

**BOTANICAL EXPLORATION IN THE LAMPUNG PROVINCE,
SUMATRA****M. JACOBS***Rijksherbarium, Leyden, Netherlands***INTRODUCTION**

This is the report of a trip in 1968 conducted by Dr. M. Jacobs of the Rijksherbarium, Leiden, Netherlands, and Dr. B. Prijanto of the Forest Research Institute, Bogor, Indonesia. Financial support was given by the Netherlands Foundation for the Advancement of Tropical Research (WOTRO). Our sincere thanks are due to the liberal way in which this organisation made the enterprise possible, as a continuation of an expedition to the Philippines, on which a report by the same author is now in the press with the journal *Blumea*.

Southern Sumatra was chosen for its ready accessibility from Bogor, and its long neglect on the part of botanists hitherto. At a relatively modest expense, our party obtained in one month nearly five hundred numbers, many of them trees, in 10 duplicates. The first set went to Leiden (L), the second to Bogor (BO), the third to Kew (K), the fourth to Kepong (KEP), the fifth to Singapore (SING), the sixth to Arnold Arboretum (A), the seventh to Copenhagen (C), the eighth to Honolulu (BISH), the ninth to Manila (PNH), the tenth to Washington (US). Many wood samples were also collected.

MOUNT TANGGAMUS

The position of this extinct volcano in southern Sumatra, Lampung province, is approximately $05^{\circ}26' S$ $104^{\circ}25' E$. The pillar on its top (*primary triangulation point* number 73) is at 2102 m. It lies NE of Kota Agung, and NW of Gisting, the latter village is on the slope, and easily accessible by road. From there the party set out, after having left Bogor on 21 April 1968.

Camp was made at ± 1100 m, at the upper limit of the cultivation, with bearings of 239° to the main top of the mountain, of 99° to Mt Pesawaran, and 109° to Mt Radja Basah. Our first collecting-day was

25 April; the last one was 4 May. The numbers collected start with 8021 and end with 8274, all in the name of M. Jacobs.

The soil on Mt Tanggamus is deep, loose, rich in humus, and apparently fertile, to judge from the gardens on the lower slopes, where mainly coffee and coconut is grown by the population. The virgin forest seems indifferent to this fertility. Besides, the slopes of the mountain are steep and notwithstanding the everwet climate, surface water is surprisingly scarce. The site of our camp, one thousand metres below the summit, was the highest one where, according to local information, permanent water still was available, and a poor trickle it was at that. At 200 m below the summit a dried up temporary watercourse was found. Springs of great production are, said to occur at the foot of the mountain.

On our map (HIND 1042, sheet 69, 4th ed. 1946), 1 to 250,000, a trail is shown from Kampung Muaradua in a SW. direction on the northern slope to a triangulation point at 1641 m on Kabawok Hill; this trail is said to be no longer in existence. The trail from Kota Agung up to the SW. side is probably good, but Gisting is much closer to the slopes than is Kota Agung, although at the latter side the primary forest reaches down somewhat lower.

On the side of Gisting the forest had been destroyed completely below 900 m. Between 900 and 1200 m some primary forest trees were still standing over a landscape of destruction in which some rice, cabbage, and maize had been planted. Above 1200 m, the forest canopy was more or less intact, but part of the trees had been felled and hauled down the mountain on primitive sledges, for timber. Only above \pm 1500 m can the forest be said to be largely untouched. Through this forest, we had a trail cut up to the summit; this required five days. It followed the ridge next to our camp site on the southern side, that is left of the great valley which comes in a NE. direction down from the mountain which is more or less shaped like a horseshoe open to that side. This main valley was not visited; in other valleys that were, the flora and vegetation seemed not significantly different from those on the, ridges.

The original vegetation is a rain forest, not particularly luxuriant, up to the upper regions dominated by Fagaceae and *Vernonia* (8101) and in the regions below about 1600 m, rich in Meliaceae, *Elaeocarpus* (8102), *Ostodes*, Annonaceae, Lauraceae. In the undergrowth, big Zingiberaceae are frequent, and *Musa*. Above \pm 1500 m, important co-dominants are *Weinmannia* (8201), *Syningtonia populnea*, *Pithecellobium* (8206), many species of *Eugenia* and *Ficus*, the latter as stranglers,

climbers, or trees. *Fagraea blumei* (8048) grows as a hemi-epiphyte at 1200 — 1300 m. Of the conifer *Promnopytis amarus* a tree of 40 m was found at 1200 — 1300 m; a *Podocarpus* occurs higher up more frequently. Rattans are found in great profusion; 6 species were collected fertile in five duplicates, of which a giant *Plectocomia* (8207) extends from about 1300 m up to 1850 m. A large *Caryota* was frequently seen in the lower parts, and a small *Pinanga* (8097) with red infructescence was collected between 1200 and 1300 m. Bamboos were not seen. Of tree ferns there occur three species, all taken (8113, 8188, 8098). A few species of *Freycinetia* are common, but all were sterile. Pandans none. Some terrestrial aroids are found in the lower zones.

Between \pm 1750 — 1850 m there is a transition; above this zone the forest, although still up to 20 — 25 m tall, consists of one storey only, richly overgrown with moss. Except a *Lycopodium* which climbs several metres, there is little undergrowth to replace the rattans and the forest is rather open under the canopy. Such is the kind of forest up to the summit, the height of the trees gradually declining to 8 — 10 m, with dense microphyllous crown. We collected *Elaeocarpus* (8239, 8240), *Lithocarpus ewyckii*, *Leptospermum* (8233), *Gordonia* (8246), *Rapanea* (8235), *Rubus lineatus*, a big epiphytic *Medinilla* (8250), climbing *Smilax* in two species (8251, 8252), and some herbs. The summit is under forest, save for a small artificial clearing.

At \pm 150 m below the summit, on the southern side of the trail, there is an open slope of almost bare yellowish soft rock. Here is a vegetation of *Gleichenia* (sterile), *Dipteris*, *Lycopodium* cf. *cernuum*, *Gaultheria* (8259), *Gahnia* (8260), *Nepenthes* (8261), and the beautiful orchid *Spathoglottis aurea* (8258).

Below this slope there is a precipice which falls off to a round depression perhaps a hundred metres deep and about half as much in diameter, on the bottom of which a vegetation but no water nor an outlet was seen. It is supposed that this is a former subsidiary crater.

Floristically, the upper part of Mt Tanggamus seems poor, not even *Symplocos* or *Ilex* having been found. Of Araliaceae there are only two species, both sterile, in the lower region. Two specimens of *Adenostemma lavenia* were seen but not collected. *Rhododendron malayanum* (8219), an epiphyte, was found at about 1600 m. Typically temperate genera are absent save for one *Lysimachia* plant (8165) found at \pm 1300 m. A complete list of the collection is kept at Leiden.

I am happy to remember here the cordial hospitality of Father Tromp, the pastor of Gisting, who told me I was the first Dutchman to visit the region since about ten years.

NORTHWEST OF KOTA AGUNG

In this area, at approximately 05° S 104°30' E, from where Mt Tanggamus was sighted at 100°, we worked in dryland forest between 300 and 400 metres. This is a transmigration area, where, settlers from Java convert the forest into permanent agricultural land; they are kind, hard-working people. After transport by a 14 year old truck to Sanggi and a days' walk from there, we arrived near the virgin forest, where we could camp in a native house. Operations started on 9 May with number 8275, and finished on 19 May, with number 8515.

The forest is poor in dipterocarps, with a normal assortment of Rubiaceae (22 species taken), but remarkably rich in Annonaceae (19 species) and Meliaceae (16 species). Also Euphorbiaceae were well represented (16 species). Among the 8 secured species of rattan, one *Calamus manan* (8388, det. J. Dransfield) was the largest of my career, the leaves 5 m long with another 4.20 m for the spiny whip, the inflorescence to 2.50 m long; it took six men five hours to maneuver the plant in a position where it could be cut up and prepared for the herbarium. More species seemed in fruit than in flower, at this time of the year.

It is hard to estimate at this time the amount of novelties that the collection contains. Two new records for Sumatra have already been spotted, notably the genus *Neuropeltis* (Convolvulaceae), number 8434 (cf. Fl. Males. I, 4: 400. 1953), identified by Dr. S. J. van Ooststroom, and the species *Gnetum gnemoides* (Gnetaceae), number 8399 (cf. FL Males. I, 4: 344. 1951), identified by Dr. F. Markgraf. Further exploration seems rewarding, also for the entomologist; there was, both on Mt Tanggamus and here, a striking abundance and variety of insects.

Although the attitude of the carriers was not so pleasant as I had experienced in central Sumatra and east Java on former trips, this proved not an essential drawback. On the home voyage, we were surprised to learn that the price of the ferry boat between Sumatra and Java (one service in the daytime, one at night) had during our trip become 1.6 times as high as first. There also was an apparent shortage of gasoline in the Merak region; nonetheless, the old truck we had rented there brought us safely back at Bogor on 22 May very early in the morning.

CONCLUSION

The Lampung province has been so badly neglected by botanical exploration, that according to the *Flora Malesiana* I, 1: lxxx (1950), in that year the average 'density index' of collecting stood at 9 specimens per 100 square kilometres. For Sumatra as a whole the figure at present stands slightly over 20, for Malesia as a whole it is approaching 50. If our efforts, the first after 1950, caused the figure to rise from 9 to nearly 11, it is yet evident that there lies a good future for further work. As an area of particular interest, I would like to point out the big game reserve 'South Sumatra', which occupies the peninsula West of Kota Agung, opposite Ujung Kulon. It is largely under forest. From local information I concluded, that the best way to reach it is by boat directly from Java. Another place worth visiting is Mount Radja Basah.

That the results of our work are so encouraging, is due to the kind collaboration of several persons. Firstly, here must be named the officials of the Forestry Service, in Bogor at the Forest Research Station, in the capital of Lampung province Tandjung Karang, in Gisting, and in Kota Agung. Also the civil and police authorities in the province proved to be cooperative, for which we felt very grateful. In the second place is to be named the Lembaga Biologi Nasional at Bogor, as a main contributor to this enterprise of its former staff member. The Herbarium Bogoriense (which resorts under the Lembaga) enabled three employees to join the expedition, among whom Mr. Nedi gave us the full benefit of his legendary knowledge of plants, it lent Schweinfurth equipment, and gave facilities for drying and dispatch.

As a link between the two institutes, and as the main force behind the enterprise, acted Dr. B. Prijanto. He conducted and coordinated the preparations, saw everything duly carried out, and while out in the field, was the hardest working man of the team, good humouredly and with keen enthusiasm. He proved himself a worthy pupil of Dr. A. J. G. H. Kostermans, and it was evident that he acted from a deep sense of responsibility. The trip had made him eager to return to South Sumatra and to continue the exploration in the future, as he told me when we were leaning over the railing of the ferry boat on the calm waters of Sunda Strait. It was only a year later that he died in an accident. I still feel sad because of this enormous loss.
