

Account of a Trip up the Pahang, Tembeling, and Tahan Rivers, and an Attempt to Reach Gunong Tahan.

OUR party, composed of Messrs. H. N. RIDLEY, Director of the Botanic Gardens, Singapore, W. DAVISON, Superintendent of the Raffles Museum, and Lieut. H. J. KELSALL, R.A., with a staff of native plant-collectors and bird-skinners, left Singapore at 3 p.m. on 23rd June, 1891, in the s.s. *Glanggi*, and arrived at Kuala Pahang about 10 a.m. on the 24th.

Leaving our men to look after the baggage we proceeded to Pekan in a steam-launch belonging to Mr. HOLE, of Pekan, that gentleman having kindly offered to take us with him, as he was returning to Pekan at once.

Arrived there, we proceeded at once to the Residency; Mr. HUGH CLIFFORD, the Acting Resident having made arrangements for our accommodation.

We found that Mr. HOLE had, in accordance with previous arrangement, despatched a boat-load of rice and other stores, with 25 coolies, to await our arrival at Kuala Tembeling. So far all was satisfactory, but we found that there was some difficulty in getting a supply of small boats, which would be necessary above Temerloh (Kuala Semantan), owing to the shallowness of the river—the season being an exceptionally dry one.

We went all round Pekan endeavouring to buy three or four boats suitable to our needs, but in vain, there were none

for sale. In this difficulty Mr. HUGH CLIFFORD came to our assistance and placed at our disposal a large native built boat. His head boatman, after some little difficulty, succeeded in getting together a gang of 25 coolies, amongst whom were two Dyak lads, one of whom turned out a most useful hand in the jungle, and set them to work to caulk and clean the boats which had not been in use for some time, and consequently required overhauling.

All this delayed us in Pekan till the 28th, but the time was not altogether wasted, as we did some collecting in the immediate neighbourhood.

On the North side of river, which is here over half-a-mile wide, are extensive sandy plains interspersed with patches of heavy jungle. On the sandy portions, the trees are all much stunted and grow in small clumps or coppices, giving quite a distinctive appearance to the landscape.

Portions of these sandy tracts were riddled with the burrows of the bee-eaters (*Merops philippinus*), at the extremity of which they lay their eggs. These burrows are excavated in the hard ground and slope downwards for the first foot or so, then run more or less horizontally. Among other birds noticed were the Brahmany Kite (*Haliastur indus*), which appears to be the common kite of the southern portion of Malaya, the "Burra Burra" (*Trachycomus ochrocephalus*), one of the best songsters amongst Malayan birds; most of the common Kingfishers (the Raja Udang of the Malays), and some rarer ones (*Halcyon coromanda* and *Alcedo meninting*), a few woodpeckers and several swifts. Butterflies were not plentiful, the most noteworthy being perhaps the beautiful *Parthenes gambrisius*.

Of mammals, the only ones noticed were the common mangrove monkey, Kra of the Malays (*Macacus cynomolgus*), and several of the common squirrels (*Sciurus notatus* and *Sciurus tenuis*). Of reptiles, the large Monitor (*Hydrosaurus salvator*) and the beautiful many-coloured sand lizard.

On the 28th, everything being at last ready and being provided with letters from Mr. CLIFFORD to the Sultan asking him to render us any assistance in his power in the way of

providing guides, we started up-stream about 11 a.m., being obliged to wait for night tide to get out into the main stream, Pekan being situated on a sort of loop. Mr. TOWNSON, a young Australian, accompanied us. By 5 p.m. we had reached Tanjong Bedang, and went ashore for a short time. Here we saw some peafowl, which are very plentiful all along this part of the river, and large numbers of the ground dove "Terkuku" (*Turtur tigrina*), which are exceedingly good eating, also specimens of the Burmese lapwing (*Lobivanellus atronuchalis*), and the small Malayan hornbill (*Authracoceros convexus*). At dusk we started again meaning to travel all night, but owing to our constantly running on sand banks, with which the river abounds, we made but little progress. Our means of progression was by means of polles or *gallahs*, eight men poling at a time, four at each side.

29th June. We went ashore for an hour or two in the morning to collect but did not get anything of note; a couple of specimens of the Eastern little Tern (*Sterna sinensis*) were shot.

The general character of the country bordering the river up as far as Kuala Tembeling is pretty much the same. Along the river bank is a strip of jungle, 100 to 200 yards wide, with frequent small villages and plantations of coco-nut, banana, and mangosteen trees. Inside of this lies a tract of open grass or swampy land, varying from 100 yards to half-a-mile in width, and beyond this comes the jungle proper. The tract of open land is in places ploughed and cultivated by the natives, who use rude wooden ploughs, which, however, do the work required of them fairly well. The draught animal is the water-buffalo (*Bos bubalus*), of which there are large herds in a semi-domesticated condition. We continued travelling by night, and made better progress than before.

30th June. We heard a Wau Wau in the early morning, the first we had noticed. We made good progress during the day, and got as far as Kuala Luit, about 50 miles from Pekan. Here we went ashore for a short time, and got specimens of *Tupaia javanica*; *Cymborrhynchus macrorrhynchus* the Rouge-et-noir Broadbill, and the Malayan Falconet

(*Microhierax fringillarius*), in addition to which were noted an osprey (*Pandion haliaetus*), a night jar (*Lyncornis Temminckii*) and a jay (*Platysmurus leucopterus*). We started again at dark. and travelled during the night.

1st July. We continued steadily up-stream all day, and towards evening went ashore to collect, but got very little, we however shot a couple of hornbills (*Anthracoceros convexus*), which were very plentiful, and which are excellent eating. They are best stewed and have rich and pleasant though rather strong flavour. We always looked upon them as a great addition to our bill of fare. We travelled all night as usual, and next day, 2nd July, reached Kuala Berar about noon. Just below Kuala Berar the river was divided into two by a long sandbank, and unfortunately we took the wrong channel, and when we got to the upper end we found that the water was too shallow to allow of our boat, which did not draw more than about two feet of water, passing, so we were obliged to return down stream and follow up the other bank of the river, this time with success. This mistake delayed us more than an hour. At Kuala Berar we stopped several hours, as we wished, if possible to engage a few more men, but in this we were unsuccessful. Here we noticed in addition to birds already mentioned, the small red Kingfisher (*Ceyx rufidorsa*), the green Broadbill (*Calyptomena viridis*), the little brown Barbet (*Calorhamphus Hayi*) and the not common *Anthothreptes hypogrammica*. At 3 p.m. we started again, and at 5 p.m. had another halt at Kampong Pamum to bathe and let the men have their evening meal. At 6 p.m. we again started and got along well for some time, the river being much narrower and consequently less encumbered with sandbanks. The little tern was still plentiful, flying up and down the river. About 7 o'clock a very heavy thunderstorm came on and it became so dark that we obliged to tie up to the bank, as we could not see to proceed. The lightning was magnificent, like rivers of liquid fire running right across the sky. There was very little thunder and scarcely any rain. It was some hours before we could proceed and we did not pass Kuala Triang till dawn.

3rd July. As we knew that we should be unable to get much beyond Temerloh in our large boat, we began to look out for smaller ones and landing at Pulau Guai, where there is a straggling village, we found, after some search, one sampan which the owners, after some bargaining, let us have for \$11. We shot a few birds here but nothing unusual. Taking our newly acquired boat in tow, we proceeded up-stream still looking out for boats, and presently we passed another which looked suitable but it was some time before we could find the owner who was at Mosque, it being Friday, but eventually, after some hours' delay, we agreed to give \$15 for the boat and went away with it in tow. A nest of the Racket-tailed Drongo was noticed in a tree near the bank of the river. An unsuccessful attempt, owing to its being at the end of a thin branch, was made to get it. The nest is a very frail structure being a cup of open basket-work of grass stems about as large as an ordinary large breakfast cup suspended below the branch. It contained young birds and the parents resented the attempted robbery most pluckily, flying round the head of the intruder and uttering shrill screams. We halted for the night at Pualau Jelam where we saw some teal (*Dendrocygna javanica*). The night was so dark that we could not travel. About 10 a.m. on the 4th we reached Temerloh where, finding that it was impossible to get the big boat any further, we stayed the whole of that day and the next trying to get boats which, owing to the demand for them by the miners in the Ulu, were difficult to obtain. At last, however, and after a great deal of bargaining we got three of a suitable size at a fairly reasonable price.

The night before our arrival a buffalo calf had been killed by a tiger about three miles from Temerloh and the following night Mr. OWEN, the District Officer, accompanied by one of our party, sat up for some hours over the hill in the hopes that the tiger would return, but without success. The pretty striped squirrel called Tupai B'lang (*Sciurus Rafflesii*) was here very plentiful. On the 6th July, having transferred all our baggage to the small boats, seven in number, including the two small sampans we had brought from Pekan, we got under,

way about 10.30 a.m. and went on steadily till 6 p.m. when we halted for the night at Tanjong Doyang, camping on a sandbank with no shelter but our mosquito curtains which we found sufficient to keep out the heavy dew. A specimen of *Sterna javanica* was seen here. Next morning (7th July) we spent an hour or two collecting before starting and got the following birds amongst others, *Drymocataphus nigricapitatus*; a brown Babbler (*Timalea nigricollis*); one of the beautiful yellow crested Woodpeckers (*Gecinus chlorolophus*); and the Malayan Falconet (*Microhierax fringillarus*). Starting at 9.30 a. m. we went on steadily till 6 p. m. when we halted and camped on a large sandbank at Pulau Changai. Here we found great tracks of elephant and crocodile on the sand and heard the peculiar cry of the Argus Pheasant, *Burong Kuang* of the Malays.

On the morning of the 8th, we went out collecting, but saw nothing of note but the large Horn-bill (*Buceros rhinoceros*), of which, however, we could not obtain specimens as they kept in the tops of the tallest trees.

During the day, the Semantan Hills were conspicuous to the West and also some limestone hills to the East and in some places the river became much narrower and deeper, flowing between rocky banks.

At 4.30 p. m. we halted at Tanjong Antan where there was a good sandbank. Here we decided to camp as it was doubtful if we would find another sandbank, it being very difficult to camp elsewhere especially where the river banks are steep. From our camp we had a fine view of the Semantan Hills over which the sun set with a fine after-glow of purple and gold.

Next morning we found tracks of elephant and obtained a few birds including a specimen of *Haliæetus plumbeus*, the rare lesser sea-eagle. Several Wauwaus were also heard. About 4.30 p. m. we reached Pulau Tawar, the place of residence of the Sultan of Pahang, and camped on a sandbank, a short distance above the village. The name is rather misleading as there is no island, the village being built along the left (East) bank of the river. The banks are here about 30 feet high and steep.

The Sultan informed us that very little was known of Gunong Tahan and was not sure if there was any one who could act as a guide. However he gave us a letter to Panglima Garang YUSUF at Kuala Tembeling in whose district he thought there was a man who had once been to Gunong Tahan, but of this he was not sure. He questioned us as to our objects in going into the jungle and took much interest in an 8-bore gun we had with us, being himself a bit of a sportsman and possessing several guns.

Next day (11th July), we got to within a few miles of Kuala Tembeling which we reached early on the 12th. There we found our 25 coolies and our stores safely deposited in the Police Station.

Being told here that Kuala Tahan was only one day's journey from this place, it was arranged that Mr. KELSALL and Mr. TOWNSON should go ahead with 16 men in three boats and as much of the stores as they could carry in addition, as far as Kuala Tahan, where they would form a camp. They started at 2 p.m. and at 4.30 p.m. reached the first rapids where all hands had to be turned on to each boat in turn to drag them up. At 6 p. m., they reached Kuala Kuang where they camped for the night.

The next day they got as far as Kampong Pulau Manis and on the 14th reached Kuala Tahan, after passing several bad rapids. The largest boat was stopped about $1\frac{1}{2}$ miles below Kuala Tahan by the river becoming very shallow. The other two, smaller ones, had therefore to make several trips to and fro, and by 7.30 p.m. all the baggage was safely deposited on a shingle bank about half-a-mile up the Tahan.

The Tahan is deep and still at its mouth, and is much impeded with fallen trees, and is dark and dismal looking. It, however, gets shallow very soon and opens out somewhat.

On the 16th, Mr. KELSALL returned with the three boats to Kuala Tembeling passing on the way Mr. RIDLEY who, having obtained some more small boats, and found Panglima Garang YUSUF had started on the 14th.

On the 16th, Messrs. DAVISON and KELSALL started with the remainder of the baggage, on the way they dynamited

several pools in the hopes of getting some fresh fish. Nothing was got out of any of them but one, but that made up for all the rest as 35 large fish were killed in it. On the 17th, at 3 p.m., they reached Kuala Tahan. A very curious fish was here obtained, about 3 feet long with a curious humped back and two rows of teeth on its tongue. Mr. RIDLEY, accompanied by Panglima Garang YUSUF, visited the Penghulu Raja near Kuala Tahan in the hopes of obtaining a guide or at least reliable information as to the route to Gunong Tahan. He, however, was either unwilling or unable to supply guides nor could any reliable information be obtained as to the district. Indeed it appeared doubtful whether any Malays had ever been nearer to the mountain than was sufficient to see it. A number go from time to time up the Tahan valley to collect guttah and rotans, but as they go in boats the distance that they travelled is very short and probably such information as they are possessed of with reference to the Gunong Tahan is derived from the Sakais.

Gunong Tahan, we were told, could be approached by two routes, one following the river Tahan, the other the river Ketchau. By the route the mountain can probably be approached nearer but it was said that on the W. or S. W. side, from which the Ketchau takes its rise, it is exceedingly precipitous and unpracticable, while by the Tahan route it is possible to ascend. The natives further state that there is a lake or swamp from which flow the rivers Tahan and Kelantan.

On the 19th, Mr. RIDLEY, accompanied by Mr. TOWNSON, started off with four boats and fourteen men up-stream and two men were sent back to Pekan in one of the boats with an order for more rice as we found we would require more, and owing to the previous bad season, rice was hardly procurable and very expensive in Pahang. Panglima Garang YUSUF tried to get us a guide but without success. He produced an old man who was supposed to know the way to Gunong Tahan and offered to guide us there for the modest sum of \$60. However as we discovered after some conversation with him that he had never been up to the mountain but had only seen

it from the river we dispensed with his services. Panglima Garang YUSUF also left us at this point.

At this camp we heard for the first time a most peculiar noise which we at first attributed to horn-bills but subsequently found to be produced by a large monkey, of what species we were unable to determine, as although many attempts were made to obtain specimens, we were entirely unsuccessful owing to the extreme wariness of the monkeys. The cry commenced with a series of deep sonorous barks which gradually becoming quicker and shriller ended in a sort of unearthly laugh and then commenced again. We frequently heard these monkeys again up the Tahan valley. Here we obtained our first specimens of the pretty little chestnut-backed Forktail (*Hydrocichla ruficapillus*), the bird which frequents all the small rocky mountain streams and of which a nest was subsequently obtained. The nest which is cup-shaped is constructed of moss and lined with dead leaves and built against the almost perpendicular face of a large rock overhanging the water. For three nights in succession a beautiful specimen of that glorious butterfly (*Zeuxidia aureola*) crossed the river just below our camp at dusk, but unfortunately we did not succeed in capturing it.

On the evening of the 21st, three of the boats which Mr. RIDLEY had taken up-stream returned and we found that he had only been able to reach a point about three miles up-stream at the mouth of the Sungei Tenok beyond which point the boats could not proceed owing to the bed of the stream being choked up with boulders. In fact it was with great difficulty that Mr. RIDLEY had succeeded in getting the boats up thus far as the stream was exceedingly shallow and much encumbered with fallen trees, and owing to having to stop to make a channel for the boats, moving stones to either side and cutting through fallen logs, it took the better part of two days to accomplish this distance.

On the 22nd the three boats were again started up-stream with a second load of rice and other stores and fifteen men. There was heavy rain during the evening and the river rose some six or eight feet during the night, nearly washing away

some of our stores which had been left on the shingle bank instead of being moved up to our store-house on the bank, we woke, however, just in time to save them.

On the 23rd Mr. KELSALL with three men to cut a path ascended a hill about six or seven hundred feet high about two miles N. E. of Kuala Tahan and from the top of a tree got a view of a high ranged mountain about 20 to 30 miles distant to the N. W. This was doubtless the Tahan range. It consisted of a long range running apparently N. E. and S. W. and culminating in several peaks, the highest of which was towards the N. E. end of the range and appeared to be from 8,000 to 10,000 feet high.

Mr. RIDLEY also ascended some of the hills in the neighbourhood of Kuala Tenok in the hopes of getting a view and saw a high range to the S. E. which he could not identify but owing to the density of the jungle he could not see any distance in other direction.

On the 24th, Messrs. DAVISON and KELSALL with the remaining stores proceeded to Kuala Tenok, the boats having returned the previous evening. Two men were left at Kuala Tahan in charge of stores we left behind and six coolies for whom there was no room in the boats. Owing to Mr. RIDLEY having cleared a passage for the boats and to the greater depth of water due to the heavy rain that had fallen they were able to accomplish in $4\frac{1}{2}$ hours what had taken Mr. RIDLEY almost two days in spite of the fact that the boats had to be dragged over shoals almost half the distance traversed.

Finding that it was impossible to get the boats any higher up the river, Mr. RIDLEY had commenced cutting a path along the right bank.

The jungle is very thick for the most part and contains a considerable number of valuable timber trees such as *Tam-penis*, *Kayu Minyak* and other dipterocarpous trees but the river is too shallow and full of rapids to allow of their being floated down in the usual way. There is also still a considerable quantity of getah percha (*Dichopsis gutta*), getah grip (*Willughbeia edulis*), besides jelutong and other gutta-producing trees of less value. Rotans of various species are also very abundant and there is much dammar.

On the 25th July, Mr. RIDLEY started off early with a few men to clear the path ahead. The rest of the men were employed most of the day making "*ambongs*" or back baskets in which to carry loads.

On the 26th, we all started early with as much baggage as the men could carry and marched about $2\frac{1}{2}$ miles along the path cleared by Mr. RIDLEY. This path was in parts very bad, being steep, narrow and along the face of a hill which made the progress of the coolies with baggage very slow, and it was well on in the afternoon before the distance was accomplished.

The river here is very beautiful flowing in a narrow valley between steep jungle-covered hills rising to a height of 800 to 1,000 feet. The stream itself is full of large boulders.

Camp was formed in a small, clear space in a small ravine near the river which was the only few yards of level ground we could find. The six men we had left at Kwala Tahan to follow overtook us at this camp (Camp No. 3) soon after dark. About 7.30 p.m. it commenced to rain heavily and continued for three or four hours. We had with us three large sheets of strong linen to serve as tents and a small tent of Mr. TOWNSON. Two of these we used, the native servants had one and one was used to cover up the stores at night. These tents we found were anything but waterproof and being open at the ends the rain used to blow in and we all frequently got very wet. The coolies made *pondoks* of palm leaves for themselves each night.

On the 27th, Messrs. RIDLEY, KELSALL and TOWNSON went forward with a few men cutting a path, while Mr. DAVISON spent the day exploring the neighbourhood of the camps for birds and insects but without much success. The bulk of the men were sent back to Kuala Tenok in charge of a Mandor to bring up more stores. During the day about two miles of path were cut along the river bank and Mr. RIDLEY and his party returned to camp at 5 p.m.

The comparative absence of bird life in these jungles is most remarkable. Sometimes one would spend the whole day in search of specimens and only obtain half a dozen or so.

This is partly owing to the denseness of the foliage which renders it very difficult to see any birds that are about, and also to the fact that except quite early in the morning and for a short time in the late afternoon most of the birds are quite silent.

On the 28th July, Mr. RIDLEY accompanied by Mr. TOWNSON with a small party of men went on cutting the path, while Messrs. DAVISON and KELSALL superintended the transport of the stores from the third camp to the fourth about a mile further on. This necessitated two journeys and occupied nearly the whole day, as the path was very bad. Mr. KELSALL saw a specimen of the rare striped civet cat (*Hemigale Hardwickii*) but not having a gun could not add it to our collections.

Our rice was made up in 50-lb. bags which is the very outside a man can carry in the jungle. The direction followed was North-westerly along the bank of the river and the path was a constant series of ascents and descents over the spurs of the hills between which the river flows, and was most difficult for men carrying loads. This was especially the case when small streams running into the Tahan had to be crossed. The banks of these streams are usually steep and after rain become muddy and exceedingly slippery and in many places it was only with the assistance of branches and roots that the men could get up and down with the loads. In spite of every effort being made any thing like rapid progress was impossible and it was only by the exercise of a very large amount of patience and tact that the men were got to do the amount of work they did. On one or two occasions some of the men threatened to run away and one mandor gave a great deal of trouble, not only would he not do any work himself but he did all in his power to make the other men discontented.

On the 29th, Mr. RIDLEY and Mr. TOWNSON went on as before with three or four men cutting a path while Mr. DAVIDSON and Mr. KELSALL looked after the remainder of the men, some of whom were sent back to Kuala Tenok to bring up more rice, and the rest were sent on after Mr.

RIDLEY with stores for several days so that he might form an advance camp and thus be saved the journey back to the main camp every day. A specimen of the handsome squirrel (*Sciurus insignis*) was obtained at this camp.

On the 30th of July, Mr. RIDLEY'S best plant collector who had been complaining of fever for some days was so bad that he had to be sent back to the camp at Kuala Tenok. He was so weak that he required the assistance of two men to enable him to walk. Mr. KELSALL also went back to Kuala Tenok to get some things that had been left locked up and to see this man safely back. Sakai and wild beast tracks occur on both sides of the river and these were often made use of, being enlarged for the baggage carriers. In some places trees had to be cut down to form bridges over the river and the ravines that had to be crossed in the jungle. During the whole time we were in the Tahan jungles we did not meet a single Sakai although we constantly met with evidence of their presence in the shape of rough leantos of "*pondoks*" consisting of a long pole supported at each end on a forked stick stuck in the ground against which palm leaves are leant. Other evidences were small platforms in the forks of trees, 15 or 20 feet from the ground, dead fires and on one or two occasions newly cut branches of trees. At one place Mr. RIDLEY found on the banks of the river a group of seven small huts or booths made of palm leaves tied together at the top in the shape of a bee hive and with a thick bed of palm leaves in each of them.

The wild men are evidently very shy, as they never let us catch a glimpse of them although they evidently watched us all along, and on our moving from one camp were quick to clear off all old tins and other waste which had been thrown away.

On the 31st, Mr. RIDLEY continued cutting the path and Mr. KELSALL followed him to make a rough compass sketch of the route, overtaking him not far from the 6th camp, while Mr. DAVISON superintended the coolies moving the stores on to the 5th camp. This part of the path was very bad. Mr. RIDLEY and his party during this day ascended a hill of considerable altitude on the left bank of the river and

got a good view of the Tahan range—a broken ridge densely covered with trees. On one side could be seen a vertical cliff white in colour and possibly of limestone more or less clothed with vegetation and to the North rose the big peak of Gunong Tahan. It did not appear to be of the estimated height of 14,000 feet, and is probably not more than 8,000 to 10,000 feet in altitude.

On the 1st of August, Mr. RIDLEY sent back all his men to assist in bringing up stores, and the whole were brought up to the 6th camp. The next morning twelve men in charge of a mandor were sent back to Kuala Tenok to bring up all available rice and fish, the rest of the men moved everything on to the 7th camp. The road between the 6th and 7th camps was very bad being mostly along the side of a steep hill. Mr. RIDLEY had also been obliged to cut down a tree of considerable size to form a bridge over the river.

On the 3rd, Mr. RIDLEY and Mr. TOWNSON with some men went on cutting the path, and formed a fresh camp about a mile and-a-half ahead, while Mr. DAVISON and Mr. KELSALL did some collecting.

On the 4th, Mr. RIDLEY and party went on about one and-a-half or two miles and formed the 9th and what proved to be the last camp. Mr. KELSALL and Mr. DAVISON went on collecting, Mr. KELSALL going as far as a little beyond the 9th camp. The twelve men who had been sent back for rice returned this day.

The 5th and 6th were spent by Mr. RIDLEY'S party trying various routes as it appeared impossible to continue along the banks of the Tahan beyond the 9th camp owing to the steepness of the hills between which the river here flows and at last they took a well-worn Sakai track which went away in a South-westerly direction and then turned North again. This track followed roughly the direction of a small stream which falls into the Tahan from the West and which appeared to come from the slopes of Gunong Tahan. After following this track for some distance they left it and ascended a high ridge which barred further progress up the valley of the Tahan, at its lowest point.

While Mr. RIDLEY and Mr. TOWNSON were on this hill, a message came from Mr. DAVISON'S camp saying that Mr. KELSALL was ill, having been attacked with fever on the night of the 4th and would probably be unable to move for some days. Mr. RIDLEY and Mr. TOWNSON returned to the 7th camp on the 7th to obtain more provisions and consult as to the next step. On looking over the stores it was found that there was only enough food for five days, and as the supply that had been sent for to Pekan had not arrived at Kuala Tenok and in all probability would not do so for five or six days a retreat was decided upon.

The expedition started back on the 9th (Mr. KELSALL being carried on a raft or stretcher for two days) and reached Kuala Tenok on the 11th; the 12th was spent re-packing stores and waiting for the last of the baggage to arrive. The whole of the 13th was occupied moving down to Kuala Tahan, the river was a good deal swollen owing to the recent heavy rains, and one small boat was upset, fortunately there was nothing in it of much value. One day had to be spent at Kuala Tahan repairing the boats and constructing rafts of bamboo to convey some of the men and the collections of live plants down stream.

Pulau Tawar was reached on the 19th of August and a stay of one day was made in order to visit the limestone caves at Kota Glanggi. Some good things were obtained in the neighbourhood of the caves including a specimen of BOSCH'S beautiful ground thrush (*Pitta Boschi*) and in one of the caves, Kota Burong, a pair of long-tailed porcupines (*Hystrix longicauda*) were taken. Here also was found a nest of the forest Bee-eater (*Nyctiornis amicta*). It consists, like those of the other Bee-eaters, of a hole in the ground some two or three feet long. The eggs are pure white. Leeches were also more plentiful in these woods than we found them anywhere else.

These caves appear to be frequented by the wild men, for in all of them we found remains of fires and beds of palm leaves but of the people themselves we saw nothing.

The failure of the expedition to reach its goal was due to a

variety of causes of which the chief were the difficulties of transport owing to the low state of the river and bad coolies. Food for the expedition for two months—the time allotted by the Government—was taken but owing to the want of rain the rivers were so shallow that it was with the greatest difficulty that the boats were taken up and this delayed progress greatly. Added to this were the difficulties of making our way through the Tahan jungles which were far greater than had been anticipated. The coolies who were chiefly Kelantan men proved, with a few exceptions, a very worthless lot and many of them suffered from beri-beri, fever, diarrhœa, dysentery and a most loathsome form of skin disease, known among the Malays as "*kurap*."

Judging from recent information about this part of Pahang, the route adopted was probably not the best, as it gave us much more actual jungle work than would have been necessary had the Tembeling River been followed up to its source and a path cut from thence to Gunong Tahan.

One man can carry in the jungle but little more provisions than sufficient for fifteen men for one day, so that for ten days in the jungle away from the base of supplies ten men out of fifteen are required at the start to carry provisions and every additional day away from the base increases the difficulties of transport.

The Tahan jungles appear to be very unhealthy especially at the further points reached. Heavy rain fell here every night, and the ground was covered with decaying vegetable remains. At night frequently the whole ground round the tents was illuminated by phosphorescence, (probably bacterial) on the decaying leaves.

Unfortunately though the jungles contain plenty of game, it is not easily procurable and cannot be caught without trapping, and this, time did not permit. All the streams, however, contain plenty of fish and they can generally be obtained with the aid of dynamite.

It was hoped that some observations might have been taken that would materially increase the topographical knowledge of the Tahan region, but owing to the close nature of the

country and the impossibility of getting any view, only the roughest observations could be made.

Although two out of three plant collectors were ill—one with fever, the other from an injury to his foot—for the greater part of the time in the Tahan River valley, and were, therefore, useless, the collection of herbarium specimens was very successful, over two thousand being obtained.

H. J. K.

VEGETATION OF PAHANG.

During the expedition no opportunity was lost of collecting plants, and these with the collections made in earlier visits to Pahang (in 1889 and 1890) give a very fair idea of the flora of the low country here, which was hitherto unknown.

The notes and descriptions of these plants being somewhat voluminous are published elsewhere, but a short account of the flora of Pahang, as far as we have seen it, will not, I think, be out of place.

The sea-shore at the mouth of the Pahang River and the adjoining heaths country was explored in 1890. This district, so different from any other part of the Malay Peninsula as far as we have seen, produced a number of interesting and new plants. Along the sea-shore is a single row of *Casuarinas* on whose branches grew besides lichens and fungi a curious mistletoe (*Loranthus*) with leaves and flowers of a bright orange colour. Beneath the trees the ground is covered with pink and white *Ipomeas*, the Porcupine Grass (*Spinifex*), a very small species of *Premna*, and a very pretty violet flowered *Vitex* apparently a prostrate maritime form of *V. Lagundi* which in land forms a small tree. Here and there along the coasts are patches of mangrove, but owing to the sandy nature of this district they are by no means extensive. From the shore inland and along the river on the left bank to some distance above Pekan extends the sandy heath district interspersed with woods, a very interesting region. Here are bushes of *Vacciniums* of two species, with rosy or white sweet-scented flowers and small eatable berries. *Eugenas*, *Rhodomyrtus*, the Sea Olive, (*Olea maritima*) *Ilex*, and many other shrubs, upon whose branches

grow many small orchids, among which were *Eria acervata*, a new *Bulbophyllum*, *Dendrobiums*, and the beautiful climbing white spider orchid (*Renanthera alba* Ridl.) The ground is covered with grasses and sedges, and many small herbs, *Mitrasacme*, with small buff and white flowers; *Utricularias*, pink, yellow and white; the creeping blue flowered *Cyanotis*; and many others. Among the larger trees here are the Tembusu (*Fagraea fragrans*), many figs and *Eugenias* and a magnificent specimen of the big flowered *Fagraea imperialis* was found at one spot in full bloom.

On the right bank of the river, the country is more swampy and wooded, with pools full of the pink Lotus (*Nelumbium speciosum*), and other aquatics. Here are great clumps of *Licuala* palms (commonly called Penang Lawyers). Two new species of grass (*Rottboellia geminata* Hack and *Saccharum Ridleyi* Hack) were obtained here. The latter forms dense thickets somewhat resembling clumps of Pampas grass with erect panicles of purple flowers.

Up to Kuala Tembeling, the country on the banks of the river is open and flat, for the most part covered with low woods and grassy pastures. Further inland are bigger and denser forests, while the edge of the river is often covered with dense thickets of *Cucurbitaceæ*, *Bauhinias* with brilliant orange flowers, clumps of *Clinogyne*, with white blossoms, big *Zingiberaceæ* and many other beautiful plants. Some of the trees along this part of the river are very striking, *Cassia siamea* and *Cæsalpinia sappan* are bright with yellow flowers, *Lagerstræmias* of two species, *Cassia nodosa* with innumerable rosy blossoms, and *Millettia atropurpurea*, with its deep purple blossom give a brilliancy of colour to the banks. *Bignonia indica*, with its huge sword-like pods is very abundant especially on some of the sandy islets in the river.

The woods in the neighbourhood of Pulau Tawar proved, botanically, exceedingly rich, and many novelties were collected here, including a remarkable *Scitamineous* plant allied to *Lowia*, with five stamens, some very curious *Rubiaceous* herbs, and here the lovely *Didymocarpus quinquevulnerus*, a new species with large white flowers tipped beautifully with

carmine was abundant. The limestone region of Kota Glanggi, was also a field of great interest. The rocks and adjoining woods abounded in remarkable and curious plants. *Trichopus zeylanicus*, a small herbaceous plant allied to the yams was abundant. This plant has not hitherto been collected in the Malay Peninsula, being only known from Ceylon and Southern India; *Begonias*, *Elatostemmas* and ferns, clothed the rocks, and on the higher parts were many orchids, including several new species of *Sarcochilus* and *Saccolabium*. The curious *Arisæma fimbriatum*, and several species of *Amorphophallus*, *Peperomia portulacoides* (a dwarf succulent plant not hitherto known except in Southern India), a very fine violet flowered *Calanthe* and many other plants of interest were collected here. At Kuala Tembeling a good lot of rare and curious plants were met with, both on the river banks and in the woods a little way inland, of which the most interesting were the yellow dead nettle, *Gomphostemma*, and the parasitic *Brugmansia*, one of the *Rafflesiaceæ*, (the first of this order recorded from the Malay Peninsula, although Mr. WRAY tells me he has long known of the occurrence of the *Rafflesia* itself in Perak). The *Brugmansia*, which is a native also of Borneo, was found growing on the prostrate stem of a vine, in a dense thicket of tall *Scitamineæ* on the borders of a wood, about two miles from the river.

In the more open woods here and elsewhere in this part of Pahang grows a very beautiful yellow flowered *Dillenia* well worthy of cultivation. Another interesting tree which occurred here was the "Kapayung" or "Payung," (*Pangium edule*). The fruit of this tree produces a rather coarse oil used by the natives in medicine and also for attracting fish. An old Malay fisherman, whom we met here, had a bamboo full of the pounded seeds, in the form of a dark brown oily mess. He put a little into the water of the river near a deep hole, where, after waiting a few minutes, we fired a charge of dynamite and took a fairly large number of fish.

Along the Tembeling River, the forests came down in many places closer to the water's edge, but the collections made here were more scanty as the expedition was hurrying on.

At one spot, among other plants, a new wild plantain was collected, with the flower bracts of a bright yellow instead of either violet or brown as in the two common Peninsular species.

The entrance to the Tahan River is marked by dense jungle coming down to the water's edge, and the flora here is very different to that of the Tembeling and Pahang Rivers, though some characteristic plants of this region had found their way down the former river for some way. The greater number of novelties found during the expedition were collected in the Tahan valley, among the more interesting of which were a very fine new species of *Dipterocarpus* (*D. pulcherrimus*) a big tree with hard red timber. At the time of our visit it was covered with its pink two-winged fruits. The flowers, which like those of most *Dipterocarpi* are large and creamy pink with a delicious fragrancy, were also collected. The well-known "Champedak," (*Artocarpus polyphemia*) is truly wild in these woods. "Pulawan," (*Tristania Whitiana*), with corymbs of evil-smelling white flowers was another abundant tree. Oaks and nutmegs were comparatively rare. Of palms, "Ebol" (*Orania macrocladus* Bl.), "Langkap" (*Arenga obtusiloba* Miq.), *Caryota mitis* Lour, and "Bayas" (*Oncosperma horrida*) were common, and the grand "Daun Payoh" (*Teysmannia altifrons* Miq.) was met with in several places. The paddle-shaped blades of the leaf of this palm were over six feet long, and form excellent roofs for huts. Of the smaller plants there were a number of Pinangas of all sizes, Licualas, and Iguanuras, two or three Zalaccas, and a number of kinds of rattans. Along the banks of the river many of the herbs and shrubs growing nearest to the water were noticed to have peculiarly long and narrow leaves; among these were a *Calophyllum* (new), an *Ixora*, an *Antidesma*, a small fig, (*Ficus pyrifolia*), a little purple flowered *Hygrophila*, and a curious new genus of *Asclepiads*, a *Podochilus* and some aroids. These all grew on the rocks close to the water's edge, and must have been subjected to constant rushes of water when the river, as it often does, suddenly rises. In such a case as this, the broader leaved plants would suffer heavily, as the rush of the stream would tear their

foliage to pieces, while narrow-leaved plants offering a less resistance would be comparatively uninjured.

Among the herbaceous plants of this region the *Didymocarpi* are most attractive, growing on banks and open spaces in the woods; a number of different kinds were collected including the *D. quinquevulnerus* mentioned above, but the form here had the carmine spots replaced by an exquisite purple violet colour; there were also a very similar species of a dark crimson red with a yellow spot in the tube, and some white and yellow kinds. There were also a number of the smaller flowered species, violet, pink and white. Nearly all the plants of this charming group were new to science. It is remarkable how very local the species of this genus are. None of the numerous species of the Perak Hills occurred here, nor were those of the Malacca, Penang or Johor Hills seen.

Another curious little plant first found here was *Neckia*, one of the *Violaceæ*, but in no way recalling a violet. It is a little erect herb, the stem covered with brown bristles, the leaves narrow, and the flowers very fugacious, pink, on long, slender stalks. It has since been collected on Butu Pahat and Gunong Panti in Johor, but hitherto was only known from Borneo.

Among the aroids of this region, the most interesting is *Rhynchosyle*, a singular little plant abundant on rocks in the streams and watercourses. It was not previously known outside Borneo, but one and perhaps more species are common in similar places in Perak and Johor.

The Ginger family, (*Scitamineæ*) is very well represented, and several novelties were collected. At one place were tall thickets of a curious new *Phrynium* with white flowers. A pretty little turmeric (*Curcuma*) was abundant, *Elettariopsis*, with its long runners almost hidden in wet rotten sticks and throwing up solitary white flowers and globular white fruits, grew in the damp watercourses. *Zingibers*, of which the finest was *Z. spectabile* with its tall scarlet cones from which protrude curious black-veined, yellow flowers; *Amomums* of several kinds, and a *Globba* with yellow flowers and yellow or scarlet bracts, were plentiful.

A curious plant which requires investigation is an *epiphytic Pandanus* which grows in the form of a tuft often in tall trees. Plants were seen far up the Tahan River but they bore no flowers nor fruit. Similar plants have been seen in Perak and in Johor where it is called "Pandan Lari." It is evidently a true *Pandanus* and not a *Freycinetia*. Orchids are abundant on the trees overhanging the river. Most conspicuous is *Grammatophyllum*, in grand flower at the time of our visit. There were also an abundance of *Dendrobiums*, *Erias*, *Bulbophylla*, *Thecostele*, *Podochili*, *Appendiculas*, *Cælogynes*, including the lovely *C. Forstermanni*. Among the prettiest novelties were a beautiful orange *Dendrobium*, and a *Phalænopsis* in the way of *Ph. sumatrana* but with smaller flowers. The gravelly islets of the river were bright with *Arundina speciosa*, the best form with the very dark lip.

Ferns produced no novelties, but among the most conspicuous were *Dipteris Horsfieldii*, and *D. Lobbii*, *Adiantum æthiopicum*, many *Lindsayas* and *Trichomaues* and *Hymenophylla*.

The common *Selaginellas* and *Lycopodiums* were plentiful, and a number collected. A few mosses were also obtained, among which Mr. BROTHERUS (of Helsingfors) has found two novelties.

Jungle Produce.

The Pahang gutta still holds its own as one of the best class guttas in the market. The tree (*Dichopsis gutta*) is abundant in many of the upper forests and was fairly plentiful in the Tahan valley though here as elsewhere the trees are scattered often at some distance apart in the jungle. *Willughbeias*, (Getah Grip) are abundant, and we had often to cut through big lines of them in the Tahan valley. A new species of this genus with eatable apricot-coloured fruit grew in the open heath country near Pekan. Jelutong, (*Dyera costulata*, Hook.) is also plentiful.

Gaharu Wood (*Aquilaria malaccensis*) is procured from the Tahan valley as elsewhere in Pahang and specimens of the tree in fruit were collected.

Many *Dipterocarpaceae* trees, such as *Dipterocarpus pterygocalyx* which produces the wood-oil, (Minyak Krueng), and the *Shorea*s and *Hopea*s which produce Dammars were seen throughout the jungles.

Rattans are abundant, but near the villages we noticed comparatively few of any value. The commonest near the Pahang River is Rotan Chin-Chin, the *Dæmonorops crinitus* which appears to be little valued by the Malays. In the wilder parts, such as the Tahan valley, we met with many other and more valuable species, which had escaped the search of the natives.

All these products are collected by the Sakais and sold to the Malays who float them down the river on rafts of bamboo to Pekan where the bamboos themselves fetch a certain price as they are scarce in the lower part of the river.

Cultivation.

The Pahang Malay does but little in cultivation and the Chinese have not yet established themselves here as planters, although the soil in many places is very suitable. In Pekan a small quantity of copra is made, but the natives seem to prefer to make coco-nut sugar rather than to attempt to grow the coconuts for the fruit. Paddy is cultivated to a small extent, and very carelessly, and here and there are patches of Indian corn and Italian millet (*Panicum italicum*). Some plants of Arabian coffee very strong and free from disease were seen at Temerloh, in the garden of a Malay, who, however, was quite ignorant of the use of the berries, only using the leaves to make tea of.

The ordinary Malay vegetables and fruits were to be seen in the village gardens, but as the Pahang Malay does not care to grow more than he actually requires at the time, they were neither abundant nor very good.

Fruit trees such as Durians, Rambutans, and Pulassan were often found in dense jungle, but I doubt that any were truly wild. They seemed to be either relics of deserted villages or derived from seeds dropped in the jungles by wandering Malays and Sakais.

Of truly wild fruits, the following were seen:—

Champedak (*Artocarpus polyphemia*); Rambutan Pachat (*Xerospermum Noronhianum*); and a remarkable climber with large fruits, resembling apples in form and flavour, called Akar Panti, in the Tahan woods; Monkey-jack (*Artocarpus rigidus*), and Tampoi (*Baccaurea malayana*) in the Pulau Tawar woods, where also were trees of apparently a species of *Canarium* called Drija, of which the kernel produced an oil, apparently much sought after by the natives. And here were also fruiting trees of the Kumbang Samangko (*Sterculia scaphigera*) the seed of which when immersed in water produces a mucilage used medicinally by the Malays; Rumania (*Bouea microphylla*); various species of *Garcinia* producing the fruits known as Kandis. Asam Gelugur (*Garcinia atroviridis*) was met with in a wild or half wild state in many spots along the route. The red fruited Mangosteen (*G. hombroniana*) grew abundantly in the sandy country near Kuala Pahang, but was not in fruit at the time of our visit.

Of eatable smaller berried fruit, the Kamuning (*Rhodomyrta tomentosus*); Nasi-nasi (*Eugenia zeylanica*); Mata Pelandok (*Ardisia crenulata*); the wild raspberry (*Rubus moluccanus*) were all abundant in the open country.

H. N. R.



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