

## **The Tualang Tree, the Giant Asian Honey Bees and the Hindu Myth of the Princess, Hitam Manis-- Dark Sweetness...**

---

by Stephen L. Buchmann and Gary P. Nabhan

Malaysia's rainforest at two o'clock in the morning was, for most of us, unlike anything we had ever seen before. We were surrounded by a dense stand of thin, straight-trunked, smooth-barked trees known as dipterocarps, nearly a thousand different kinds of tree per acre. Every once in a while, a palm crown or massive legume canopy towered above them, as they do in the Neotropical rainforests with which we were familiar. Still, these Paleotropical giants lacked many of the characteristic orchids and epiphytic bromeliads which drape down from rainforest canopies in the Americas.

And yet, there was something stranger still about the rainforest on this particular night: an ancient honey-harvesting ritual had begun, one that would be accompanied by an incredible pyrotechnic display. We stood not far from an enormous Tualang tree, waiting to witness an astonishing shower of sparks raining down from smoldering torches held ninety feet above us. Somewhere high in the Tualang canopy, a seventy year-old Malay honey-hunter and his sixteen year old grandson were readying their gear to gather honey from giant Asian bee colonies. On the ground below them, three singers chanted ancient prayers integral to the Tualang honey-hunting ritual.

Steve had come with a dozen other bee scientists to see one of the few giant Tualang trees near Pedu Lake, in the Kedah Province of peninsular Malaysia. He was well-versed in the many features that distinguish the native Asian rock bee, *Apis dorsata*--a giant reaching an inch in length--from the domestic European honey bee, *Apis mellifera*. Nevertheless, no amount of reading and prepping by Malaysian colleagues could have prepared him for the ways the honey hunters still directed their contact with the giant bees through animistic rituals--ones mixed with Islamic and Hindu symbolism--to cajole, charm, then finally calm the bees in order to gain access to their glistening honeycombs.

Here, humans had learned to face the magical ferocity of social bees with their own magic, as they have done for millennia. Here, some of the most tenacious beliefs about the healing power of honey have persisted, undiluted, still alive in an ancient, giant hive filled with stories perhaps as old as our species' ability to weave tales.

Professor Makhdzir Mardan, the group's guide and honey-hunting specialist from the Agricultural University of Malaysia in Kuala Lumpur, had heard many of these stories over a decade working with honey hunters. He selected one fable out of the bundle held in his memory, to tell the newest pilgrims to the giant Tualang tree:

"Seems in ancient times, there was a Hindu handmaiden, called Hitam Manis...`Dark Sweetness,' for she was a dusky beauty. She fell in love with the reigning Sultan's son, who returned her love. But they could not marry, for she was a commoner. She and her fellow maidens--called dayang--were forced to flee the palace, for the furious ruler wanted to kill her. As she ran [away], a metal spear pierced her heart. She and her friends were turned into bees and flew way."

The Professor paused, and suggested that the group lie down on the open sloping ground and look up toward the Tualang tree, in anticipation of what would happen next in the story: "One day, the prince--now engaged to a princess--noticed a honeycomb high up in a tree. He climbed the tree for it and discovered a sticky, sweet substance inside. He called [down to his servants] for a knife and a

pail. When the pail was hauled down, they discovered to their horror that the prince's body [was in it], all chopped up in pieces!"

"A disembodied voice cried out that he had committed a sacrilege by using a metal knife in cutting the comb, for Hitam Manis herself had perished from a metal instrument."

"Later, a `golden shower' by the bees restored the prince to his entirety..." Makhdzir paused again, with irony apparent in his voice; we recalled that these native Asian bees made such a `golden shower' during mass defecations just after sunset. This same `golden shower' is believed by some scientists to be the dreaded `yellow rain' which covered American soldiers during the Viet Nam war; by others, yellow rain was diagnosed as a deadly form of biological warfare. (In fact, the bee droppings enrich the tropical soils with massive quantities of nitrogen, which is often of limited availability in rainforests.) Whatever the case, the `golden shower' was attributed restorative rather than destructive qualities in this fable. Otherwise, the body of man would be left fragmented for failing to pay respect to Hitam Manis.

Professor Mardan concluded by reminding us how this legend continues to guide honey hunters in the way they harvest the delicate combs: "To this day, no metal-only equipment of wood, hide and cow scapula--is used at all stages, in deference to the early anguish of Hitam Manis."

Despite the risky, rough-hewn lives which the honey hunters lead, Professor Mardan has been struck by the fact that they always refer to the giant bees with such tenderness, calling them Hitam Manis, as they do a lover worthy of a prince. They also show their respect for the giant bees by referring to them only indirectly, through poetic nicknames such as "Blooming Flowers," or "Fine Friends." They humbly refer to themselves as the hand maidens of Hitam Manis, the Dayang.

While Steve vainly tried to see the honey hunters up on makeshift ladders in the tree, the Dayang working below filled the air with more incantations. The honey hunting is always done after the moon has gone down, or on moonless nights, when the bees are not active. The Dayang and all other observers on the ground are forbidden to carry torches or even flashlights near the tree. Otherwise, the 30,000 to 70,000 *Apis dorsata* in each of the nests up above would make beelines toward the lights, stinging everything in sight.

A few weeks before, when one of Makhdzir's assistants didn't heed the warnings, he was attacked by the bees from one colony in this tree. Receiving well over 200 stings, he had to be carried out, then hospitalized, and did not return with us. We, like the Dayang, would do anything to avoid the wrath of the rock bees, which are considered the most pugnacious of the seven or so species of *Apis* found around the world. Compared to rock bees, the Africanized "bravo bees" now found throughout much of the Americas are but minor irritations.

While the group stood safely below the hundred twenty foot tall Tualang--a tree legume known to science as *Koompasia excelsa*--we were painfully aware that the two Malay men were risking their lives, climbing up ninety feet into the canopy on makeshift herringbone ladders. The older man, Pak Teh, had been climbing this very tree since 1965, but still adhered to all the precautions and taboos. The wiry seventy-year old had ritually bathed, prayed, then left honey offerings at the base of the tree before beginning his ascent around one o'clock in the morning. His grandson had participated as a Dayang watchman on the ground other times before, but this was the very first time that he would make the climb to serve as a torch-bearer.

By three in the morning, they were so high in the Tualang's canopy that we could not have seen them even if there had been lights. They had waited until the last vestiges of moonlight had gone beyond the horizon, then signaled the Dayang to send up a cowhide bucket on the rope-and-pulley

hoist they had constructed. One of the Dayang "handmaidens" reinitiated the sing-song incantations which would last the rest of the night, until nearly daybreak.

Finally, Pak Teh called down that he was lying out on a sturdy branch above the first massive colony. At last, ready to take honey and brood from one of the eighty-some colonies suspended like oversize Christmas ornaments from the tree. All of the Dayang were now chanting loudly, hoping to appease the bees and to insure a safe harvest. Pak Teh lit a torch made of a tightly-bound tail of pounded liana vines. From their precarious position, Pak Teh and his grandson directed the heat of the torch toward the comb, arousing the bees from their slumber.

Beginning the "shower of sparks," the men directed the tail end of the giant torch against the massive parabolic comb, singeing it and brushing the thick curtain of bees which surrounded it. Then he started to bang the smoldering end of the torch against the bees on the comb. Glowing embers of all sizes rained down by the thousands like a meteor shower. The cascading sparks fell into the clearing below the giant Tualang; those of us craning our necks below the tree moved back, more deeply into the protective cover of the dipterocarp forest.

As the flickering lights reached the ground, we heard an ominous roar following them out of the tree. Tens of thousands of incensed bees were swarming, following the rain of fire from the tree down to the earth. They were so loud, so close, that Steve instinctively ducked, and held his breath. He was shaken to the core by the notion that thousands of angry bees might find him and the Dayang huddled in the darkness.

Instead, the rock bees dispersed, clustering around each dying ember. They soon settled harmlessly on the ground and the surrounding foliage, where they remained until the first morning light lured them upwards again to the remnants of their nests. By that time, however, Pak Teh would be gone from the tree, the honey would be gone, and we would be on our way back to our beds down in the valley below.

While we still huddled together, stunned, Pak Teh had already started the honey extraction from the hive high above us. He used the shoulder bone of a cow to cut away at the comb. He then folded a three foot long segment of wax together, so that its golden treasure was captured inside, as a moveable feast. This comb section was draped over the cowhide bucket, which he filled until it overflowed. He lowered the honey and the comb fragments to the men waiting below the tree, and another bucket was hoisted up.

While Pak Teh and his grandson filled bucket after bucket, the Dayang below carried the comb fragments over to an immense overhanging boulder, where they squeezed the remaining honey out of the comb. They then filtered the honey into seven-gallon vessels waiting to be transported back to nearby marketplaces.

Pak Teh moved from one colony to the next over the following four to five hours. Exhausted, the sinewy old man finally reached the ground just before six in the morning, where the Dayang helped him nurse the few stings he had suffered during the night. They treated his welts with rock bee honey!

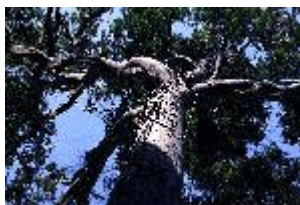
All told, Pak Teh and his crew would gather nearly a thousand pounds of honey from this tree. It is but one of only ten trees which they tend, trees that are widely scattered through the forests surrounding Pedu Lake. The Tualang honey hunting allows each of the men in the Dayang crew to make 25 to 150 U.S. dollars more per month than he would make as a rubber tapper or farm laborer. Today, the hunters must obtain permits to harvest the honey trees from the Sultan of Kedah Province, for competition has become stiff--there are now more than seventy crews of tualang

honey hunters which compete for the few giant honey trees found in their region. Collectively, they have harvested as much as 150,000 pounds of honey in a single season, but that yield may decline as deforestation further impacts their activities.

Professor Mardan is outspoken about how logging is now disrupting this ancient tradition: "To many honey gatherers, as long as there are bees and the forest, there will always be honey gathering...[But now] the biggest threat to the profession of honey gathering seems to be the depletion of floral resources in the tropical rainforest brought about by indiscriminate logging. Many professional honey gatherers feel strongly that bee trees-- which make good timber--should be protected from loggers. Urgent attention should be paid to their opinions."

Some foresters have, in fact, conceded that the giant Tualangs may be among the tallest trees left on the face of the earth, reaching heights of 150 feet or more. They hold the vestiges of one of the oldest symbioses between bees, floral resources, and their human stewards. They also offer honey hunters a way to supplement their meager incomes without depleting the forest. And they have not yet disturbed the rock bees to the extent that they have taken flight from the trees, never to return again. Pak Teh himself has watched bees return to the same tree he has worked every year since the mid-60's. The ancient prayers are still offered, and he still uses a cow scapula instead of a metal knife and aluminum ladder, in order to honor Hitam Manis, the dark sweet goddess for whom he and his family are handmaidens.

In this first photograph, we see the giant Tualang Tree, a canopy emergent leguminous tree (*Koompassia excelsa*) as its crown emerges from the small clearing. The tree is about 150 feet tall. Notice the scattered single parabola-like combs of the giant Asian honey bee (*Apis dorsata*). There were about 80 nests of these fierce inch long honey bees in this one tree!



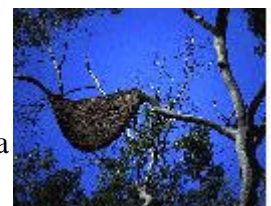
This is the all wood ladder, in the style of a herringbone pattern, ascending the giant tree. Would you trust your life to such a ladder? The honey hunters must, but only allow the most experienced men to select the wooden pieces for the ladder rungs.

This image shows the remarkable crown of the Tualang Tree in the sunlight. In all, about 80 *Apis dorsata* nests were observed in this tree. How the bees from the colonies compete for nectar and pollen resources while grouped so closely together isn't known.



Our 70 year old Malaysian honey hunter, Pak Teh, in a rare quiet moment before ascending the Tualang Tree. He has just finished his ritual bathing and afternoon prayers.

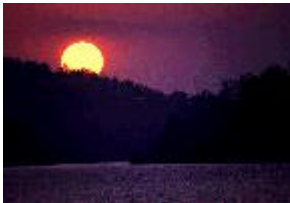
Here is a view of a single parabolic-shaped comb of *Apis dorsata*. These individual combs can be 6 feet across! Each nest will contain about 30,000 giant Asian honey bees. They are fiercely defensive of their nests and often attack en masse with great ferocity. This photography was taken with a 500mm telephoto lens from the ground during the early morning light.





In this closeup, we see a number of adjacent nests along one limb of the tree. Notice the ladder running above the nests, essential for harvesting their honey.

Here we see bright yellow spots on leaves near the honey bee tree. These are the famous yellow rain of *Apis dorsata*. These giant honey bees go on mass defecation flights near sunset and the yellow spots are their pollen-rich feces. The voiding of the feces is thought to be involved with thermoregulation, of cooling the bees and keeping the nest from overheating in the tropical heat. The yellow rain spots are rich in nitrogen and protein and effectively serve as a plant fertilizer in the region around the bee tree.



Sunset over Pedu Lake. Walking from my cottage at the edge of the lake to the restaurant at Pedu Lake Resort, one evening, I set up my camera on a tripod and snapped this sunset with the 500mm lens.

At last! It is 3:00am and the moon has set. Now the honey hunters have ascended the massive Tualang Tree and can begin the arduous honey hunting. Here, they have rubbed the smoldering torch bundle against the comb and have now forcefully struck it against the limb just above the bee colony they are harvesting. A firefall, a brilliant cascade of glowing embers rains down toward the ground almost like a meteor shower set against the jet-black tropical sky. This is repeated several times. Each time, we hear the roar of the giant bees as tens of thousands of them race after the glowing sparks as they drift earthward. When they reach the ground the bees are disoriented and rest on plants there. This keeps the honey hunters aloft safe from their often savage attacks. Now, they are free to collect the sweet harvest of Hitam Manis without being stung by the bees. What a sight!