

IN THE HEART OF BORNEO.*

By CHARLES HOSE, Resident of the Baram District.

IN the month of April, 1884, I entered the Sarawak Civil Service, and was given an appointment as extra officer for the Baram district, under the Resident, C. C. de Crespigny.

This territory, which formerly belonged to the Sultanate of Brunei, had been ceded to Sarawak about eighteen months before my arrival. Promoted to be Officer-in-Charge four years later, in 1890 I was appointed Resident of the District, and have held that post up to the present time. It is part of a Resident's official work to visit the people of the interior from time to time, which necessitates tedious and difficult journeys. It is chiefly owing to these long inland expeditions that I have been enabled to observe the habits and customs of the people, and by degrees to construct a detailed map of the interior, which has taken many years to complete.

The Baram district is situated in the northern part of Sarawak, between lats. 3° and $4^{\circ} 30'$ and longs. 113° and $115^{\circ} 30'$, with an area of about 10,000 square miles, and a coast-line of 100 miles from Kidurong point to Baram mouth. On the north side it is bounded by the remaining portion of the Brunei territory and the Limbang district; on the south by the Bintulu and Rejang district; and on the east—on the other side of the watershed—by the Balungan district in Dutch Borneo.

A glance at the map will show that the Baram, which is the second largest river in Sarawak, rises from the central massif, from which the Rejang on the one hand, and the Batang-Kayan, or Balungan, on the other, take their origin. The river basin lies between long. 114° and 115° E. and lat. $2^{\circ} 45' N.$ and $3^{\circ} 10'$, the mouth of the river is practically at long. 114° E. and lat. $4^{\circ} 37' N.$ The following are the chief mountain masses that bound the watershed of the Baram valley, working from the east round by the south to the west. Mount Mulu, which lies on lat. $4^{\circ} N.$ and long. $115^{\circ} E.$, is the rugged, jagged termination of a range of limestone mountains, which sweeps round to the east and then to the south, and abuts the sandstone Pamabo range, about 10° west of long. 115° ; but is probably continued in the limestone mountain masses of Batu Murud and Salaan. To the north of Mulu are the low sandstone ranges of Matauei (Madalam hills) and Ladan; east of the Mulu range is the remarkable limestone pinnacle mountain Batu Lawei, which, from a base of about 10 or 12 miles in circumference, rises sheer to the height of 8000 feet. The Pamabo range consists of a series of sandstone mountains running south-east, and bends back again to the

* Paper read at the Royal Geographical Society, March 5, 1900. Map, p. 140.

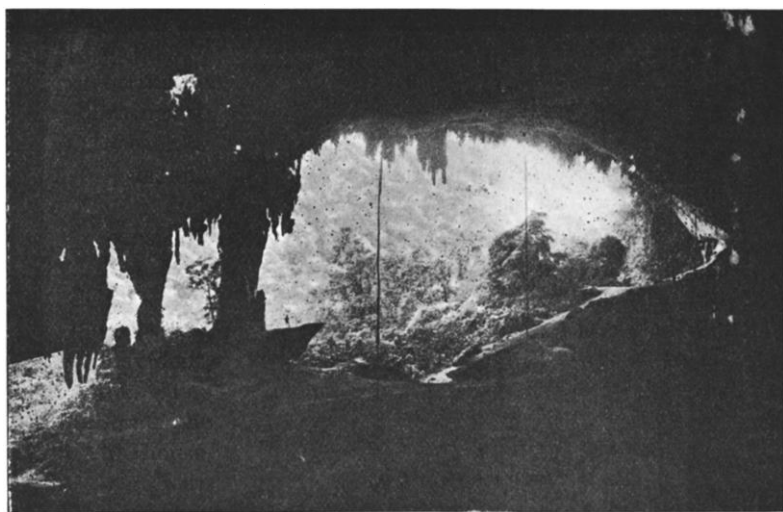
west below lat. 3° N., forming a large amphitheatre which encloses an immense plateau, the Kalabit country, in which the Baram itself takes its main origin; on the southern slope of this range, the Bahau, the largest branch of the Balungan takes its rise. This range continues past the Panawan mountain to the Buding, Bureh, Saat and Kanawang mountains, where it divides into the Kalulong and Dulit ranges; all these mountain ranges enclose the whole of the Madang district, and constitute the watershed of the Rejang to the south and east, and of the Tinjar to the north. Kalulong is continued uninterruptedly down to the Pata hills, and Dulit through Aiah and Skiwa to Mount Selikan. The area thus circumscribed to the east, and to the north at about lat. $3^{\circ} 40'$, is divided by the main stream of the Baram river, at the head waters of which, as we have already seen, is the Kalabit country to the east and the Madang district to the west. The central portion is occupied to the south by the Kenyahs, and to the north by the Kayans. To the north of this is low-lying land, which is part of the great coastal plain of Sarawak.

From the coast-line to about 30 or 40 miles inland, the country is flat, swampy, and uninteresting. On account of the poor quality of the soil it is but sparsely cultivated, sago being its chief and almost sole product. Occasionally this plain is relieved by isolated mountains of lime- and sand-stone, rising to a height of 1500 feet, such as Mount Subis and Mount Lambir. In the limestone mountains, which are at no great distance from the coast, are numerous caves inhabited by thousands of swifts (*Collocalia*), the nests of which are exceedingly valuable, and are exported to China in large quantities. During the months of March and April the birds migrate, according to native belief, from the necessity of finding some particular description of food which enables them to produce the glutinous substance from which the nest is built.

The principal Government station in the Baram district is Claudetown, on the Baram river, about 60 miles from the sea. The country round about Claudetown is more hilly, and although the soil is not nearly so good as that further inland, the natives—principally Dayaks—grow fair crops of padi, maize, and yams, and the land appears to be well suited for irrigation. The country varies but little for perhaps 20 or 30 miles further inland, but the Mulu range of mountains, rising to the height of 9000 feet, and the river, with its beautiful but dangerous rapids and waterfalls, lend elements of picturesqueness to the scenery.

On November 10, 1898, accompanied by Drs. McDougall and Myers, members of the Cambridge Anthropological Expedition, I set out for the Madang country, a hitherto unexplored district, lying between the headwaters of the Batang-Kayan, Rejang, and Baram rivers, and inhabited by the Madangs, a warlike tribe of Kenyahs, who by constant raids had become the terror of all the surrounding country. The chief

things to be considered appeared to be, the distance we had to travel and the difficulty of safely navigating the dangerous rapids. As the Madang chiefs had met me on several occasions, I had little doubt that they would receive us in a friendly manner; but the Kayans who accompanied our party were of a different opinion. Many of them returned home after fifteen or sixteen hard days in the boats, making various excuses to disguise their fear of a hostile reception, which was the real cause of their desertion. On the other hand, the Kenyahs, under Tama Bulan, the most important chief in the Baram, were anxious to go right through to the journey's end, and he and about fifty of his men behaved admirably, and would not leave me till we reached home again. The Kenyah and Kayan district is lovely, undulating



LIMESTONE CAVE—HAUNT OF THE SWIFTS.

country, fertile, and covered with old jungle except in places near the banks of the rivers where it has been cleared and cultivated by the natives.

It will not be necessary to say much about the country through which one has to pass on the main river, as a paper of mine on that part of the district has already been read before the Society.* I will therefore pass over the Kayan country, and confine myself chiefly, on this occasion, to the hitherto unexplored part of the island—the Kenyah Payah, and Madang districts.

At Long Akar I had to part with my Cambridge friends, as Dr. Myers was suffering from fever, and Dr. McDougall was obliged to

* *Geographical Journal*, vol. i. p. 193.

return with him to Claudetown. The country here is mountainous, and I am told by the natives that the soil is very good. The Akar river hereabouts is for many miles a succession of rapids, very difficult and slow of ascent. As a proof of this, I may mention that the up journey takes three days, and the return or descent only four hours. The boats used for this work are merely dug-outs, about 40 feet in length and 4 feet beam, with square bows and stern. To minimize the risk of swamping when shooting the rapids, long thin planks are lashed to the sides of the boat, in the centre of which is a covered shelter of palm leaves bound with rattans, in which all the baggage is kept. The other part of the boat is wet all day, the waves constantly sweeping in as the craft is forced through them. The Kenyahs are very clever in handling these boats, and seldom meet with an accident, while among men of other tribes less skilful there is great loss of life.

It is a most picturesque sight to see a Kenyah boat slowly gliding down-river to the head of a fall, the men standing up and leisurely dipping the ends of their paddles in the water to keep the boat's head straight, and straining their necks to find the best spot to shoot the fall. Then, suddenly dropping down and paddling for all they are worth, the boat dashes into a foaming mass of waves, beaten backwards and forwards in all directions by huge boulders. The roar is deafening, and the water splashes in on all sides. For a moment one feels as if it would be impossible to get through; but the pace tells, and the boat, often full of water, by most wonderful management slips round into a less troubled part, and gives the men time to bale out and prepare for the next rapid.

On the eighteenth day of our journey we reached the Silat river, a large tributary which has its source in the Madang country. At this point a five-peaked mountain—5000 feet—called by the natives Batu Tujo, suddenly rears its crests on the sky-line, while beyond its bulk looms the 7000-foot Batu Siman, the great landmark to the *voyageurs* from Batang-Kayan river to the Baram. The river here is still a noble stream, and from the surface of its broad waters one sees that for miles around the hills have been cleared of jungle by the Kenyahs and sown with padi and native tobacco, which also yields a fair harvest to these indefatigable tillers of the soil. The Madang district which we are now about to enter is broken, hilly ground, of which the mean level is about 1500 feet above the sea. According to native account, it is the part of the country whence successive migrations have taken place. Twenty-one days out from Claudetown we arrived at Long Tabau, the first Madang village we had seen, and entered the Silat, a river of surpassing loveliness. Huge trees covered with fern and parasite plants and festooned with trailing vines overhang the water; masses of gorgeous red rhododendrons flame in the interstices; while on either side, from banks, in places towering to a height of from 20 to 60 feet, creaming cascades stream endlessly over black rocks, and, flashing like diamonds

where touched by the sunbeams, lend the charm of light and movement to a scene of extraordinary beauty. Dense groves of graceful wild sago palms clothe every small hill, and when the padi crop fails, it is on these that numbers of Kenyahs, Punans, and others depend for their means of subsistence.

Though the rapids between the mouth of the Silat and the Long Lata are not nearly so difficult of transit as those met with on the main river, they yet present many formidable obstacles to safe navigation. Vast rock monoliths rising to a height of 30 feet, stud the middle of the stream, great walls of rock projecting from either bank almost meet in the centre, and through the narrow passage so formed, the pent-up



JUNGLE IN THE KAYAN DISTRICT.

waters boil and race with such violence that the most skilful management and immense labour are required to force the boats through.

Five days later we entered the Lata river, a large tributary of the Silat. Here the rapids and waterfalls are the finest that I have met with in Borneo. So steep was the fall and swift the current, so torn and tortured the rushing water by countless obstructions, that no craft, however skilfully handled, could hope to live in such a turmoil, and we had to abandon the boats and continue our journey on foot along the bank of the river. Though the distance was only 12 miles, a day and a half were occupied in walking along the side of one rapid, which was only one of a series, so broken and precipitous is the country through which the river forces its way to the lower levels. At the head of this rapid we found a number of Madangs awaiting us with a

very small boat which they had hewn out of a tree the day before, having a few days previously heard of our advent. They invited me to sit in this boat, while, by means of rattan ropes secured to stem and stern, nine strong men—jumping from rock to rock in the most marvellous manner, swimming about in the water, and crossing the river from side to side in their erratic progress—hauled me along over huge rocks and swirling rapids, for ever warning me the while, to keep my hands inboard for fear of getting my fingers jammed against the boulders. When seated right on the bottom of the boat, it was only large enough to contain me, while my body alone acted as a barrier to prevent the water, sweeping copiously over the bows, from flowing into the stern. After about four hours of this peculiar travelling, we reached Long Purau, where we stopped for a time at a Madang village to dry our clothes and collect our property. Here, the country being more open, the rapids were much less formidable, and once more we were able to take to the ordinary up-river boats, many of the party, however, preferring to walk, as the jungle track was a good one. The following morning we passed the last rapid, the river opening out into wide reaches each of which was studded with numerous small islands and gravel beds, and towards evening we arrived at the principal Madang village.

This village, which contained about two thousand people, consisted of nine long houses forming a circle, the centre of which had been cleared of shrubs and trees. For a considerable radius outside this ring the jungle had been felled, and the land was farmed on that side which was more or less bounded by the river, the settlement, it was evident, having been laid out on a plan best calculated to resist attack. The Madangs came down in great numbers to have a look at us, and the chief, Tama Usun Tasi, invited me to take up my residence in his house. My Kenyah friends had not yet arrived, but I thought it best to go with him at once, and afterwards congratulated myself on my decision when I found that, according to custom, Tama Bulan and his followers—being unable to enter the houses until all cases of blood-money between his people and the Madangs had been settled—were obliged to camp near the river for one night. The Madangs assisted in making huts for my followers, gave them several pigs, and sent down their women laden with baskets full of rice, so no want of hospitality could be said to mar our reception.

In the evening I took a walk round the village, followed by a crowd of women and children, who appeared greatly pleased to find that the white man was able to converse with them. Then, as the crowd increased, I sat down on a log and produced a few pounds of tobacco, and the whole party were soon chatting and laughing as if they had known me for years, instead of my being the first European they had ever met. I have often noticed that the women of the Kenyah tribes in the interior are far more genial and less shy than those of others, and I believe that the

surest sign of the good faith of natives such as these, is when the women and children come out to greet one unattended by the men. The sounds of our merriment soon attracted the attention of the men, and as they strolled over and joined us in gradually increasing numbers, the possibility of any disturbance taking place between these people and mine quickly vanished from my mind.

Just across the river from where we were sitting was the graveyard, and there I witnessed a funeral procession as the day was drawing to a close. The coffin, which was a wooden box made from a tree-trunk, was decorated with red and black patterns in circles, with two small wooden figures of men placed at either end; it was lashed with



MADANGS ON A JUNGLE PATH.

rattans to a long pole, and by this means was lifted to the shoulders of the bearers, who numbered thirteen in all, and who then carried it to the burying-ground. After the mourners had all passed over to the graveyard, a man quickly cut a couple of small sticks, each 5 feet long and about an inch in diameter. One of these he split almost the whole way down, and forced the unsplit end into the ground, when the upper part opened like a V, leaving sufficient room for each person to pass through. He next split the top of the other stick, and, placing another short stick in the cleft, made a cross, which he also forced into the ground.

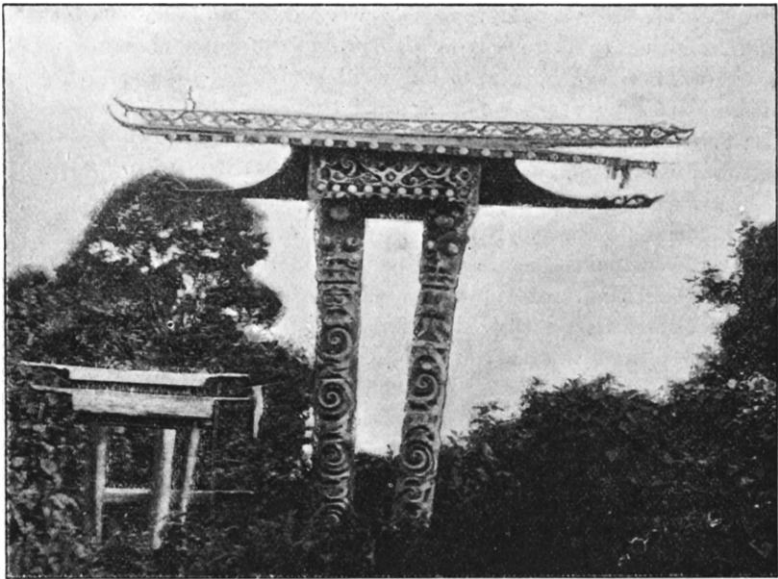
The funeral procession climbed the mound on which the cemetery was situated, passing through the V of the cleft stick in single file. As soon as the coffin had been placed on the stage erected for the

purpose, the people commenced their return, following on one another's heels as quickly as possible, each spitting out the words, "*Pit balli krat balli jat tesip bertatip!*" ("Keep back, and close out all things evil, and sickness") as they passed through the V-shaped stick. The whole party having left the graveyard, the gate was closed by the simple process of tying the cleft ends of the stick together, and a few words were then said to the cross-stick, which they call "*ngring*," or the wall that separates the living from the dead. All who had taken part in the ceremony then went and bathed before returning to their homes, rubbing their skins with rough pebbles, the old Mosaic idea of the uncleanness of the dead, as mentioned in Numbers (chap. xix.), evidently finding a place among their religious beliefs.

It is apparently a great relief to their minds to think that they can shut out the spirit of the deceased. They believe that the spirit of the dead is not aware that life has left the body until a short time after the coffin has been taken to the graveyard, and then not until the spirit has had leisure to notice the clothes, weapons, and other articles belonging to its earthly estate, which are placed with the coffin. But before this takes place the gate has been closed.

The Madangs are a very light-skinned people, with bright, dark eyes and perfectly straight, long black hair. They are fairly tall for Borneo natives, and very muscular, clean, and free of the skin diseases so common among Dayaks, Kayans, and Muruts. They are energetic and quick in their movements, splendid boatmen, and able to travel long distances in the jungle on foot without apparently becoming much fatigued. When meeting one on a jungle track, each man greets you as he passes by, with the word "*Sayeh!*" which means that he hopes no harm will befall you—which may be taken as characteristic of their generally courteous bearing. Their only garments consist of coats and waistcloths made from the bark of a tree known as "*kumut*," which is beaten out to a thin cloth with a wooden mallet. The women also use this bark cloth for their petticoats, and for the shawls in which they wrap their babies. They wear carved ear-ornaments made from the beak of the helmeted hornbill (*Rhinoplax vigil*), and also of resin obtained from the forest trees. They live in much the same manner as the other Kenyah tribes—in long houses holding thirty to fifty families in each house—but own no slaves, and the chiefs and sons of the headmen all appear to do as much work as any one in the village, their occupations including the cultivation of their extensive padi farms, and tobacco, of which they plant sufficient for their wants. They are pleasant people to meet, being good speakers—both as to the matter and manner of their orations—frank and open in their bearing, genial, high-spirited, and possessed of an abundant sense of humour. As a rule they are not polygamous, treat their women almost as equals, and are very fond of their children. They are kind and gentle nurses to

the sick, temperate, and, in a word, a good people when nothing occurs to awaken their fiercer passions. On the other hand, they are easily roused, and, when their blood is up, are ready to dare and do anything, and to fight with amazing fierceness and tenacity. But, as a general rule, their gusts of rage are but short-lived, and they are very ready to give quarter in battle. Many of these people suffer from goitre, for which they use a salt obtained from the Kalabits, as a curative; but owing to the impenetrable swamp between the two districts, they have to procure this commodity through the Leppu Modongs and others, with whom they also are on friendly terms. It is worth noting that the Kalabits, who habitually partake of this salt, do not suffer from goitre.



A MADANG TOMB.

On the following morning several parties of Madangs from other villages came in, numbering in all about six hundred, and exchanged presents of weapons with my people. It was necessary that the gods should be consulted as to whether the meeting was really in the interests of peace or not, so a pig was caught and tied by the legs, and when the Madangs had all assembled in Tama Usun Tasi's house, the pig was brought in and placed in front of the chiefs. Then one of the headmen from a neighbouring village took a lighted piece of wood and singed a few of the bristles of the pig, giving it a poke with his hand at the same time, as if to attract its attention, and calling in a loud voice to the Supreme Being, "Balli Penylong." Then, talking at a great rate, hardly stopping for a moment to take breath, he asked if

any one had evil intentions the truth might thus be revealed before the evilly disposed one was allowed to enter the Madang houses, and that if any Madang, either relation of his or not, wished to disturb the peace which was about to be made with the Baram people, let him be shown up. The old man stood waving his hands in a circle as if to cover the assembled crowd, and, jumping in the air with great violence, brought both feet down on the plank floor with a resounding thump; then, spinning round on one foot with his arm extended, he quickly altered the tone of his voice to a more gentle pitch, and, quivering with excitement, quietly sank down into his place amid a dead silence. The speech was a stirring one, and created an impression; others spoke a few words to the pig, and it was then taken to one side and stabbed in the throat with a spear, after which the liver was taken out and examined. I should mention that a pig was also provided by the Madangs for our people (who were waiting to be invited to the house) for the same purpose. Having years before studied the beliefs of the natives with regard to divination by pigs' livers, I must say I was as anxious as any one to see the results.

I saw at a glance that the omen was good, and seized the opportunity of making the most of it. I quickly called the people's attention to all the good points before they had given their own opinion, and at once saw that their interpretation was the same as my own, and that they were somewhat surprised to find it so.

I then retired to the camp of Tama Bulan and my own people, whom I found had not got nearly such a good liver from their pig, so it was decided to ask for another, which was readily given, and, this pig proving to be exceptionally good, every one was satisfied. Then two men messengers were sent backwards and forwards to discuss the numbers of people killed on either side from time to time, and big gongs, shields, and weapons of all kinds changed hands as blood-money. When all had been settled, notice was given to our people that the Madangs were ready to receive them into their houses, and our people sent a message back that they were prepared to accept the invitation.

With the Kayan and Kenyah tribes, when enemies meet it is necessary to go through a sort of sham fight, called *Jawa*, so that both parties can, as it were, blow off steam; as it is very rough for a few minutes, it often happens that some people are badly hurt, and I was half afraid that such might be the case in the present instance. But the omen had been favourable, and the implicit belief in such omen goes far to prevent bad feeling. About midday, Tama Bulan and his followers, in full war-costume, announced their intention of moving by a tremendous roar, bursting into the war-cry, which was immediately answered by the people in the houses. The noise and excitement increased as our party neared the house, and guns with blank charges were fired. On came the Baram people, stamping, shouting, and waving their weapons in

defiance, the Madangs in the houses keeping up a continuous roar. When the Baram people first attempted to enter the house they were driven back, and a tremendous clashing of shields and weapons took place, the Madangs retreating further back into the house, stamping and making the most deafening noise. When the Baram people had all entered, the Madangs once more rushed at them, and for perhaps two minutes a rough-and-tumble fight continued, in which many got knocked about. No one received a cut, however, except one man who, running against a spear, was wounded in the thigh; but the affair was quickly settled by the payment of a pig and a small spear to the wounded person, so the ceremony may be said to have ended without a mishap.



MADANGS SHOOTING WITH THE KELEPUT (BLOWPIPE).

When quiet had been restored we all sat down, and *borak* (rice spirit) was produced, healths drunk, and speeches made, which occupied the rest of the day and continued far into the night, and during this entertainment cooked food was brought out and given to the visitors in the long verandah, as, on first being received, visitors are not allowed to enter the rooms.

The next day we visited the other Madang villages, and saw many things of interest. I noticed a large wooden figure outside most of the houses, with numbers of knotted rattan strings tied to its neck, and upon inquiry was told that the figure represented "Balli Attap," a god who prevented all kinds of evil from falling on them; that each rattan string corresponded to a family, and each knot to an individual. The neck of the figure was covered with these strings. I also saw a man

making earthenware pots by a curious process that was new to me. He did not use a wheel, but built up the clay gradually, using a curved stone on the inside and a flat piece of wood slightly grooved on the outside, by means of which he produced a design somewhat resembling network, the clay being afterwards burnt in a charcoal furnace blown with bellows made of bamboo. The largest pots that came from his hands would hold perhaps a gallon, and the smallest about a quarter of a pint.

In the evening the Madangs prepared a feast for all present, and afterwards a great deal of rice spirit was drunk, and some very good speeches made, their former troubles and differences being explained and discussed in the most open manner. Each chief spoke in turn, and con-



WARRIORS PREPARED FOR THE JAWA.

cluded by offering a drink to another, and singing a few lines of eulogy—the whole assembly joining in a very impressive chorus at the end of each line, and ending up with a tremendous roar as the bamboo cup was emptied.

The following day the Madangs collected a quantity of rubber for their first payment of tribute to the government, namely, two dollars per family, and as we had no means of weighing it except by guesswork, it was decided that Tama Bulan and two Madang headmen should act as assessors, and decide whether the piece of rubber brought by each person was sufficiently large to produce two dollars. It took these men the whole day to receive it all, and much counting was done on the fingers and toes. I would mention that their method of counting

is as follows: Some one mentions the names of the heads of all the families in each house, and as he does so a man tells each name off on his toes; when five have been counted, another man catches hold of the counted foot, and so on until his feet and hands have all been told off, when another man is used, and this continues until all the names are mentioned, when they halt to see how many men have been used, and where the last one ended. The people whose business it is to hold the feet and hands cling on to them in the most determined manner until the total number has been checked, and as all concerned take the matter most seriously, it is rather a comical sight when they have to count forty or fifty.

In the afternoon, the atmosphere being clear, I climbed to the top of a small hill, about 400 feet, and was able to take a number of bearings of the mountains visible, and fix the position of many of which I had taken the bearings from the head of the Tinjar river some years before. I give the position of several mountains, varying from 4000 to 8000 feet, which have been hitherto unknown. The highest mountain in this district is Mount Tebang, whose summit is 10,000 feet above sea-level. The range forms the watershed between Dutch territory and Sarawak, the sources of the Rejang and Baram rivers being on the Sarawak side, and those of the Batang—Kayan, and Mahakam—a large tributary of the Koti—on the Dutch side. In the Madang district are two isolated limestone mountains, Batu Puteh and Batu Maloi. The following are the principal peaks in the Madang and Kalabit districts, most of which can be seen from the Lata hills.

	Height.	Long.	Lat.
	Feet.		
Saat	5,000	114° 54' 0"	3° 8' 0"
Kanawang	5,000	114° 50' 0"	3° 9' 0"
Bura	6,000	114° 58' 0"	3° 7' 30"
Boding	3,000	115° 11' 0"	3° 9' 0"
Modong Bureh	5,000	115° 3' 30"	3° 6' 0"
Tepar	3,000	115° 8' 0"	3° 7' 30"
Bela Lawing	7,000	115° 31' 0"	3° 16' 0"
Batu Liehu	8,000	115° 39' 0"	3° 21' 0"
Batu Tujo	4,000	115° 2' 30"	3° 20' 0"
Batu Siman	5,000	115° 5' 0"	3° 20' 0"
Budok Batu	2,000	115° 27' 0"	3° 22' 30"
Budok Bayang	4,000	115° 30' 0"	3° 26' 0"
Budok Wa	3,000	115° 32' 0"	3° 28' 0"

The country between the Madang and the Kalabit districts to the north, except for an occasional small hill, is very flat, and I am told by the natives that part of it is a large swamp extending for about twenty miles to the north and north-east. The Kalabit district is a plateau that has a general elevation between 2000 and 3000 feet. Of this the western half is an uninhabited swamp, while the eastern half is

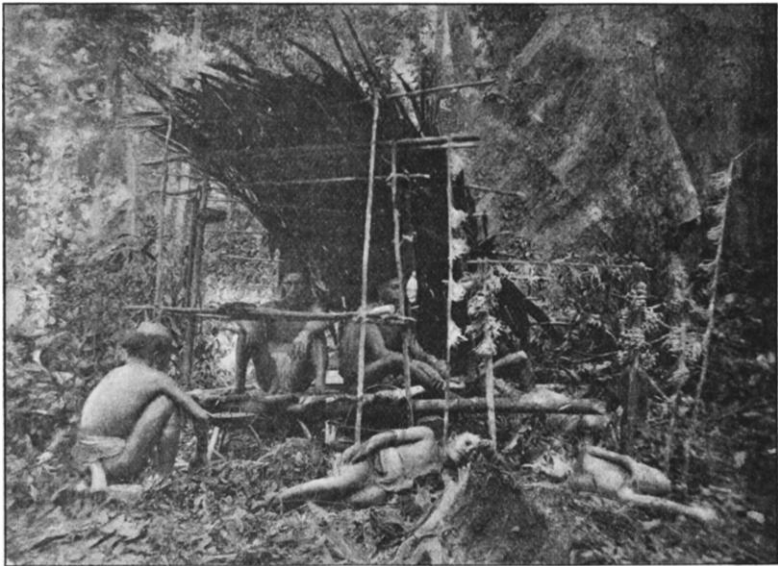
flat and very fertile and the natives cultivate the whole of it. By means of a clever system of irrigation they obtain two crops in the year, an agricultural feat which no other natives of Sarawak accomplish.

At the level of the Lata river at Long Purau, I found we were 1876 feet above the sea. The air was fresh and pleasant, and, judging from the appearance of the people, the locality possesses a healthy climate. The temperature, though differing but very little from that of the low country during the day, dropped considerably at night, and was, we found at times, quite cold.

On taking our departure from the Madang country, most of the women presented us with a small quantity of rice for food on our homeward journey, but as each little lot was emptied into a large basket, the giver took back a few grains so as not to offend the omen birds, who had bestowed on them a bounteous harvest, by giving the whole away to strangers. Presents of considerable value were given on both sides, and all parted the best of friends. The two principal Madang chiefs accompanied us for a day's journey, their followers carrying the whole of our baggage. On parting I promised to allow a similar peace-making at Claudetown, at which most of the Baram chiefs would be present, and I am glad to say was able to arrange for it to take place and to secure an assemblage of six thousand people, during the time that Dr. Haddon and the members of the Cambridge Expedition were staying with me. The ceremonies of the peace-makings, though of course on a much larger scale, were similar to that I have described at the chief Madang village. At one of these meetings Saba Irang of the Madangs made a very eloquent and remarkable speech, in which he explained that his people had for years been compelled to fight on all sides in order to hold their own, but were now fully able to appreciate the benefits of peace under the Sarawak Government, and of friendly intercourse and trade with the peoples of the Baram and surrounding districts—a condition of things which he would do all in his power to strengthen. As a matter of history, the Madangs have from time immemorial been at enmity with the people of the upper waters of the Rejang, Baram, and the Batang Kayan, but now the Sarawak flag flies in the Madang country, and over two hundred Malay traders have gone there during the past year. Large quantities of jungle produce are being worked by the Madangs, and these very people, once so hostile to all, are now being used as a means to bring about friendly relations between our people and the border tribes.

It is only a few months ago that I received a message from Tama Kuling, the principal chief of one of the most important border tribes of the Batang Kayan, accompanied by a clod of earth, symbolizing the identity of his people with the races of the Baram. The message he sent (translated literally) was to the effect that his people were really the same as the Baram people, and that they were on the same soil.

They had been divided and made enemies on account of mistakes and the foolishness of unimportant headmen, but he was anxious to meet the Baram people and glad to make peace. He intended visiting us at Claudetown, and if the Baram people wished to trade with the inhabitants of his district, he would be responsible for the former's safety during their sojourn in the Batang Kayan. This is a practical demonstration of the benefits accruing to trade by the settlement of blood-feuds, and it was to endeavour to bring peace to communities whose normal condition was one of mutual hostility, that the journey I have attempted to describe was chiefly undertaken. It was a great source of satisfaction to me to have so thoroughly succeeded in my object, but



P'UNANS AT HOME.

another pleasure—perhaps the greatest pleasure one experiences in travelling among barbaric peoples—was to have seen and met an interesting race in their natural state, using their home-made implements and weapons, and wearing their simple clothing of bark, before the appliances of modern manufacture and the cotton goods of England and Germany have penetrated their solitudes, and in a sense vulgarized by removing them, if by only one step, from their unaffected primitive condition. It was also a great gratification to behold for the first time a new and unknown country, with all its wealth of natural marvels and scenic beauties, of which even an eloquently written and detailed description would convey but a very inadequate idea.

The fauna of the Baram district is exceedingly rich in all branches,

the most important mammals being the maias or orang-utan, the lemurs, cats, otters, bear, porcupines, the rhinoceros, wild pigs, wild cattle, deer, and *pangolin*. Among small mammals are found bats, shrews, rats, and squirrels; while round the coast one meets with dolphins, porpoises, and dugongs. Of birds, Baram has nearly five hundred species, including many kinds of thrushes, flycatchers, swifts, cuckoos, barbets, hawks, owls, pigeons, pheasants, and herons.

The rivers abound with varieties of fish, and tortoises and crocodiles—the latter in undesirable profusion, in spite of the rewards (36 cents per foot measurement) offered by Government for their capture and extermination—are to be met with in their waters. Over seventy species of snakes exist in the Baram district, but notwithstanding the fact that several of the varieties are poisonous, it is a rare event to hear of fatalities as the result of snake-bite. In the jungle—which teems with insect-life, including many beautiful examples of mimicry—we find orchids of the most exquisite description, gorgeous rhododendrons, and the most lovely ferns and pitcher plants.

It may perhaps be of interest to give some figures with regard to the trade of Sarawak, for, though in themselves of less attraction than some other details I have touched upon, they assist in building up a conception of the country. In 1888 the value of the total trade of the country amounted to \$3,957,750, and in 1898 to \$9,174,893, an increase of \$5,217,148 in the ten years, or equal to over 130 per cent.

The figures for the principal articles of export in 1898 were as follows:—

	Quantity.					Value.	
Gutta	3,745 pikuls*	...	\$275,738
Rubber	3,725 „	...	367,014
Rattans	35,699 „	...	189,291
Gambier	30,845 „	...	171,346
Pepper	18,890 „	...	736,760
Sago flour	251,200 „	...	756,275

The total imports amounted to \$4,488,497. The revenue of the country in 1898 was \$638,188.68, and the expenditure \$543,506.56, leaving a surplus of \$94,682.12. The revenue increased over that of the previous year by \$73,399.35, and the expenditure by \$39,405.88.

Large works have recently been erected by the Borneo Company at Bau for the purpose of working gold by the cyanide process, the value of the output averaging about £200 a day. Antimony and cinnabar are also worked with excellent results. A factory for the purpose of making cutch—a dye produced from the bark of various mangrove trees, which abound in almost all the river deltas, has of late been very successful, and supplies added proof of the valuable and practically inexhaustible

* A pikul equals 133½ lbs.

resources of the jungle, and the rewards that await all who know how to turn them to account. The natural resources of Sarawak are enormous, and, provided the present system of government continues, are alone sufficient to ensure the future prosperity of the country. For the present the jungle furnishes the natives with all the raw produce necessary for their domestic needs and for purposes of trade, with the minimum amount of labour. But as the more accessible tracts and districts are worked out, the natives will be compelled to leave their beaten paths and penetrate into the denser wilderness, and, by making new tracks and clearings at a greater distance than heretofore from the established coastal and riverine settlements, will automatically open up the country and greatly facilitate the work of the prospector. Judging from known indications, this process is likely to result in important discoveries of new sources of mineral wealth, for the density of the virgin forest covering the greater portion of the country has up to the present time prevented anything like exhaustive investigation.

The two good coal-mines at present being worked in Sarawak are important factors in its industrial welfare. They add to its political value by enabling the territory to become a maritime coaling-base, and will greatly assist in the working of minerals and in the various processes to which most crude products have now to be subjected.

Another benefit accruing from the opening up of the jungle and the gradual exhaustion of jungle produce, will be the greater attention given to the magnificent timber with which the country abounds. Some of the most rare and valuable woods in use at the present day grow in profusion in Sarawak, but, owing to the causes lightly touched on above, have not received due prominence, though the present exportation of timber from the Rejang district is considerable, and is increasing year by year. Three facts with regard to the industrial population are attracting attention at the present time, one being the gradual but certain worsting of the Malay in trade by the Chinaman; secondly, the rapid extension of the Dayak northwards to the Baram and Limbang rivers; thirdly, the immigration of natives of Hindustan.

Unless present indications are falsified, it would seem that in time the Malay is bound to disappear as a factor in the industrial life of the community. In all directions we see the industrious, sharp-witted Chinese merchant displacing the Malay from his former avenues of trade, and while emphasizing the many intellectual and amiable qualities of the Sarawak Malay, it must be admitted that his ingrained dislike for sustained effort in work of any kind, his want of energy and foresight, and his tendency to live a life of indolence, and to rest satisfied on inherited or too easily earned gains, are the chief causes of his rapidly decreasing prosperity.

The present system of Government, which may be said to have taken for its text Sir James Brooke's famous utterance, "We aim at the

development of native countries through native agency," viewed from that standpoint, has, I consider, more than amply justified its existence.

The various races of Sarawak are for the most part gifted with considerable intelligence, and it did not take them long to discover that the main object of the State's solicitude was, not the commercial exploitation of the country or the amassing of colossal revenues, but the preservation and well-being of the people themselves, and that coercion was a dead letter for all save the disturbers of the general peace and the enemies of the commonweal. Since that belief was firmly established, native public opinion has always been on the side of the Government, and it is on the moral force of that public opinion that the whole framework of the system rests. So appreciative are the natives generally of the peace and security enjoyed by the Rajah's subjects, that many of the border tribes, and even tribes definitely beyond the confines of the territory, have from time to time petitioned to be allowed to take up their abode under his flag.

It is the Government policy—once a respect for law and order is instilled into the native's mind—to interfere with him as little as possible as regards his (harmless) customs, habits, and beliefs, and no attempt is made to foist Western civilization on a people for whose needs it is utterly unsuited.

As compared with more recently founded states and colonies, Sarawak may appear to make but slow progress, both in regard to material prosperity and what many regard as the desirable advancement of the natives. It should be emphasized, as regards the former, that no comparison is just that is instituted between Sarawak and any territory in which the well-being and preservation of the native inhabitants is not made the first and foremost consideration; with regard to the latter, it comes to a comparison of different points of view as to what *does* constitute desirable advancement.

As to the wisdom of the point of view obtaining in Sarawak, the existence of the administration furnishes conclusive evidence, for it is a government of the people for the people by Europeans, supported by public opinion; such a system would be impossible, however, were it not for the firmly established prestige of the Europeans, and this, and the fact that the confidence of the natives has been won and retained by an unbroken record of promises fulfilled and benefits bestowed, are the secrets of this administration.

Very little is known about the geology of the mountain ranges of the interior of Borneo, but it appears as if most of these mountain chains and their spurs are composed of crystalline schists; these are the rocks usually spoken of as "old slate formations," which are probably of Devonian age, but some may be Archæan, while others may belong to those Lower Carboniferous rocks that are called the culm-measures by

some authors. Associated with these are igneous rocks, mainly granites and diorites, and also gabbros and serpentines, but these latter appear to belong chiefly to the spurs. The older crystalline rocks are very generally gold-bearing.

It is probable that the great amphitheatre of sandstone mountains that commences with the Pamabo range and forms the southern watershed of the Baram basin—to divide at Mount Kanawang into the Kalulong and Dulit ranges—is composed of Palæozoic sandstones, probably of Lower Carboniferous age. Granite and basalt occur on the southern flanks of Dulit, and antimony has recently been found there.

The mountains north of this sandstone range are most probably



DAYAK GUTTA HUNTERS.

carboniferous limestone; their culminating point being Mount Mulu, which attains a height of 9000 feet. The Mulu range is somewhat crescentic in its general trend, being open towards the east. Beyond the Pamabo range are the mountainous outliers of Asi, Batu Murud, and Salaam. The isolated mountains in the Madang country, Batu Puteh and Batu Maloi, are connected with the same system. The intermediate mountain ridge which culminates in Mount Tamuduk (4000 feet) is of sandstone formation, as it has the characteristic even skyline of the sandstone mountains of these parts, so different from the peaked contour of the limestone mountains.

The hard blue carboniferous limestone contains characteristic fossils

in scattered localities, and occasional seams of coal. The sandstones also contain coal in places, as, for example, in Mount Dulit. The rocks are traversed by numerous calcite veins and by ore-bearing veins, which generally contain antimony. Slates are also interbedded with the limestone, and perhaps also with the sandstones.

No secondary formations have been described from Sarawak, though Jurassic and Cretaceous rocks occur in Dutch Borneo.

To the north again of the carboniferous limestone mountains are sandstone hills, which range up to 1000 feet in height. These are Tertiary rocks, which Verbeek now regards as belonging to the Eocene. Where they occur in Borneo they are usually of a white or yellow colour, and contain flakes of a silvery white mica; the cement is argillaceous. They are probably derived from mica-schists. Alternating with them are bands of shale, carbonaceous shale and coal. In many places they are pierced by intrusions of basalts and hornblende-augiteandesites, accompanied with deposits of tuffs and volcanic agglomerates.

These coal-bearing Tertiary sandstones extend north of Mount Mulu through the Matauei and Ladan ranges as far as Mount Pisang on the coast, beyond Brunei, where coal is now profitably worked.

On the Madalam and elsewhere in the basin of the Limbang are limestone rocks, which must be regarded as Tertiary coral reefs.

Towards the plains the Tertiary hills diminish in size and, speaking generally, the limestones are succeeded by bluish-grey clays and shales and marls; the percentage of lime in these beds increases as a whole from below, upwards. The marl beds are regarded by Verbeek as Oligocene, and as equivalent to the Nari group of India.

The marls are succeeded by late Miocene limestones; these are hard rocks, whitish or bluish in colour, usually containing numerous fossils, especially nummulites.

The Quaternary beds constitute the great coastal plain, and were deposited during the last partial submergence of the island. In part they form flat districts, in part gently undulating plains.

The highest bed consists of a somewhat sandy clay, which becomes more sandy below, the sand grains at the same time increasing in size. The lower conglomerates consist mainly of quartz pebbles, but also of pebbles of different igneous rocks; they also contain pebbles of the Tertiary strata, such as sandstones and coral limestone. Between these pebbles there is more or less of a clayey earth. The pebbly bed may be indurated by a very hard siliceous cement. The bedding is horizontal, or, at the border of the hill-land, only slightly inclined.

The river deposits are composed of a dark-brown, black, or bluish clay, which is rich in humus in its upper layers; in the lower layers it is of a harder consistency. It is often mixed with or traversed by seams of sand, the latter, as a rule, occurring on a lower level. The

boundary with the older Quaternary cannot be sharply drawn. The alluvium on the Baram extends for nearly 100 miles from the coast.

Baram Point is rapidly extending seawards owing to the alluvium and drift-wood brought down the river, and the sand heaped up by sea. During the last fifteen years half a mile has been added by these combined agencies. For a distance of about 8 miles from their mouths most of the river-banks in the Baram district are composed of white sea-sand.

Before the reading of the paper, the PRESIDENT said : The subject before you this evening is a journey into the very centre of Borneo, a mountainous country that has never before been explored. It is not necessary to introduce Mr. Hose to you, as he gave us a very interesting paper I think in 1893, which many of you will remember. Major Darwin, the secretary, has kindly undertaken to read the paper for Mr. Hose.

After the reading of the paper, the following discussion took place :—

Prof. HADDON : It was exactly a year ago that my colleagues and myself had the pleasure of being the guests of Mr. Hose. You have seen the photographs of the country and the people, but I think it is only fair I should say something that Mr. Hose could not very well say.

It was sixty years ago that Sir James Brooke took over Sarawak, which was then a small territory, handed over to him by the Sultan of Brunei. Since then the Raj has grown, and it has grown, not by acts of aggression on the part of Rajah Brooke and his successor, Sir Charles Brooke, but by a perfectly natural growth : as Mr. Hose has pointed out, the natives appreciate such a government as that Rajah Brooke offers them. When Sir James Brooke made it his business to administer the country, it was for the natives and by the natives, and it is by that equitable system of government that the country has grown practically without bloodshed and without ill-feeling on the part of the natives. The native chiefs of the Sultanate of Brunei have time after time asked Mr. Hose to persuade the Rajah to take over their territory, and even the Sultan of Brunei himself asked Mr. Hose to help him in suppressing local rebellion ; so that the last native state now in Borneo is, from the Sultan downward, asking the Rajah of Sarawak to administer them. Furthermore, the people on the Dutch side have seen how the people of Baram can live in peace and safety, and how they can trade securely and not be cheated by the trader—that is, not unduly cheated—and these people, really technically Dutch, are coming over the border in order to put themselves under the administration of Mr. Hose. Well, I think that is sufficient testimony from the native point of view. The natives themselves, when they first come in under the Government, never refuse to pay the tax, which is very slight—a couple of dollars. It takes a man a very short time to get enough jungle produce to exchange for a couple of dollars. They prefer to pay the tax, because then they can feel they are citizens of the Raj, they really do belong to the Government, and barbarians are by no means fools. They know well that by paying two dollars a year they will have peace, be able to trade, and have all the advantages of a settled Government, and they feel it is really a good investment for their money.

The only things the Government puts down with a firm hand are murder and head-hunting and theft—that is practically all ; the natives may retain all their own customs, their religion is not tampered with. I may state that in the whole of Baram, 10,000 square miles, there are only two white men—one is Mr. Hose, and

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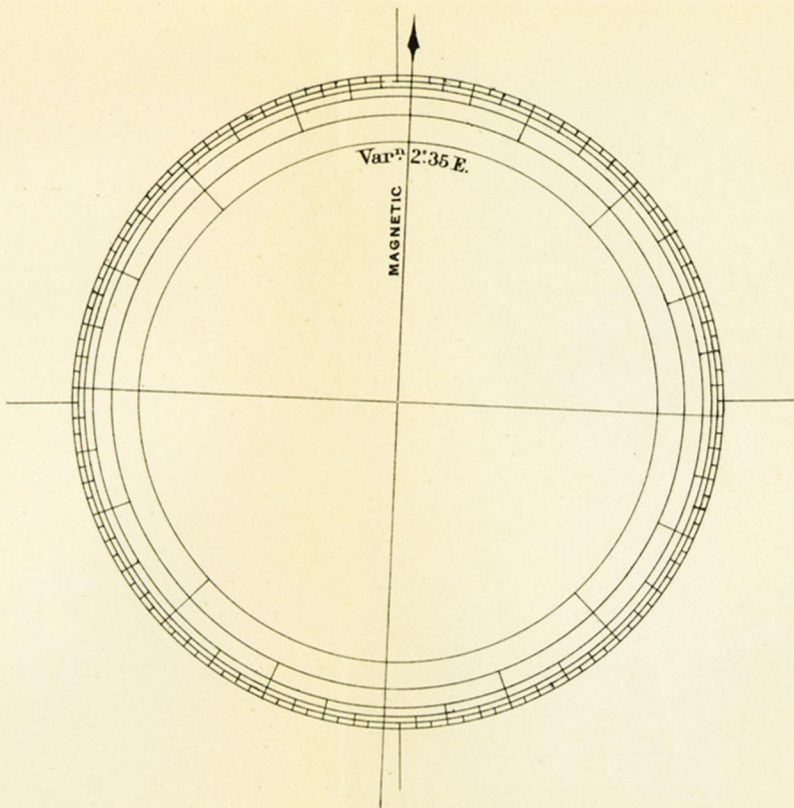
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20'



C H I N A

S E A

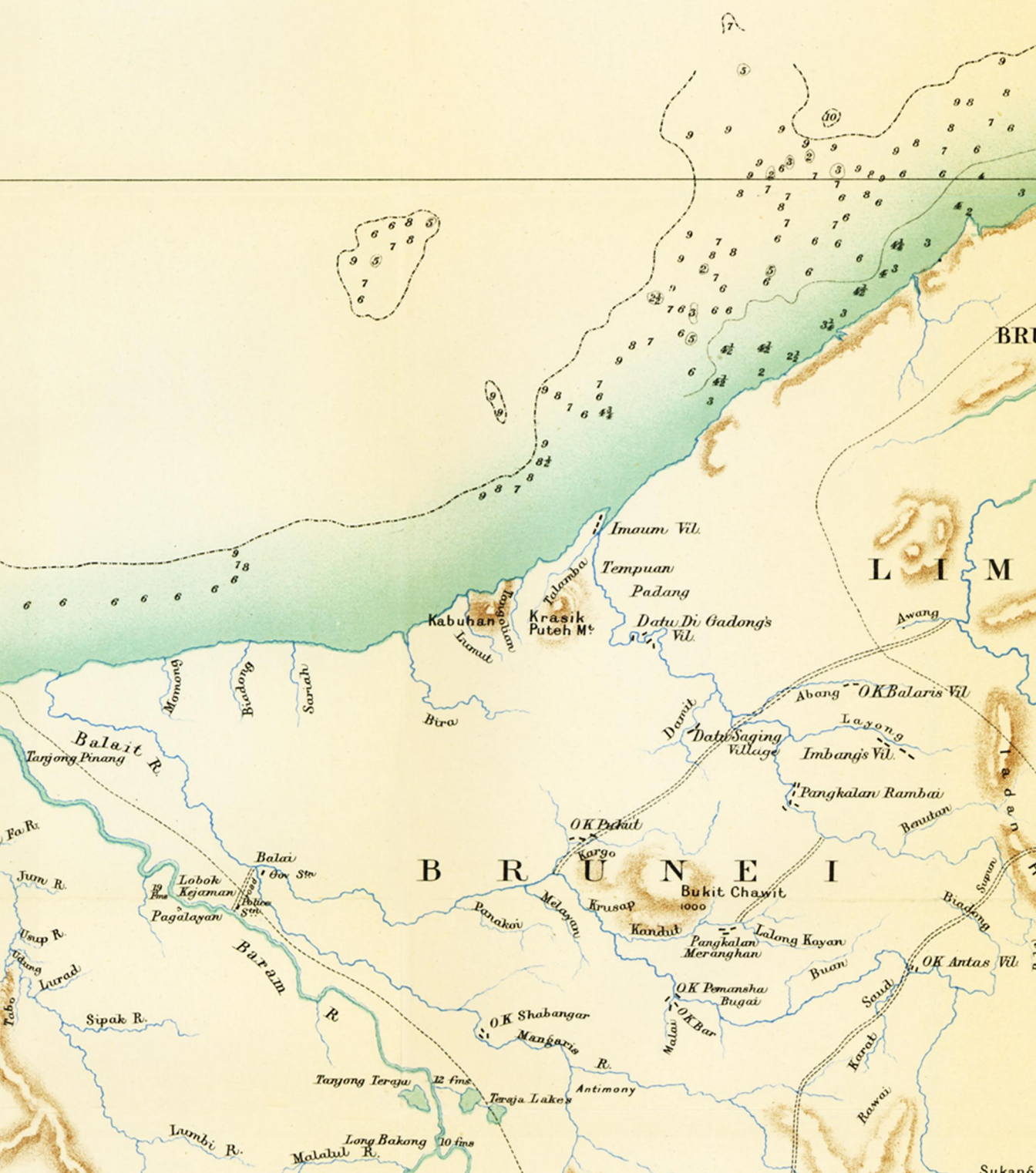
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50'



50'

115

30'



BORNEO

Scale of Miles

0 50 100 150 200

CHINA

SEA



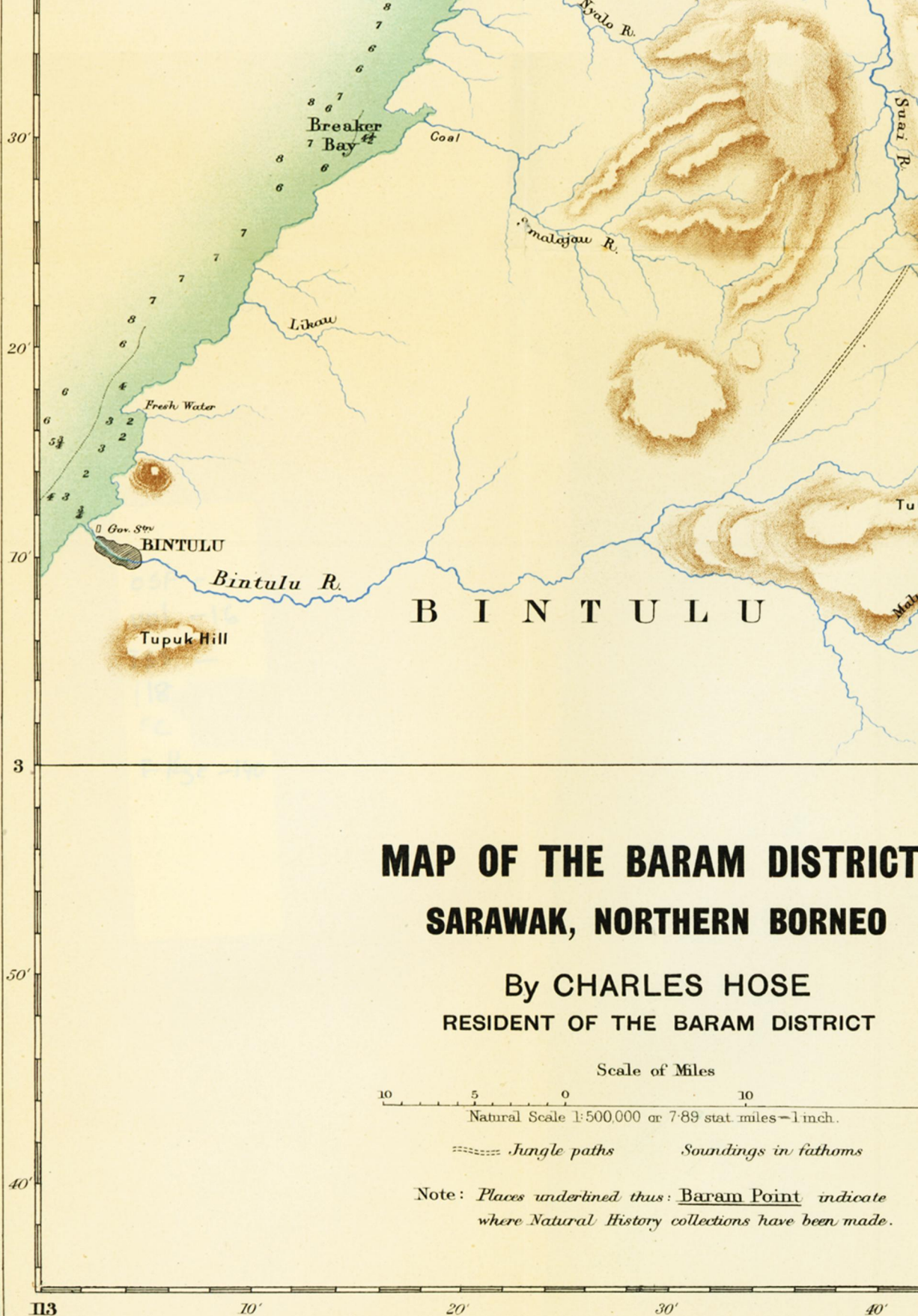












MAP OF THE BARAM DISTRICT SARAWAK, NORTHERN BORNEO

By CHARLES HOSE
RESIDENT OF THE BARAM DISTRICT

Scale of Miles
10 5 0 10
Natural Scale 1:500,000 or 7.89 stat miles = 1 inch.

----- Jungle paths ~~~~~ Soundings in fathoms

Note: Places underlined thus: Baram Point indicate where Natural History collections have been made.



BARAM DISTRICT, NORTHERN BORNEO

ES HOSE

BARAM DISTRICT

Miles

10 20
7.89 stat miles = 1 inch.

Soundings in fathoms

*: Baram Point indicate
collections have been made.*

