

## Roraima — Mother of All Waters

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I cannot remember when I first heard the name Roraima: it was too long ago. But I do remember that it was somehow connected to Conan Doyle's novel, *The Lost World*, a story of an ancient civilization on a flat topped mountain in the Guyana region. Some inkling of the strange fascination it stirred in me remains even now. The years passed, with the odd reminder—an article in a magazine, a newspaper reference to an expedition—and the more I learnt of this mysterious mountain the more the desire to see it grew. However, since I didn't see how I could ever get there, I suppressed my fantasies and got on with my rather humdrum life.

Then quite suddenly, out of the blue as the saying goes, an opportunity to go there presented itself, and I set a target date for some time in February 1997. The first item on the agenda was to find three other people who would be willing to go with me. The Trinidad and Tobago Field Naturalists' Club provided them, all members like myself: Luisa, Selwyn and Charles, the last familiarly known as Charlo. The key person was Luisa because of her Venezuelan family connections and her command of the language. She found a guide for us and handled all the communication. By now I knew that February was the best time for a visit, the only month with a reasonable prospect of sunny weather. I knew too that nights here in Trinidad were almost always warmer at full moon than at other times, and often rainiest, and so, despite uncooperative airline schedules, at noon on 19 February, three days before full moon, (and one day later than I would have liked), we boarded an eighteen-seater aircraft of Rutaca Airlines for our trip to Maturin.

If the trip had occurred many years earlier it would simply have been a "fun thing." Now it would be more than that. I had become keenly interested in the Aripo Savannas here in Trinidad and I wanted to compare these with the Gran Sabana in Venezuela. I had also developed an interest in forests and had studied *The Natural Vegetation of Trinidad* by J.S. Beard, the bible on the subject. In it there is this tantalising allusion : "The Northern Range is believed to have come into existence in Middle Eocene time [about 47 mybp] ... and appears to have been very considerably higher than it is now, possibly up to 10,000 ft...The Northern Range forests as a whole have a number of floristic affinities with Roraima which probably date from an earlier loftier period." Here then was another reason to welcome a visit to Roraima approximately 590 km south of us; could I detect some of these floristic affinities?

**“There she was to my right... cuddled by mist and cloud.” I Kukenan left of centre, Roraima to the right (photo on page 1).**

had done my homework as best I could by reading all published material that I could find, especially the new book Part 1 of Flora of the Venezuelan Guayana by three eminent botanists, Paul E. Berry, Bruce K. Holst and Kay Yatskievych. This book described not only the flora but the geology and climate as well. Roraima is one of about 100 table-top mountains in the southeastern region of Venezuela which the Indians call tepuis. They range in height from about 2000 metres to 3000 metres. At 2763 metres Roraima is one of the tallest, and one of the few with easy access by means of a natural ramp. Many have not been climbed, and our eminent botanists have been able to survey the flora of their summits only by landing from helicopters. All the tepuis have a characteristic shape, a vertical column arising out of a base with a sloping surface. This shape is a result of its mode of formation. About 1000 million years ago they were all joined together as part of a continent. Subsequent tectonic movements pushed up this mass of metamorphic sandstone, and rain-water carved out the mountains by eroding the softer materials over the succeeding millions of years. The vegetation on each summit has thus evolved in relative isolation from each other. The scenery is spectacular, like no other in the world, and it is easy to see why the Indians should have gazed on these mountains with awe and considered them to be sacred places.

I had not only done my home work; I had trained for the trip too. At 71, I would be the oldest member of our group and I had no intention of causing problems for my companion,

though I expected to be the slowest. Roraima is three times higher than Cerro del Aripo, our highest peak. I expected the climb to be harder than anything I had done before. I had also to consider my peculiar physiology that allows me to feel cold even in the tropics and I knew that the temperature at the summit could fall as low as 0° C, I experimented with taking thyroxine to raise my body temperature and found that it would work. By the day of the departure I felt fit and ready.

The trip went smoothly. From Maturin we travelled by road to Puerto Ordaz and stayed overnight with some of Luisa's relatives. In the morning our guide, Raul, met us there after driving from Caracas, and after wasting a couple of hours looking in vain for a good map to buy, we set up for Pirai-Tepui, the Indian village from which our expedition would start. After stops for lunch and dinner we reached there at about 10:30 that night to find several other tents already pitched and occupied. A chilly wind blew more or less continuously but the village playing field where we camped was well-lit so we had no undue difficulty in erecting the tents, and as soon as they were secure we



Crossing Kukenan River. Charlo, Raul, Porter, Selwyn

retired to sleep—if we could. The half of the tent I occupied was not ideally located. I felt as though I was trying to sleep on the edge of a cliff so I feel sure I never got to sleep that night.

When the morning light was bright enough I got up

and looked around. There she was to my right, the Mother of All Waters, with her companion Kukenan, cuddled by mist and cloud, tantalisingly, invitingly close — or so it seemed. I went to the other side of the playing field and looking back along the road we had travelled the evening before was struck by how English the countryside seemed. However, the paler areas were savannas not fields of grain, and the darker lines were not hedgerows but river valleys forested with tropical trees. And, for the curious, I do know what the English countryside looks like from my three years at Cambridge as a postgraduate student.

I was eager to start but there was plenty to do first: eat breakfast, pack away the tents, hire porters and take some photographs. With all of that out of the way, we started out at about 11:00 a. m.

Our route lay through undulating country and among the plants I was soon seeing old friends that I knew well from the Aripo Savannas at home :

*Lisianthus chelonoides*, Savanna serrette (*Byrsonima crassifolia*), the sensitive plant (*Mimosa pudica*), *Heliconia psittacorum* and a few sedges, among them *Scleria spp.* that we call razor grass. Among the trees of the forest strips along the rivers were other friends such as bois canot (*Cecropia peltata*) and jereton (*Didymopanax morototoni*), typical invaders of disturbed areas. Many birds too were familiar, the bare-eyed thrush, green honeycreeper, pale-breasted spinetail, rufous-browed peppershrike, tropical mockingbird, bearded bellbird, silver-beaked tanager, all of which seemed as common here as they are in Trinidad. But there were new things too, things I didn't have time to examine carefully and had to pass with a look and a sigh.

We crossed several small streams but Raul warned

of two “serious rivers” ahead. By about 3:00 p.m. we reached the first of them, the river Tek. The water was nearly knee high and the rocks were incredibly slippery, yet the porters strolled across as on a well-known path, and perhaps to them it was. The rest of us had much more trouble but eventually struggled across. About an hour later we were at the Kukenan River. This was slightly higher with a stronger current. With Luisa interpreting one of the porters told me to take off my shoes and walk in my socks. This made the crossing easier,



Camp site at Kukenan River. Kukenan in the background.

but I still needed a stout stick and an occasional hand to get across. Then we pitched camp.

Here for the first time we encountered biting insects of the family Simuliidae but we had expected them and came prepared with repellent. I noticed that the bites were not very painful though they left conspicuous red spots. That night we heard the loud, raucous “wark, wark, wark...” of *Hyla boans*, the largest “flying frog” in Trinidad, and in complete contrast, the thin, wispy, “chee-peat” of the white-tailed nightjar, another friend though not a well-known one. That night I slept well.

There was time in the morning for a quick survey of the area which revealed many unfamiliar plants. For most of the way to Base Camp, the savanna reminded me not of the Aripo Savanna back home

but of the Piarco and O'Meara savannas. However, nearing Base Camp more strange plants appeared, changing the sense of familiarity. From pictures in the Flora of the Venezuelan Guayana, I recognised one as a *Stegolepis*. Our 4 1/2 hour hike got us there early enough for a good survey of the area and with some time for photography. Here there were one or two dead trunks from what had been large trees and far in the distance was the smoke of several fires. With bracken and razor grass to prod my thoughts a horrible idea was born: these were not natural savannas but ones created from forests by centuries of burning by the Indians. The trees that darkened the river banks were the pitiful remnants of much more extensive forests.

I expressed my thoughts to my companions. Immediately Charlo raised the question, "In that case, where did all these savanna plants come from?" My reply was: "Well, perhaps there was an original small savanna in a rain shadow created by the tepuis and they spread from there." There was no way of settling the issue there and then, so the conversation turned to other topics.

We had been going uphill gradually all the way to Kukenan. Conditions must have changed imperceptibly for now we were near the edge of the forest that clothes the sloping plinth of the column. A quick survey of the forest showed many members of the Rubiceae and the Melastomataceae, some of which I knew from Trinidad. Now too there were tree-ferns and at least one species of *Clusia*, a genus superficially resembling a fig and able to grow epiphytically like the figs. Here, too, we saw for the first time the rufous-collared sparrow, a species that does not occur in Trinidad.

That night a tremendous wind blew up with gusts to about 60 mph I would think. I knew the tents were well made so I was not all concerned that there was any danger. At Raul's suggestion, the four Trinidadians were off to an early start the next day leaving him and the porters to pack up and follow us. I knew that they would easily catch up with us. Still, I promised Raul that I would be at the top by 1:00 p.m.

As we got higher the weather changed. For two days we had trudged through open savanna in burning sun. As we had marched into Base Camp (the day of the full moon when we should already have reached our goal) not even a hint of cloud disturbed the serenity of the summit. Now the air was noticeably cooler and a drizzle began to descend on us. Suddenly, Selwyn, who was in the lead, motioned us to stop. He softly told us that there was a nightjar sitting on a rock just ahead. We allowed Raul, who had caught up with us, to go ahead to photograph the bird. He took many photos getting closer and closer all the time and without the bird flying. His last shot must have been taken from only 50 cm away. When he withdrew to let others come forward the bird flew to a nearby rock and again allowed all of us who had cameras to photograph it from a close range. It was positively amazing how cooperative the bird was. Later, after the trip was over, I identified the bird as the Roraiman nightjar.\*

By 10:15 a.m. we reached the vertical wall and I could have stretched out my arm and touched it. It was a thrilling moment and one I had waited a long time to experience. By that time, Raul and the porters had gone a long way ahead. However, I could not afford to hurry; the "floristic affinities" with our Northern Range were beginning to appear. Palms had become a conspicuous feature of the flora among which was one I thought to be a *Prestoea*, a palm I knew from El Tucuche. Here too was *Psammisia urichiana*, a rambling shrub whose beautiful pink and white flowers seemed to be made of wax, and scattered individuals of mountain jere-ton (*Didymopanax glabratum*) whose palm-like leaves spread themselves above the smaller plants.

At about the middle of the ramp the trail went downhill before starting up again. As we got higher, trees became scarcer and the vegetation contained more small plants such as mosses, *Selagenella* and bromeliads. I thought I recognised one of the latter as *Glomeropitcairnia erectiflora*, another species that is restricted to Tucuche and Cerro

\* Richard French was sceptical and had it re-identified from my photograph, by a nightjar expert. He pronounced it to be the Band-winged nightjar—*Caprimulgus longirostris*

del Aripo in Trinidad. We passed under a filmy waterfall and up a more open area with a rock formation that looked like a hand with an index finger pointing skyward. Not long afterwards I thought I could see the rim of the tabletop close at hand. I looked at my watch; it said two minutes to 1:00 p.m. I had been helping Luisa over the more difficult places and knew that the others must have been already at the top waiting for us. I bade Luisa good-bye and raced as fast as I could up the relatively unencumbered slope before me, joining the others amid much rejoicing, with something less than a minute to spare. That was another thrilling moment. I had fulfilled my dream; I was there standing on the summit of Roraima, and though my achievement was in no way comparable to theirs, Edmund Hilary and Sherpa Tenzing standing on the summit of Mount Everest, where no man had stood before, could have felt no better than I did just then.

Luisa arrived a few minutes later and it was time for photographs of the group. The weather was relatively good: some mist, some wind, but also some sunshine now and then. After the picture-taking we set off for the “hotel” where the tents had been pitched, trying to take in as we went the extraordinary landscape. It was like nothing I had ever seen before. It is tempting to say “like something on the moon” but a moonscape would have had sharp jagged rocks whereas these were smooth and rounded, though of varied and most peculiar shape. One formation in particular amazed me. How could a huge rock the shape of a turtle’s body come to rest nicely



On the way to Base Camp on 22 Feb., the day of the full moon, with not even a hint of cloud on the summit. Note the ramp.



The co-operative Band-winged Nightjar

balanced on a slim column below it?

The vegetation too was like nothing I had ever seen in Trinidad though it had a vaguely Alpine look to it. Charlo gazed at a small cluster and said it was a miniature Japanese garden. There were few trees and those present were small and twisted. Nearly all the shrubs and herbs were new and I was surprised by the number in flower, some very beautiful. The plants here face even more difficult conditions than those on our Aripo savannas. At Aripo, soils are poor and waterlogged; here there was practically no soil at all. I knew that there would be insectivorous plants. *Drosera*

*roraimae* at about 10 cm tall was a giant compared with our *Drosera capillaris* which is a simple flattened rosette. The pitcher plants have no counterpart at Aripo. Here they were flowering and producing surprisingly large and beautiful flowers. Attracting pollinators must be a top priority for a plant so short of nutrients to be devoting so much energy to producing a flower. We saw all this on our short walk to the tents for lunch and I looked forward to photographing it all. Alas—within a short time the mist returned and photography became practically impossible.

Our first night on the summit was not as bad as I thought it might be. The temperature might have dropped to 10° or 12° C but nowhere near zero. However, the weather in the morning was cold, rainy and uninviting. We had breakfast and waited for the sun which we felt sure would soon dispel

the mist. We waited in vain. By 10:00 a.m. when there was no improvement we decided to brave the weather as it was and headed for the Little Valley of the Crystals. All of us thought that we would be far better off admiring Nature's sculpture than the block of man-made concrete marking the triple point where the boundaries of Venezuela, Brasil and Guyana meet. This trip solved for me one other problem I had wondered about: if the top was flat, how were the waterfalls produced? The fact of the matter is that the top is far from flat. Water has carved the landscape into ridges and valleys as it would any other landscape. The Little Valley of the Crystals boasted a sizeable stream which flowed to the south-west gathering strength before cascading over the edge as the largest of the waterfalls we could see on Roraima. The crystals of the valley's name are quartz crystals and these are scattered in the stream bed in profusion. There is a group of



The Group at the top of Roraima. Victor, Selwyn, Raul, Luisa, Porter, Charlo.

four bowl-shaped cavities in the bed each big enough to hold two people. They have been named The Jacuzzis, though I doubt that the temperature of the water is what is usually associated with jacuzzis. This is really a charming spot when the sun is out, as it was for a short time when we were there, but the sunshine did not last long. Rain began to fall steadily and we worked our way back to the camp by a different route.

In the afternoon the sun peeped out briefly and I thought I should make another attempt at photography but before I could get my equipment together the rain came down again and quenched my desire. Instead, I watched two rufous-

collared sparrows clean up some scraps from lunch. They were the only animals I saw during the entire stay at the top. I took one photograph - the trees just outside the campsite reminded my of a Japanese painting so I photographed the scene. We waited for better weather but darkness came with no relief, and with darkness came a distinct lowering of the temperature. I was glad to retire to the tent.

That night was colder than the one before but I took my thyroxine, put on all the warm clothing I had and survived well enough. By seven o'clock the next day we were having breakfast and wondering if we would be lucky enough to have one more spell of sunshine. We weren't. In fact there had been enough rain to make Raul worry about the state of the rivers we would have to cross on the way back. His plan was to stop briefly at Base Camp and, instead of camping at Kukenan, cross

both Kukenan and Tek rivers and camp on the far side of the Tek. In that way, should the rivers rise later we should have crossed the largest ones already.

Rain was still drifting down on us as we pulled out of camp shortly after 9:00 a.m. The filmy waterfall of the ascent was much stronger now and gave me a good dowsing, but by the time we were halfway down the ramp the rain had stopped falling—on us that is—but probably not at the summit. Nevertheless, the track was slippery from previous rains and my progress was slow. Luisa and I reached Base Camp at 2:00 p.m. well after the others. We were now out in the smiling sun once more. I dried out my camera, had lunch, and was on the move again just after

2:30 p.m. A steady walk with a few minutes off for photography and to look for wildlife took us to Kukenan three hours later. Dusk was not far off now and we had to hurry.

The river was 30-40 cm higher than it had been on the outward leg and too deep to cross at the point we had used before, which was just past the junction of the Kukenan with its tributary from Roraima whose beginnings we had seen in the Little Valley of the Crystals. First we crossed the tributary and then we crossed the Kukenan and it was a very tricky crossing in which I needed help from one of the porters. Regrouping on the other side, we got going again and reached Tek River forty minutes later. This crossing was not as difficult because the river had not risen much, but my legs were stiff and painful as I plodded into the campsite with darkness falling.

We had lots of company that evening and a lively

buzz of conversation flowed through the group at supper. In addition to those who had travelled the route at the same time as we had done, there was a large group from Great Britain who, forgetting their tradition of displaying the stiff upper lip in times of trial, had decided not to proceed onward the next day but to turn back. However, the conversation faded fairly quickly as sleep took over. By 8:30 next morning we had decamped and four hours later were back at Pirai-Tepui. I walked at a



The Jacuzzis

steady pace, but the pace was slow for my legs ached in every reluctant muscle and I was glad to be back at the starting point with a cold drink and the certainty of a rest from walking.

The first leg of the trip from Roraima was strenuous; there had been almost no time for looking for wild life because of the deadline we faced. The second leg was easier. Because there was no deadline, we could afford to take a little time off for nature study. Swifts were very evident. Among others, I noted the large white-collared swift. On the ground I saw three lizards. Two of them seemed to be the iguanid *Plica plica*; the third, though the same sooty colour as the others, which matched the rocks on which they stood, seemed to be an anole, but one I could not identify. Leaf-cutting ants were parading around, as they had done on our outward journey, but unlike the leaf-cutters of Trinidad, these ants seemed to be cutting grasses or sedges. Their burdens were slim and straight and they brought to mind that strange sport in which burly Scotsmen with tree-trunks on their shoulders run up to a line and hurl the trunk as far as they can. There were butterflies too, sev-

eral of which were well known to Charlo.

Our trip was over. There was still some sight-seeing to do in Canaima National Park, but that would be more of a tourist venture than an adventure. What had I learnt? Although I had found on Roraima four or five species of plants that I knew from Trinidad, these had all been from the lower levels, not from the summit, which was like nothing I had seen before. I seriously doubt that our El Tucuche has ever experienced a “loftier period” as postulated by Beard. On the other hand, the savannas surrounding Roraima and those we saw later near Kavanayen have many species in common with those of Trinidad. It is conceivable that our savannas were tiny northern outposts of a vast flat area millions of years ago. Detailed counts would probably show though, that the Venezuelan savannas have more species than ours. That is to be expected. For instance, we saw an insectivorous bromeliad that we know does not occur in Trinidad.

What of my idea that the savannas had been created by burning? Having now had the chance to read more about them, I think it likely that they have existed in the southeastern corner of Venezuela for several millions of years but that they may have been extended by the burning to which the native Indians have subjected them. The evidence of the fire-tolerant species is there. Is there danger in this? Very likely. But there is an even greater danger that deforestation in neighbouring Guyana could affect Roraima. During the six days of our trip a persistent cloud sat in the gap between Roraima and Kukenan, regardless of whether the mountain tops were in cloud or sunshine. From Base Camp I watched the streaks of

mist shredding away and evaporating as the prevailing wind took them from east to west. Those forests in Guyana just east of Roraima are threatened by exploitation. If they go, the moisture that generates the clouds over Roraima could go too; the



Back at Base Camp



Relaxing at the top of Roraima

bosom of the Mother of All Waters would dry up and leave her children destitute.

Surely, this is a tragedy too disturbing even to contemplate. We must prevent it ever happening.

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**Members on the Trip: Victor Quesnel, Selwyn Gomes, Luisa Zuniaga & Charles De Gannes.**