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In Search of Carpoxylon

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In 1875, two German botantists, Herman Wendland and Oscar Drude, described *Carpoxylon macrospermum*, a genus of palms based on fruit and seed reportedly from Aneityum, a small island in the New Hebrides. Nothing was known of flowers or of leaves or other vegetative parts of the tree. The fruit as drawn is quite large, perhaps 5 cm long, and has a stylar cap that protrudes to one side like the beak of a bird at the apical end. A photograph of the drawing of this fruit appears in Langlois' *Supplement to Palms of the World* (1976, p. 37). *Carpoxylon* has remained obscure for the last one hundred years. Although a relationship to the tribe Clinostigmateae has been suggested, the inadequate material led Moore to leave it unplaced among the arecoid palms (1973).

When Ken Foster and I were planning a collecting trip to New Caledonia for April, 1979, it became apparent that due to airline scheduling, routing, and connections in that part of the Pacific, we could have several days to collect in the New Hebrides before going on to New Caledonia. We jumped at the chance and included the New Hebrides in our itinerary. Our main objective was to get to Aneityum and attempt to rediscover *Carpoxylon*, collecting fruit for propagation and gathering herbarium material so that this palm could be placed with confidence in its correct taxonomic position among palms. In addition, and at Dr. Moore's urging, we hoped to locate and collect fruit and herbarium material of another palm, *Veitchia spiralis* (once confused with *Carpoxylon*), thought to grow at Anelgohaut Bay on Aneityum and also known only from fruit and seed (see Langlois 1976 and Moore 1957 for further accounts of *Veitchia spiralis*).

On Friday, March 23, 1979, Ken, my wife Anne, and I left Honolulu at one a.m. bound for Nadi, Fiji. After crossing the international date line, we arrived in Nadi at five a.m. on Saturday to change planes and arrive about midmorning at Port Vila, the capital city of the recently independent New Hebrides. The New Hebrides were then unique as the only place in the world governed jointly by two nations. There were two sets of immigration officials, one British and one French, and two police forces, one British and one French. Most signs are in English and French. In one country, one can enjoy the best of French cuisine and British tradition along with the friendly native New Hebridean people and their interesting culture. We were met at the Port Vila airport by Mr. R. M. Bennett, Chief Forestry Officer, with whom we had made previous contact. Mr. Bennett drove us to our quarters at the Hotel Rossi and after we had checked in we were off with him to the Forestry Herbarium to try to obtain more information on New Hebridean palms and, in particular, *Carpoxylon*. Later, Mr. Bennett took us to the local social club where we were introduced to Mr. Michael Giles, chief flight operations officer for Air Melanesiae, the local airline in the New Hebrides. With Mr. Bennett's and Mr. Giles' assistance, an itinerary was put together for our six-day stay in the New Heb-

rides. The emphasis, of course, was placed on getting to Aneityum, which is no easy trick. Aneityum, located about 370 km (229.4 mi) southeast of Port Vila, is serviced by one scheduled flight a week that arrives and departs on Thursday morning. This means that if one wishes to spend time on Aneityum, one must spend at least a full week or charter a flight into Aneityum several days in advance of the regularly scheduled Thursday flight, collect for a few days, and then depart on that Thursday flight. We had commitments in New Caledonia and did not have the time to spend a full week on Aneityum so we choose the latter plan and made arrangements to charter a plane into Aneityum, spend several days there searching for *Carpoxylon*, and then depart for Port Vila on the regular Thursday flight. Unfortunately, due to scheduling and availability of planes with Air Melanesiae, there was no plane free for charter service until Tuesday. This left us with two free days before our departure for Aneityum.

We made the best use of our two free days and wasted no time starting our collecting. After purchasing supplies Sunday morning, we returned to the vicinity of Port Vila airport where upon our arrival Saturday we had observed a tall and stately *Veitchia* growing in partially cleared forest next to the runway. We collected a few seeds of this palm that appears to be *V. montgomeryana*. Beyond the airport at Klem Hill we collected seeds of *Metroxylon warburgii* and observed a *Calamus* sp. growing rampantly in the shrubby undergrowth. Monday morning we flew to Espiritu Santo, a large island about 480 km (297.6 mi) north of Port Vila, where we collected seeds of *Veitchia macdanielsii* and again observed the *Calamus* sp. The same day we flew from Santo south to Malekula where we collected seeds of *Veitchia winin* and spent the night. Early Tuesday morning we left Malekula for Port Vila where we would pick up our charter to Aneityum. As it turned out, our charter was simply a continuation of our flight from Malekula to Port Vila. After a thirty-minute layover in Port Vila, we were airborne again and headed for the focal point of our trip, Aneityum.

We were full of anticipation as our pilot, Bob Wiley, guided our twin-engine Norman Islander towards the distant island of Aneityum that loomed larger and larger on the horizon. On the way we passed several islands, their dark green, jungle-clad slopes being a perfect foil for the striking blues, greens, and turquoises of the surrounding tropical waters. Our normal approach to Aneityum would have taken us west of the island over the ocean to land on the airstrip located on a reef opposite Anelgohaut Bay. At our urging, Bob changed course so that instead of making our approach over the open ocean to the reef airstrip, we flew over the mountainous interior of Aneityum first in the hope that we would be able to spot *Carpoxylon* from the air. We had it in mind, perhaps erroneously so, that *Carpoxylon* might be a tall, pinnate-leaved, palm with crownshaft that could be spotted easily from the air by its crown above the forest canopy. Bob told us to hang on as the air currents around the steep mountains could make for a rough ride. The plane was buffeted considerably as we flew directly over the middle of the island but our three pairs of eyes keenly searching the forest canopy for the telltale sign of a pinnate-leaved palm crown saw nothing of it. As we descended the other side of Aneityum, though, and crossed Anelgohaut Bay heading for the reef airstrip, we spied a tall *Veitchia* grow-

ing just inland from the beach which we excitedly took to be *V. spiralis* (Fig. 1).

Finally we touched down at the Aneityum Airport which is only a grassy strip situated on a sandy reef. One small building made of coconut palm leaves bordered the airstrip at one end. Upon disembarking, we were greeted by a native New Hebridean man whose main responsibility seemed to be keeping the grass on the airstrip mowed. We unloaded our gear and our plane took off, leaving us standing on the sandy reef with the native New Hebridean, one leaf-thatched hut, and Aneityum Island proper one km (a little more than half a mile) across the lagoon. All three of us looked at each other and said to ourselves, "What do we do next?" At about that time I noticed that the New Hebridean man had started a smokey fire with some driftwood and seaweed. This must have been a signal to natives on the island to send a boat to pick us up for we noticed immediately a bustle of activity on the beach across the lagoon. Several natives had launched a boat and soon the familiar putta-putta-putta of a small outboard engine greeted our ears. I am not sure if it was all our supplies and gear or a not-too-seaworthy boat or a combination of both, but as we chugged across the lagoon towards Aneityum, the gunwales were barely above the water line. Often waves would lap over the side. We all pitched in and bailed with whatever we could find that would hold water, but by the time we arrived on the beach at Anelgohaut Bay the boat had a good quantity of water in it. We were met upon landing by Roata Kichikichi, the Forestry Officer of Aneityum, who guided us graciously to his house just back of the beach that would be our headquarters for two days. To our surprise, and delight not more than a stone's throw from Kichikichi's house was the tall *Veitchia* we had spotted when we flew over. In great haste, we dropped our gear and rushed over to search for seeds but could find none. Although we were disappointed, Kichikichi told us of two other groups of this palm in the vicinity so our hopes were still alive for finding seeds of *V. spiralis*.

After settling in and stowing our gear and supplies, we discussed our plans for the upcoming two days with Kichikichi over tins of meat and fruit. Although Kichikichi knew of no palm with fruit that matched that of *Carpoxylon*, he took us to talk with native hunters who often traversed the interior of Aneityum and knew it well. To our disappointment, none of the hunters knew of *Carpoxylon* and its peculiar fruit. We asked Kichikichi and the hunters about going into the interior of Aneityum to look for *Carpoxylon* anyway. They told us that there were no roads and it would be a difficult trek of several days into and out of the interior. Since we had only one full day, Wednesday, for exploring, this idea was out. The hunters did know, though, of a palm with small, red fruit that grew on the mountainous slopes on the western side of Aneityum. We suspected that this palm with the small, red fruit, if it indeed did exist, was probably either *Physokentia tete*, *Clinostigma harlandii*, or *Gulubia cylindocarpa*. Dr. Moore had informed us that we might expect to find these here since they occur on other islands in the New Hebridean chain. As the natives described further the aerial roots, tall trunk, and inflorescence, we became more confident that we were dealing with a *Clinostigma*. After much discussion with the hunters over the price of a guide to take one of us to this palm and trying to make certain that we were really dealing with a palm

1. A grouping of eight of the remaining thirteen palms of *Veitchia spiralis* found only on Aneityum Island. Photo by Kenneth Foster, reprinted by permission of the Fairchild Tropical Garden Bulletin.

and not a palmlike plant, Ken and I decided that I would accompany a guide the next morning to try to locate this palm. This would at least get me into forested areas where there was an outside chance I might be able to spot *Carpoxylon*. Ken would spend the next day searching with Kichikichi in the vicinity of Anelgohaut Bay for other trees of *Veitchia spiralis* and, we hoped, mature fruit.

We spent what remained of Tuesday afternoon resting and relaxing, saving energy for our upcoming full day. We did manage to look around the native village on Anelgohaut Bay that seemed to be the main village of Aneityum. Even so, very few people were present, giving the island an atmosphere of being abandoned. There was no electricity and we found no roads, only a foot trail along the beach that connected the native huts. There was a small cooperative store in the village we visited in order to replenish our supplies that were dwindling at an alarming rate. We roused the storekeeper, who was sleeping in a hut nearby, and he opened the store to reveal shelves full of baby powder and curry powder! It seemed a supply ship had not visited the island in several months. As we returned to our quarters, we had visions of relaxing under coconut palms and sipping ice cold drinks. Well, there were plenty of coconut palms but a cold drink was not to be found anywhere. Even the water that trickled from the pipe in Kichikichi's house was lukewarm.

Later in the afternoon, Kichikichi took us to one of the two remaining groups of *Veitchia spiralis* but again we found no mature fruit; only green immature fruit were seen on the trees. By this time, we were quite discouraged as we had come so far and found not even a rumor of *Carpoxylon*, only immature fruits of *Veitchia spiralis*, and rumors of a palm with small, red fruit that grew way in the mountains. On that note, we ate dinner from our meager supply of tins and retired early, hoping to get a good night's sleep. It was a nightmarish night, though, as we battled the oppressive heat and humidity and attempted to fend off the swarms of malaria-carrying *Anopheles* mosquitoes that attacked in waves, finding the tiniest holes in our mosquito netting. I spent most of the night with masking tape trying to patch the holes and by morning one could barely see the netting for the tape.

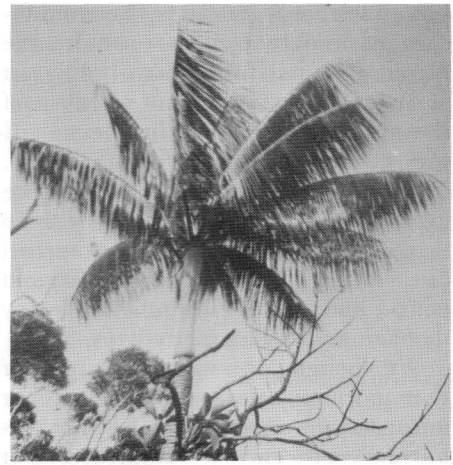
I was more than happy to see the first light of dawn in the east. At six o'clock sharp, I was off with the native guide amid shouts of good luck from Anne and Ken to look for the palm with small red fruit and *Carpoxylon*. We headed out at a brisk pace around Anelgohaut Bay to the northwest and up the coast for several kilometers before turning inland and to the west on a hunting trail. We did not stop once to rest and after about two hours, I was quite winded. The trail rose sharply from the ocean and up the mountains towards a cloudy, misty forest. I was hot and sweaty and pursued relentlessly by hundreds of flies. At night, it was mosquitoes; now during the day it was flies, swarms and swarms of them. Hundreds of flies would alight on the native guide who walked before me, covering his head and shoulders completely. Every time the guide stepped up or down sharply, the flies would swarm off in an angry, buzzing mass, only to land again on his head a few steps later.

We had been ascending steadily for about an hour when I scrambled up a steep slope to reach a ridge top and asked the guide to rest so I could catch my breath. I bent over at the middle with my hands resting on my knees, breathing deeply and trying to catch

my breath. When I straightened up and looked around, I saw to my great surprise and delight the telltale signs of pinnate leaves with drooping pinnae, green crownshaft, green-ringed trunk, and thick, black stilt roots that all spell *Clinostigma* in this part of the world. I was overjoyed and thanked the guide profusely. Initially, we found no flowering material or mature fruit but upon climbing higher we located several trees loaded with reddish-orange mature fruits. The fruit is about the size of a small pea and contains one slightly flattened seed. In addition to collecting fruit, I made herbarium material of this handsome palm for Dr. Moore who later confirmed that the material does agree well with *Clinostigma harlandii*. Although the average height for this stately palm is about 20 m (65 ft), we noted that several individuals towered above the forest canopy to over 25 m (82 ft) tall (Fig. 2). The climbing ability of my guide was evident as he shinned up three of the hard, smooth, slippery trunks to their full height to collect fruit.

I was elated as we began our long and tiring trek back to Kichikichi's house and imagined the happiness it would bring to Anne and Ken when I triumphantly held up my treasure bag of *Clinostigma* seeds. I was hoping that Ken had had good luck, also, in his search for seeds of *Veitchia spiralis*.

I arrived back at Kichikichi's house in the afternoon and upon seeing the large bag full of *Clinostigma* seeds, Anne and Ken broke into happy smiles. But I was the happiest when I saw the large pile of just-cleaned, egg-sized seeds of *Veitchia spiralis* that Ken had been fortunate enough to collect that morning from a group of trees up the coast beyond Anelgohaut Bay. We were lucky to obtain the *Veitchia* seeds since we counted only thirteen specimens of this palm remaining around Anelgohaut Bay, perhaps the entire population! We were a tired, hungry, and thirsty but happy crew that afternoon as we cleaned fruits and pressed and photographed specimens.



2. *Clinostigma* aff. *harlandii*, Aneityum, New Hebrides.

Late that afternoon after completing our chores, we wandered back to the village store where we found a group of natives talking excitedly about a radio report of a hurricane that was in the vicinity of the New Hebrides. Our hearts leapt when we heard this for if a hurricane struck Aneityum, airplane service would be disrupted and the once-weekly flight that we were planning to depart on the next morning would be cancelled. This would be disastrous for us since we had a tight schedule to keep in getting to New Caledonia. In addition, we did not relish the thought of being stranded on Aneityum as the heat, humidity, flies, mosquitoes, and low supply of food were beginning to take their toll.

In the flickering light of a kerosene lamp, we huddled around Kichikichi's portable radio that night trying to pick up a progress report of the hurricane

but all we got was static. The wind increased briskly and the waves in the lagoon became stronger. I did not sleep well that night, not because of the mosquitoes or heat but because I was concerned about the hurricane. To our relief, the next morning we awoke to a beautiful sunlit day with no trace of the hurricane. As it turned out, during the night it had changed course and struck Fiji, inflicting heavy damage and taking many lives.

We thought our worries were over that morning as we packed our gear and precious cargo of seeds and herbarium material for departure. But were we ever wrong. We hauled our gear down to the beach but there were no boats around to take us out to the reef to meet the plane that was due to arrive in two hours. The lagoon was completely empty of boats. We asked Kichikichi about it and he went off to round up a boat. He returned a half hour later with the bad news that all the boats were out fishing. Kichikichi had a small rowboat but it was lacking oars. We were quite worried, then, as we pictured ourselves sitting on the beach at Aneityum sadly watching our plane land on the reef and take off again without us, leaving us stranded on Aneityum for another week. About the time we were ready to launch Kichikichi's boat and paddle with our hands, a motorboat appeared on the horizon. Kichikichi flagged it down and we loaded our gear and were finally headed out to the reef to await our plane. We were very relieved to see the yellow speck in the distance grow larger and larger and, when we could finally hear the engines and make out the shape of the plane, to know at last that we were in touch with civilization again.

We bade farewell to the airport maintenance man who was mowing the runway and piled ourselves and our gear into the plane which was completely full as several natives were making the trip to Port Vila with us. The plane was stuffed to the doors with baggage and other belongings. There were boxes on our laps, between our knees, and under our feet. I had my doubts if the plane would make it off the ground. We rolled down the airstrip, gaining speed ever so slowly. The end of the airstrip terminating a few feet above the ocean came alarmingly fast. I did not think we were going to make it up, and we did not. Our pilot, Doug Baldwin, simply maneuvered the twin-engine plane straight off the end of the airstrip and out over the ocean, landing gear barely above the breaking waves. Our hearts did double time. We had hardly gotten the exclamations of relief off our lips when Doug banked the plane sharply to the left, so sharply that it seemed as if the tip of the left wing was etching an arc across the ocean. I, sitting on the right side of the plane, was above my wife who was sitting on my left side and I could look straight down into the lagoon through her window! The gravitational force of the sharp bank gave me a headache that remained with me to Port Vila. It was certainly a fitting salute to our memorable stay on Aneityum.

The remainder of our return to Port Vila was relatively uneventful except for an unscheduled four-hour stop on the island of Tanna where, to our surprise, we were treated to a wonderful feast of a lunch and cold drinks with real ice in them, all thanks to our pilot, Doug. We made one final stop before arriving back in Port Vila and that was on the island of Erromongo. Here we picked up a half-dozen coconut-leaf baskets full of live lobsters. How we got them into our packed plane, I do not know. But when I jumped out of the plane to assist the natives in get-

ting the lobsters on board, there was suddenly a whole lot of room, my seat. I regretted getting out to help as the large, red claws poked out between the coconut leaves to nip at my ankles for the remainder of the flight. Upon taking off from Erromongo, we saw several *Veitchia* palms in the forest adjacent to the airstrip and wondered what species they must be. It seemed that all the dozen islands we flew over or landed on during the course of our travels in the New Hebrides had tall *Veitchia* palms on them. Certainly, the veitchias of the New Hebrides need to be investigated further as many of the islands in the New Hebridean chain may yield new species. Our final treat after departing from Erromongo was spotting palm crowns of recurved, arching, pinnate leaves thrusting themselves above the forest canopy of the higher mountains. We took this to be *Gulubia cylindrocarpa* since it is reported from Erromongo. Our only regret as we flew back to Port Vila through the late afternoon rain was that we did not have more time to search for *Carpoxylon* and other interesting palms of these unique islands. It certainly warrants a return trip but there was no time then as our departure for New Caledonia was imminent and further palm collecting adventures awaited us there.

ADDITIONAL READING

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PALM RESEARCH

JUDAS TADEU DE MEDEIROS-COSTA, a graduate student at the Empresa Pernambucana de Agropecuaria Recife-Pernambuco Brazil, is engaged in systematic studies of the *Bactris* alliance, in particular the genus *Desmoncus*.

DR. K. AMBWANI of the Birbal Sahni Institute of Palaeobotany, Lucknow, India, is engaged in anatomical studies of the stems of living palms in relation to the tertiary fossil palms of India. So far he has examined variation in the stems of *Caryota mitis*, *Calamus viminalis*, *Rhapis excelsa* and *Ptychosperma macarthurii*.