Seeking Aloes in Madagascar

By G. W. REYNOLDS

EARLY in June 1955 I flew to Madagascar to study the Aloes of that country at the invitation of Professor J. Millot, Director of the Institut Scientifique de Madagascar. Dr. R. Paulian, the Deputy Director, met me at the airport and drove me to the Institute's Guest House at Tzimbazaza, a few miles from the centre of Tananarive. Professor Millot had been detained in Paris and I was not to meet him until after my travels through Madagascar had been completed.

Masses of *Aloe chabaudii* decorated the entrance drive to the imposing three-storeyed administrative building that towers above the gardens.

The scientific gardens at Tzimbazaza were originally established in 1927, and were taken over by the Institute in 1947. Since then they have been enlarged, and now cover about seventy acres. Two small lakes with a roadway separating them divide the gardens into two main parts—the Aloearium, where the Aloes and other plants from Africa are grown, and the area reserved for the cultivation of the indigenous plants of Madagascar.

In the background stands Tananarive's large, densely populated hill with the Palace of the Queens on the highest point. The Palace is now a National Museum and contains a large collection of historical relics.

In the Silver Palace, fossils and models of Madagascar's extinct fauna are displayed, and these include the largest bird the world has ever known, *Aepyornis maximus*, eleven feet high. Models of giant lemurs the size of gorillas are mounted in a wall cabinet, and the vertebrae plus tail of a Dinosaur, unearthed near Majunga, stretched thirty feet along the floor.

My first view of the African Aloes in the Aloearium filled me with amazement, and it did not take long to realize that I was viewing the world's finest collection of Aloes.

The Aloes of South Africa were very well represented. Small species such as *A. saundersiae*, *A. albida* and *A. myriacantha* grew contentedly, so did *A. humilis*, *A. aristata*, *A. brevifolia*, *A. glauca* and *A. microstigma*. Groups of *A. globuligemma* put up a colourful show, and *A. pretoriensis*, *A. saponaria*, *A. striatula*, *A. striata* and many more were seen. Numerous hybrids of *A. arborescens* splashed the gardens with colour.

But what was positively breathtaking was to find such difficult-to-grow species as *A. dichotoma*, *A. pillansii*, *A. krapohliana* and even *A. pearsonii*, *A. ramosissima*, and *A. melanacantha* growing alongside *A. succotrina*, *A. plicatilis* and *A. bainesii*. Species from arid deserts were quite happy under the same conditions as species from heavy-rainfall areas.

The Aloes of tropical Africa were also well represented. *A. termetophila*, *A. sereti*, *A. angiensis* and *A. dawei* from the Belgian Congo were there, and *A. schweinfurthii* from the Sudan grew luxuriantly. The Ethiopian species *A. rivae*, *A. yavellana* and *A. calidophila* looked quite at home, and so did *A. microdonta*, *A. ruspoliana* and *A. pirottae* from Somalia.

Two rare species from Kenya, *A. erensii* and *A. turkanensis* were thriving; and *A. mawii* from Nyasaland was in flower—so was the rare *A. ortholopha* from the Umvukwes near Salisbury, Southern Rhodesia. These are only a few names; many more could be listed.

Leucospermum reflexum (8 ft.) was in full flower, and *Protea mellifera* was growing strongly.

There must be upwards of two hundred different species of Aloe in cultivation at Tzimbazaza, and I know of no other gardens that can compete with this almost incredible total.

Many years ago I asked Professor Compton what the best ingredients were for growing South African plants. He replied, 'Love and manure'. I do not know about the manure, but I do know that no man could bestow more loving care on his Aloe collections than does Professor Millot, and the gardens merely reflect his spirit.

In the Madagascar section I saw for the first time, several of the Aloes I was later to find growing wild. Two species call for special mention—*A. capitata* Bak. and *A. bulbillifera* H. Perr.

A. capitata with its capitate racemes of golden flowers, is one of the most beautiful Aloes in the world, and it also has the peculiarity of its flowers opening from the top downwards. This character is not known in any other species of Aloe, although I have seen it in two species of *Kniphofia* in southern Ethiopia.

A. bulbillifera and the variety *paulianae* are unique in the genus. The former develops bulbils on the branches of the inflorescence, the latter on the main peduncle and not on the branches. After the flowers are over, these sessile bulbils grow into rosettes of leaves five inches

Botanical Society of South Africa

CALENDAR OF MEETINGS FOR 1956

Tuesday, 28 *February*, 8.15 p.m. Lecture Hall, Kirstenbosch.
'How to Sow Kirstenbosch Seeds.' Talks and Demonstrations.

Tuesday, 20 *March*, 8.15 p.m. Lecture Hall, Kirstenbosch.
Annual General Meeting, followed by 'Some Monocotyledons of the Western Cape.' Colour slides and talk by Dr. W. P. U. Jackson.

Tuesday, 15 *May*, 8.15 p.m. Lecture Hall, Kirstenbosch.
'My Work at Kirstenbosch.' Talk by Miss M. E. Johns, Field Biologist.

Saturday, 15 *September*, 3 p.m.
'Visit to Darling Flora Reserve.' Cars meet 6 miles beyond Darling on Ysterfontein Road.

Saturday, 22 *September*, 3 p.m.
Anniversary Meeting, Karoo Garden, Worcester. Tour of Garden by Mr. J. Thudichum, Curator.

Saturday, 6 *October*, 11 a.m.
Annual Gathering of Members, New Lawn, Kirstenbosch.
Followed by WILD FLOWER SHOW. Lecture Hall, Kirstenbosch, 12 noon.

Sunday, 7 *October*, 11 a.m.
Continuation of WILD FLOWER SHOW. Lecture Hall, Kirstenbosch.

Saturday, 27 *October*, 3 p.m.
'Visit to Isoetes Vlei, Cape Flats.' Cars meet Philippi Police Station, 3 p.m.

Saturday, 10 *November*, 3 p.m.
'Visit to a Member's Garden.' Mrs. C. Barlow, Vergelegen, Somerset West. Cars meet G.P.O., Somerset West, 2.50 p.m.

Members are cordially invited to bring their friends along to the above Meetings.
Refreshments served at all Meetings.

Have Your Friends Joined the Society Yet? If Not, Why Not?

A MEMBERSHIP FORM IS ENCLOSED IN THIS JOURNAL across, and eventually fall to the ground and take root. Unfortunately this peculiar species does not withstand the rigours of the Transvaal's icy winters.

Dr. Paulian placed a Land Rover with driver at my disposal and left no stone unturned to ensure the success of the expedition. Mr. B. M. Descoings, the Institute's botanist, accompanied me, and together we were to travel over 4,000 miles through the island, including the extreme south and the far north, searching for Aloes.

From Tananarive the road to the south led through hilly country to Antsirabe through large areas given over to the cultivation of rice, the natives' staple diet. Scarcely a square yard was to be found that had not been levelled and converted into paddy fields.

In deep soils of the plateau, *A. macroclada* was repeatedly seen. This species is acaulescent, solitary, has a large rosette of leaves, and produces a simple 'bottle-brush' spike about six feet in height.

On granite, *A. acutissima* was seen repeatedly, large plants of which bear some slight resemblance to small plants of the South African *A. arborescens*.

The road continued southwards to Ambositra (pronounced 'Ambusht'). Along a branch road westward to Ambatofinandrahana, *A. conifera* was found in considerable numbers on denuded rocks, and the very decorative *A. capitata* var. *quartziticola* was seen on quartzites—as the varietal name implies.

Back to the main road, then southwards to Fianarantsoa and Ambalavao we continued, and a further thirty miles brought us to a village on foothills of the majestic Andringitra range. Aloes were recorded from along the top, but I could not reach them. (How I longed for a helicopter.)

In the flat, sandy country of the arid sun-drenched south, large numbers of the very attractive *A. vaombe* were in full flower. With six- to nine-foot simple stems, and large inflorescences of bright red flowers embellishing an otherwise drab landscape, *A. vaombe* is the Madagascan counterpart of *A. ferox* in the Cape, although it does not occur in anywhere near the same numbers.

One of the most astonishing Aloes seen in the far south was *A. suzannae*, found in dense bush in the Mandrare River valley near Amboasary—an intensely hot region with summer temperatures often reaching 110 deg. F. and more. It has a stem ten to fifteen feet high and nine to ten inches thick, while its inflorescence is a simple 'bottle-brush' spike up to ten feet high. At a distance *A. suzannae* seems to bear a slight resemblance to *A. comosa* in the Doorn River Valley north of Clanwilliam, but the leaves and flowers are in all ways very different. In fact the flowers of *A. suzannae*—borne on pedicels over an inch long—are somewhat campanulate, with revolute segment apices, and rather resemble the flowers of some of the Lilies in outline.

In the same neighbourhood, there are masses of spiny Didierea, and almost forests of *Alluaudia procera*, a shrub-like tree with long, very slender, spike-like erect branches which seem to pierce the skies. These plants suggest relics of a prehistoric age, and one almost experiences a weird feeling of eeriness—as if expecting a dinosaur to emerge from the dense bush at any moment.

Eastern, central and south-western floras meet near Fort Dauphin, and many unusual species can be seen. One of them, *Neodypsis decaryi*, is a tall-stemmed palm with its leaves arranged in three symmetrical ranks. Another is *Ravenala madagascariensis*, of the banana family, but unlike the banana, its leaves are arranged like an open fan on a tall stem. One fascinating plant seen along the coast north of Fort Dauphin was *Nepenthes madagascariensis* which traps insects. The trap is like the spathe of an Arum Lily, with a red lid, and when once an insect ventures inside it never emerges again. This is a link with the Far East and not Africa.

The French landed at Fort Dauphin in the south-east corner of the island in 1642—ten years before van Riebeeck landed at the Cape. Near Fort Dauphin I most fortunately found *Aloe bakeri*, described by Scott Elliot as far back as 1890. It is a charming little species forming dense groups of 50 to 100 plants, and its flowers are most attractive—scarlet at base, shading through orange at the middle to yellow at the green-tipped mouth.

Cap Ste. Marie, the southernmost point of Madagascar, is an Eocene limestone bluff three hundred feet above the sea, and lies roughly due east of Pretoria. There I found numbers of a charming species, *A. millotii*, in flower.

Another remarkable species, found only on limestone slopes and cliffs near Tulear in the south-west is *A. viguieri*. This species has leaves and rosettes very closely resembling the 'Coral Aloe' of the Cape, *A. striata*, but the inflorescence is simple with a laxly flowered raceme.

On mountains of the plateau, and in the dry south, one almost invariably finds Pachypodiums on barren denuded rocks, and one wonders where the roots find any nourishment. The Pachypodiums are an astonishing group and vary from small yellow-flowered plants twelve inches in diameter and a few inches high, to branched trees ten feet high with terminal clusters of large white flowers. Some species bear large yellow flowers on very short peduncles; in others the peduncles are a foot long. A Pachypodium in the south has a simple spiny stem eight to ten feet high, crowned with a tuft of leaves, reminiscent of *Pachypodium namaquanum* in the north-western Cape near the Orange River, but I saw no flowers.

Throughout the island a wide range of Kalanchoes was seen. A common species is *K. tubiflora*, so plentiful in South African gardens under the name of Bryophyllum. Of the world's total of 150 species of Kalanchoe more than half occur in Madagascar, Mr. Descoings told me.

In the Tzimbazaza Gardens, a specialized collection of Kalanchoe is displayed in bewildering variety, and some of them are positively beautiful. If South African horticulturists would cultivate some of the showy Kalanchoes of Madagascar, there would be a never-ending demand for them.

The few Baobabs I saw were nowhere near the size of the giants in Africa. One of them was *Adansonia za*, but none was in flower.

Returning from Tulear to Tananarive, I found numbers of another very attractive Aloe near Ranohira, in the Isalo range—*A. deltoideodonta* var. *brevifolia*. The leaves and rosettes of this species, too, suggest an affinity with *A. striata*, so does the branching of the inflorescence —but not the individual flowers.

Professor Millot had not returned when I arrived back in Tananarive, so I decided to see what Aloes were to be found along the road up to Diego Suarez in the far north.

Near Antsohihy I found numbers of the Aloe that produces large bulbils on the peduncle. Large tracts of low country covered by considerable numbers of Borassus palms were passed through, and in one place the road skirted a magnificent bamboo forest. Considerable cultivation of coconut palms was seen in the north.

Diego Suarez was reached, and on the near-by Montagne des Français my last Aloe was collected — *A. suarezensis*, growing on limestone faces.

I had to fly back to Tananarive and regretfully parted with a grand travelling companion. Mr. Descoings had at all time been most considerate and helpful, and I owe it to him for getting the inflorescence of *A. suzannae*, and once for climbing a dangerous rock face to get the flowers of *A. viguieri*—where I feared to try myself.

Back in Tananarive I at last met Professor Millot and the two days remaining before my plane left for home we did little else but discuss the Aloes and other plants in the gardens. But many were my questions concerning other aspects of Madagascar. 'The geology of Madagascar is one of the very oldest in the whole world', the Professor told me, 'and goes back 3,000,000,000 years.' It is thought that Madagascar was separated from the mainland of Africa about the Permian period, 200,000,000–300,000,000 years ago, long before the Eocene. 'Since then the evolution of Madagascar has been quite independent of the mainland', the Professor added.

The Aloes of Africa and Madagascar have seemingly evolved from a common ancestral stock. While there are resemblances between a few Madagascan and African species, evolution has, it seems, taken very diverse paths, and many Madagascan species have no counterpart on the mainland.

There is nothing in Madagascar even remotely resembling such Leptaloes as *A. saundersiae*, *A. albida*, *A. minima* and *A. myriacantha*. The same applies to the Leptoaloes such as *A. ecklonis*, *A. cooperi* and *A. boylei*. There is also nothing in Madagascar resembling the *Saponariae* such as *A. saponaria*, in South Africa and *A. lateritia* in East Africa. This is remarkable since the maculates grow from Cape Town to Somaliland. Against this, the African mainland has nothing like *A. capitata* with flowers opening from the top of the raceme downwards, the uppermost pedicels being longer than the lowest ones, and to *A. bulbillifera* bearing large bulbils on the peduncle. *A. haworthioides*, a very distinctive small species, is nearer in leaf characters to *A. humilis* than a Haworthia, but its raceme bears very small sessile flowers. Nothing like it is known in Africa.

Two species—*A betsileensis* and *A. conifera*—bear dense racemes of sessile flowers, but the flowers are very different from those of the eastern Transvaal *A. sessiliflora* and allies.

There is nothing in Madagascar with oblique racemes of unilateral (secund) flowers like *A. globuligemma* and *A. marlothii* of the Transvaal, *A. ortholopha* of Southern Rhodesia, *A. mawii* of Nyasaland, and *A. secundiflora* of East Africa.

In *Prolongatae*, the Madagascar species *A. antandroy* appears to show a remote affinity with the South African *A. tenuior*, while *A. divaricata* may be distantly related to the East African *A. volkensii.*

Madagascar is a country about which so many know so little. It is actually the world's fourth largest island. It is 1,000 miles long, 350 miles wide at the middle, and 241,000 square miles in extent. From Tananarive down to Fort Dauphin involves 740 miles by road, and from

Tananarive up to Diego Suarez is not less than 790 miles.

Apart from being a never-ending source of delight to the botanist, with new discoveries on almost every mountain range (varying from limestones and sandstones to quartzites and granites), it is filled with interest for students in other fields. There are the lemurs—most beautiful creatures—non-poisonous snakes (I stroked the back of one and it scarcely moved), fossil remains of Dinosaurs, of the largest bird the world has ever known, *Aepyornis maximus*, eleven feet high, and countless other treasures besides.

There are some fascinating tongue-twisting Malgache names such as Ankitsaralaninaomby near Diego Suarez, while the first Malgache king's name was Mahitsielajanjaka Andrianampoinimerina.

From the forests of the east coast to the mountain ranges extending throughout the length of the island, and from the cool central plateau to the hot arid south, Madagascar is an intriguing land of startling contrasts, absorbing interests, and infinite variety.

ACKNOWLEDGMENT

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