30	+ 0 45
San Juan	10 40	+ 0 25
Santiago (eastern extremity)	10 45	+ 0 18
San Urban	10 30	..
Puerto de la Visitacion de Nuestra Señora	11 0	+ 0 17
East end of San Christoval	11 30	+ 0 41
Sta. Catalina	11 40	+ 0 46
Sta. Anna	11 36	+ 0 46

The first place on the list is the Candelaria Reefs, and the latitude of Gallego is perfectly correct supposing the reef to be identical with the Roncador or Candelaria Reef of the chart. Next comes the Bay of Santa Ysabel del Estrella, the Spaniards' first anchorage and starting-place of their subsequent explorations. This latitude is also almost correct.

I wish to lay particular stress upon the fact of these two observations having had the advantage of being made from the ship; indeed the latter may have been even made from on shore, and being a first observation in a new country, would almost certainly have been made with great care. I believe that the error that appears in some of the subsequent observations was because they were made from the brigantine, a crowded and unsteady small vessel.

Starting from the Bay of Santa Ysabel del Estrella as a determined position, the latitudes of the Point of Meta and the two islets near it were given by Gallego during the first voyage of the brigantine with reference to the observed latitude of that place. From their close proximity to the Bay no great error could arise, and the latitudes given are nearly correct. The position of the N.W. end of Malaita is 18 miles out, but the Spaniards never went there, and only estimated the latitude from its being supposed to lie east and west with the point of Meta. The latitudes

of Cape Prieto, Buena Vista, Florida, and Savo are all in excess by about the same amount, and were probably only reckoned during the first voyage of the brigantine by their supposed position relative to the Bay of Santa Ysabel del Estrella.

The next latitude, that of the Ortega river, on the coast of Guadalcanar, is about a degree in excess of the correct latitude. This error may have been caused in the same way as the last four, but I am inclined to think that Gallego here read his instrument just a degree wrong—a mistake that I can conceive it quite possible for him to make, and which he apparently never found out, for on the arrival of the ships at the Puerto de la Cruz, when the latitude was again observed, almost the same error was recorded, and a like discrepancy exists in the recorded latitudes of the places visited by the brigantine during her second voyage on the coast of Guadalcanar, viz. the Rio San Bernadino and the latitude of the place that I identify with Marau Sound.

The latitude of the island of San Jorge, visited by the brigantine during her first voyage, after leaving the Rio de Ortega, is also about one degree in excess. This latitude is probably relative to that of the Rio de Ortega.

From this place the brigantine voyaged for four days along the south coast of Ysabel until they came to near the west end of the island, but having come too far to compute their latitude relative to any of their former positions, a fresh observation became necessary, and this, viz. $7^{\circ} 30'$, agrees exactly with the latitude of the position where I suppose the brigantine to have been, viz. at the entrance of the channel leading through from the south side of the island into Port Praslin.

The latitudes of the other places visited during the second voyage of the brigantine were merely computed from their supposed relative situations with reference to the Puerto de la Cruz, their point of departure, but whereas they started with an error of 1° , by the time they got to Santiago their computations had been so far wrong that the error was reduced to $18'$.

The latitude assigned to San Urban only makes the mystery and confusion surrounding this mythical island worse and worse. It is said to lie to the south-east of Santiago, and yet Santiago is said to lie in $10^{\circ} 45'$ and San Urban in $10^{\circ} 30'$.

When the ships arrived at the Puerto de la Visitacion de Nuestra Señora, on San Christoval, Gallego had time to make another careful observation, and this time he got it right within $17'$.

The three remaining latitudes, viz. the east end of San Christoval, Sta. Catalina, and Sta. Anna, are of course computed from the observed latitude at the Puerto de la Visitacion, and naturally, of course, the same initial error attaches to them all. The brigantine only paid them a flying visit, but Gallego should not have made an additional mistake of $30'$ of latitude in that short distance.

After the paper,—

Mr. TYSSEN AMHERST, M.P., said it was because of a manuscript in his library that the first discovery of the islands by the Spaniards had been noticed in recent times. Dalrymple's voyages, published in 1770, gave a very good account of this discovery, and reference was made to a log-book of the pilot. That manuscript had, however, been lost. Again, in 1595, the Spaniards sailed out there, but failed to discover the islands. He (Mr. Amherst) showed his manuscript to his friend Don Pascual de Gayangos, who was very much interested in it, and found another copy in the British Museum, which was rather more modern, but evidently taken from the same original. This copy was translated by Dr. Guppy in his recent book 'The Solomon Islands,' but a MS. by Catoira, who accompanied the same expedition, gave a longer account of the voyage, and went more into detail. He mentioned that he would not give any maps or charts of the voyage, because the chief pilot had done

so, but these are unfortunately lost. They sailed from Callao in 1567, and were absent between two and three years. Afterwards they went northwards and touched one of the rocks of the Sandwich group, but evidently saw there neither vegetation nor human beings. Dampier gave an account of the discovery, but he thought the islands were those of New Britain, which lie to the north-westward. He also mentioned the map published by de Bry in 1596, which, he said, must be of the earlier voyage, as the news of the second voyage could hardly have reached England in time, but there had been an earlier map showing the islands published by Ortelius in 1589. He (Mr. Amherst) was sure he expressed the feeling of everyone present when he thanked Mr. Woodford for his paper and photographs. His researches left no doubt that the islands described in Gallego's narrative, and in that of Gomez Catoira, the purser, were identically those that had been shown in the photographs. The description of the canoes, the birds, the natives, and the scenery, proved they were the same. When yachting off the north-west coast of Spain in 1879 he was looking at Gallego's account, where he mentioned that he called the island Sesarga, because it was like an island of that name near the coast of his native country Galicia in Spain. The next day he bore up to Sesarga, and one of his daughters made a sketch of it, which was shown to Mr. Woodford, who, immediately he saw it, said, "That was like the island I visited, and where I ascended the crater." Of course they were all more interested in the discoveries of to-day than in those of the old Spaniards, but he was glad to think that a fondness for old manuscripts and early voyages had helped Mr. Woodford in his search among those islands which so few had visited. He congratulated Mr. Woodford on his marvellous escapes, and commiserated with him on the loss of his friend.

Captain C. BRIDGE, R.N., said he visited the Solomon Islands in 1882, and again in 1883. During his first visit he began at the south-west corner. He was then in command of one of her Majesty's ships, and was sent to investigate a case of outrage that had been committed. He visited the islands of Buka, Malaita, Guadalcanar, and Treasury Island. On the second occasion he first visited Treasury Island at the north-west of the group, and then went on to Aola. He believed he had visited more South Sea islands than any other white man alive, but Guadalcanar was one of only two islands where his companions and himself were in any danger from the natives. He was therefore astonished at the daring exhibited by Mr. Woodford, and the success which had attended his travels in that very little-known part of the world. One of the photographs showed a shell fired by one of Her Majesty's ships. A few days ago he took up a copy of the book published by Mr. Woodford, giving an account of his travels, and was glad to find that he spoke with approbation of a method of investigating cases of murder of white men which was followed with great success during the four years he (Captain Bridge) was in the district. Instead of wreaking a sort of indiscriminate vengeance upon an island in some part of which a white man at some time or other had been killed, for a reason which perhaps was very little known, the new system was to try and bring home to the actual perpetrator of the outrage the responsibility for his act. Although it might frequently happen that it was impossible to discover and bring to punishment the man who committed the atrocity, yet the very fact of its being known that there was a steady determination to find him if possible, and to take no other steps until he was found, had done more to check indiscriminate outrages than anything else since our relations with the natives began. Mr. Woodford had mentioned that when he went to the village in the mountains of Guadalcanar, his guide wanted to go no farther because he had some trade matter to settle. That was a proof of the extent of the trading instinct and practice amongst the inhabitants of those islands. They were nearly all of them born traders, and although they might be head-hunters as well, yet the fact of their wishing to have

trading connections with their neighbours, held out a prospect that hereafter Europeans might be able to conduct business with them on a more stable and friendly footing than had hitherto been the case. It was just the same in the islands farther to the north-east. Although the inhabitants were very nearly all cannibals, yet there were cannibals and cannibals, and the cannibal who was one for the mere sake of cannibalism was a very rare individual. He supposed the ordinary Melanesian ate human flesh as often as the average Englishman did venison. He never went to a single island where cannibalism was practised, where the people were not ashamed of it, with the exception of New Britain. At Treasury Island there was a distinct ethnical division between the Solomon Islanders and the islanders of the next group. The canoes throughout the Solomon Islands had no outriggers, but at Treasury Island there were both kinds, while the islands to the north-west used only outrigger canoes. Mr. Woodford spoke of the pottery found there. Five years ago he (Captain Bridge) brought to England some Treasury Island pottery. It was probably one of the earliest forms. On one or two articles there were some markings, showing the very rudiments of ornamentation. In some places in New Guinea pottery of a very delicate description was made. Further to the north-east the natives used wooden bowls for their cookery, and some of these were beautifully ornamented and inlaid with mother-o'-pearl, but no pottery was used. One of the photographs showed a young man with a sort of frontlet of white shells. Those shells were sometimes used as armlets, and as ornaments to the stems of canoes, but in the Admiralty Islands one of those shells was the only article of clothing used by the men. Towards the south-east group Bishop Selwyn and the Anglican clergy had for some time carried on their operations, and the particular reason which took him to Gaita was to restore the son of the old chief of the island, who had been implicated in the massacre of Lieutenant Bower. There were four people engaged in that massacre, three men and a boy. The boy was taken and kept a prisoner, and he (Captain Bridge) restored him to his father. A great deal of obloquy was thrown on Bishop Selwyn and his clergy, and it was said that the massacre was the result of their teaching; but not so much stress was laid on the fact that the mission teacher, who had a brother engaged in the massacre, lent straightforward assistance in discovering the men, who were publicly executed by the captain of the *Cormorant* in the presence of the natives.

The PRESIDENT said they must all feel particularly obliged to Mr. Woodford for having brought his head back to London, not leaving it to ornament one of the canoe-houses of his head-hunting friends. They were also grateful to Mr. Tyssen Amherst for having contributed to the success of Mr. Woodford's exploration, by lending him a translation of the Spanish manuscript. They likewise sympathised with the enlightened views which Captain Bridge had expressed with regard to the best method of repressing outrages upon white men in the Pacific Islands. On behalf of the meeting he thanked those gentlemen.