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NESTING OF GREY SWIFTLET ON BEDARRA ISLAND

By JOHN BUSST

NESTING of the Grey Swiftlet, **Colocalia francica** Gmelin, begins at the end of August or early September. The name is a misnomer for it is really a bluey-brown, with a white band at the base of the tail. Observations were commenced on 20th October, 1955, when there were counted 38 nests fully made, of which five contained one egg each. In addition, 39 nests were in process of construction. The accompanying photographs were taken in 1953 by Messrs L. J. Webb and Harold Hayes, of the Plant Industries Division of the C.S.I.R.O. They are not very good, but the location of the nests and the poor light made photography difficult.

The location of the nests is in a semi-cave, with three entrances, amongst huge granite rocks on the south-east end of Bedarra Island. This is the aboriginal name of the island, but it appears on the Admiralty chart as Richards Island and is situated five miles south of Dunk Island, the only place in Australia where these birds had hitherto been known to build their nests. Captain Cook called the island Richards. Bedarra is the somewhat inaccurate anglicised version of the aboriginal name. From an old Tully identity, Chris Wildsoet, who knew the Dunk Island tribe, I believe the actual name should be Beeg-ah-rah. The postal officials and local people recognise the name Bedarra.

The nests are built on a sloping wall inclined at an angle of about 45 degrees. The birds, while they are being watched, show most extraordinary skill in avoiding one, frequently passing at high speed within a few inches of one's head, emitting at the same time the characteristic clicking sound coupled with a high "cheep-cheep." A midnight observation, which I made early in January, 1954, showed about 140 nests, practically all occupied by birds, and with a considerable number (impossible to count owing to constant movement) clinging to the walls beside the nests (doubtless the unfortunate husbands). In the daytime, there are frequent squabbles amongst the birds for the possession of nests, particularly when the eggs are hatched. The miracle is that very few eggs on the fragile nests are dislodged during the entire season.

As to whether all the swiftlets are concentrated in the single colony here, I do not know, but I keep making inquiries from professional fishermen who move about the islands more than most people, but as yet they know of no other breeding site for these birds.

I learn from Mr. Fred Boland, of the Hull River, who was some eight years ago living at Timana (Thorpe) Island, between Bedarra and Dunk Islands, that he observed a small colony of swiftlets nesting on a sheltered rock face there. However, since the collapse of the rock face, he has not seen them since.

Nests are composed of the fine fluted stems of the beach sheoak **Casuarina equisetifolia**, which has whorls of tiny, insignificant leaflets at each of the nodes and on the whole resemble somewhat pine needles. The trees grow generally over all the foreshores in North Queensland. There are also a few feathers and some secretion to bind these together. I have never yet actually seen the birds collecting these stems or hover about the sheoaks on which they grow or on the ground below for the purpose, but presume that they use the dead and dried stems only, for I have not yet observed a green stem incorporated into the newly built nests.

Not being an expert, I cannot differentiate the male from the female so am unaware of variations from the normal in egg hatching habits.

On 27th October, 72 nests were completed, 21 were incomplete, and 17 eggs were counted.

On 4th November, 121 nests were completed, 22 incomplete, and 19 eggs were noted.

Nests hanging below sloped roof of cave.

Photographs by L. J. Webb and Harold Hayes

On 10th November, there were 129 completed nests, with 27 incomplete, as well as 27 eggs.

On 24th November, there were 197 completed nests, 6 incomplete, and 67 eggs, including two in the same nest, the only instance of such noted. There were three newly hatched fledgelings.

A snake was found partly coiled around a nest in process of devouring a swiftlet, head first, the former about two feet in length. It is difficult to understand how it could ascend the lower surface of a sloping wall inclined at an angle of 45 degrees. However, the snake was promptly dispatched and fell to the bottom of the cave. On descending by ladder, I was unable to find any trace of either the snake or of the partially devoured bird. The reptile's back was broken but it was able to slither down between the many boulders at the bottom of the cave. Probably the snake was a species of **Boiga,** the Brown Tree snake.

Since the average number of nests here is 140 to 150, it is clear from the last figures that the colony is definitely increasing in size, due either to natural increase or to migration of other colonies to Bedarra. In 1952, observations were made during the nesting season, August to February, by myself and my wife on behalf of the C.S.I.R.O., and particularly by Mr. Harold Hayes of Coff's Harbour, N.S.W. It would appear that the colony has increased in size by about a third since my original count at this period.

On 1st December, there were 204 nests completed, 3 incomplete, 59 eggs, and 9 fledgelings. The two eggs in one nest had not yet hatched but I shall be interested to learn what actually happens.

I was able to dispel a suspicion that I had that the fledgelings were in some way gummed to the nest by the secretion used in building the nest. The claws of the chick are hooked firmly round the bundles of casuarina stems in the inside of the nest permitting the feet to have complete freedom of movement. Fledgelings when freshly hatched look like pink shrimps but soon show signs of development, so that a bird about a quarter mature begins to develop feathers.

9th December, 1955: 204 nests, 3 dislodged and lying on the ground, all nests complete, 91 eggs, 8 fledgelings (last week there were 9). As some of the fledgelings are now almost fully grown, I presume either that some have left the nest or that there was further mortality caused by the snake.

19th January, 1956: 224 nests, with 24 fledgelings and 17 eggs.

16th February, 1956: nests 224, fledgelings 7, eggs 3. Seven nests were incomplete, apparently still in process of building as they look new and fresh. As to whether they will be completed and occupied remains to be seen. Apparently, continuous hatching takes place throughout the season and at no time are all the nests simultaneously occupied with eggs and fledgelings.

23rd March, 1956: nests 224, fledgelings 2, egg 1. Two nests incomplete, probably will not be completed.

April 7th: Swiftlets completely finished nesting and hatching. All nests empty, and the birds are apparently gone from the island. They were here until 4th April.

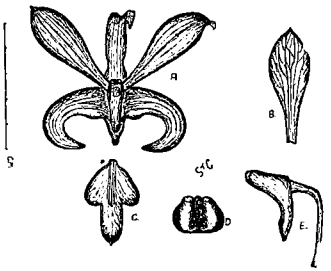
April 10th: Swiftlets back again—apparently only temporarily in pursuit of food.

The maximum number of completed nests appears to have been 224 completed by 19th January, the same number being counted on 16th February and 29th March. The maximum number of eggs, all solitary with but one exception being 91 on 9th December, and the maximum number of fledgelings being noted as 24 on 19th January, although at other times no more than nine were counted.

The severe cyclone which ravaged North Queensland ("Agnes") on 6th March, left the colony undamaged. The rock formation where the colony nested was fully exposed to the path of the cyclone, but the position of the 45 degree angle wall prevented any damage at all to the nests from either the wind or the rain.

DENDROBIUM VINICOLOR sp. nov.

By S. F. ST CLOUD



Key to plate:—
A. Flower front, labellum removed
B. Petal
C. Labellum, flattened
D. Anther from rear, reversed
E. Column, ovary, and pedicel
A., B., C. natural sizes
D. and E. variously enlarged

PLANTA robusta saxicola. Pseudobulbi appressi solidi, globosi. Caulis 35-45 cm. altus, a medio tumidus ad circa 2.5 cm. diam., dimidius superior a venis purpureis subnigris, dimidius inferior a bracteis vaginalibus scariosis vestitus. Folii 8-10, dimidio superiore caulis alternati, virides subnigri, in textis tenues, ovati, inaeque emarginati, inferiore paululo carinati, superiore paululo canaliculati, 10-13 cm. longi, 2.5-3.0 cm. lati. Racemi terminales, semierecti, 30-35 cm. longi, 3 mm. diam. a base; bracteae basales 3, subacutae, circa 1.5 cm. longae; bracteae pediceles subtendentes deltoidales; pediceles cum ovario circa 3.5 cm. longi. Flores 10-12 circa 7.5 cm. diam., late expandentes, colore vino subnigro, iridescentes cum anthere flavo candido. Segmenta apiculata. Sepale dorsale circa 3 cm. longum 8 mm. latum, lato-lineare subacutum, recurvatum. Sepalia lateralia circa 3 cm. longa, 1 cm. lata a base, falcata, marginibus ad superiore flexa canaliculum rotundum per totam longitudinem faciendum. A base unita ubi cum pede columnae calcar conicale solitare circa 1 cm. longum faciunt. Petalia circa 4 cm. longa, 1.5 lata, oblanceolata, a base attenuata et paululo torquata. Labellum circa 3 mm. longum, 2 cm. latum; lobus medius saltim dimidius longitudinis labella, lato-linearis, subacutus, apice recurvato; lobi laterales semiangusti cordati, erecti; discus laminae non prominens, callum centralem paululo sublatum in duo tertiis laminae, marginibus tum ad finem paululo ultra coniunctionem lobi medii sublatis. A base ab ultra initium ipse marginium sublatorum, 3 iuga non-interrupta recta, anteriore sublata ad altitudinem 1 mm. sunt. Columna lata; alae crassae, altae quam anther. Anther duo saccas urceolatas constans. Pollinia difficillime ab anthere amovendum, lunata latis planatis.

A robust plant growing on rocks. Pseudo-bulbs closely appressed spherical. Stems 35-45 cms. high, swollen about the middle to about 2.5 cm. diam., the upper half marked with dark purple veins, the lower half clothed with scarious sheathing bracts. Leaves 8-10, alternate on the upper half of the stem, dark green, thin in texture, ovate, unequally emarginate, slightly keeled below, slightly channelled above, 10-13 cms. long and 2.5-3.0 cms. broad. Racemes terminal, semi-erect, 30-35 cms. long, 3 mm. dia. at the base; basal bracts 3, subacute, about 1.5 cms. long; bracts subtending pedicels deltoid; pedicel with ovary, about 3.5 cms. long. Flowers 10-12, about 7.5 cms. diam., widely expanding, coloured iridescent deep wine with a bright yellow anther. Segments apiculate. Dorsal sepal about 3 cm. long and about 8 mm. broad, broad-linear, subacute, recurved. Lateral sepals about 3 cms. long and about 1 cm. broad at the base, falcate, margins upturned so as to form a rounded channel for their entire length, united at their base where they, with the column foot, form a single broad conical spur about 1 cm.

long. Petals about 4 cms. long and about 1.5 cm. broad, oblanceolate, attenuated at the base and slightly twisted. Labellum about 3 cms. long, and about 2 cms. broad; mid-lobe at least half the length of the labellum, broad linear, subacute, apex recurved; lateral lobes semi-narrow-cordate, erect; disc of the lamina not prominent, consisting of a slightly raised central callus on the basal 2/3 of the lamina, its margins then raised to its terminus slightly beyond the junction of the mid-lobe. From its base to just beyond the commencement of the raised margins, are 3 unbroken straight ridges, raised anteriorly to about 1 mm. high. Column broad; wings thick, as high as the anther. Anther consisting of 2 urceolate sacks. Pollinia very difficult to remove from the anther, crescentic with flattened sides.

Distribution:—North Queensland; Mt. Charlie (25 miles north of Cairns) at approximately 1600 ft. altitude, August, 1955—Leg. N. Whittaker (Holotype); Mt. Mar, at about 2500 ft. altitude, April, 1956—Leg. S. F. St. Cloud. Holotype in the North Queensland Herbarium, Cairns.

This species is without doubt, the most beautiful Dendrobium recorded in Australia. It has some affinity with **D. superbiens** Reichb, but it separates from that species by the semi-erect raceme which is also shorter and more robust than in the latter species, sepals which are considerably longer and more slender and petals which are oblanceolate rather than broadly cuneate or obovate. The labellum is large and of nearly equal length to the other segments, rather than shorter and smaller, the lateral lobes narrow cordate, rather than rhomboidal, and the mid-lobe considerably longer and narrower. The lamina is narrower, and the ridges of the disc are relatively shorter, the anterior portion not spreading or prominently raised in thin plates which is an outstanding feature of **D superbiens.** The anther is bright yellow rather than white, and has no parallel in any North Queensland Dendrobium in the method of containing the unusually shaped pollinia. The habitat of this species is in the remote areas of mountainous country at an approximate altitude of 2000 ft. It is possibly a rare species, and the difficult nature of the country where it grows, consisting of large areas of exposed rock and loose shale at the summit of this range, seriously hampers exploratory work. Only one plant was originally found by Mr. Whittaker, and despite intensive exploration by such able collectors as Messrs Holland, Le Roy, and Wilkie, no further plants could be found. It was only in recent times, and after a number of expeditions, that the author was able to discover further flowering plants, in an even more remote area about 5 miles from the type locality.

The Southern Hemisphere Maiden-Hair Fern

Adiantum aethiopicum L

By KEITH KENNEDY, Townsville

WHEN Europeans began to settle in Australia, they found a fern which they thought was the maiden-hair of their homeland, so they called it by that name. However, it is a different species to that of the Northern Hemisphere maiden-hair, which has smaller fronds, larger pinnules and differently placed sori.

Recently on looking through an old medical dictionary, I came across, under the heading **Adiantum,** the following: "There is but one species of Maiden Hair Fern indigenous to Britain; it is called by botanists **Adiantum capillus-veneris,** and is used medicinally in coughs and catarrhal disorders." The fern referred to takes its specific name from the little branched stipes which resemble coarse hair, the term **capillus-veneris** meaning "hair of Venus." It and an American species, **A. pedatum,** was considered a remedy for chest complaints, and in France both species are still used for making **Sirop de capillaire.**

A. capillus-veneris is a Northern Hemisphere fern so is not indigenous to Australia, but its Southern Hemisphere counterpart, **A. aethiopicum,** grows in most parts of our continent. In a land the home of the **Eucalyptus**

it has not been necessary to test its efficacy in alleviating chest disorders, so there is apparently no danger of it deing depleted for commercial purposes.

The generic name, **Adiantum,** is derived from the Greek **adiantos,** meaning dry, given because the fronds do not retain water when it falls on them. The specific term **aethiopicum** was applied because the first specimens were said to come from Ethiopia.

In the Townsville district, **A. aethiopicum** is seen at its best in the monsoon season, for during the dry season it often shrivels and lies dormant until the next rains fall. Sometimes bush fires help in the shrivelling process, but its rhizome, wedged into the damp crevices of rocks, usually survives. The fronds vary in height from nine to eighteen inches, and are three to four times pinnate and the ultimate pinnules being fan-shaped, with a cuneate base attached to a short petiole. All parts, with the exception of the pinnules, are slender, flexuose, and glossy brownish-black in colour. From the point where the pinnule is attached to the pétiole, radiate numerous veins, which run fan-wise to the edge of the pinnule. There is no midrib, the veins being equal in thickness. They do not anastomose, but occasionally fork—a sure sign of primitiveness, for as Copeland observes. "**Adiantum** is an old and isolated genus."

The genus is remarkable for the manner it bears and protects its sporangia. In **A. aethiopicum** each pinnule is normally divided into lobes, each lobe being crenated. At the margin, and in the sinus of some of the crenatures, is the indusium, in this case an outgrowth or expanded prolongation of the lamina which curves over bearing the sorus on its under surface. Because of this, when the sorus is ripe, the indusium must open from the inward side. In **A. capillus-veneris,** the sori and indusia are located not in the sinus but on the end of the teeth of the crenatures.

Owing to the fact that the sori are situated on the under surface of the indusia, it is difficult to isolate the spores for microscopic study, because when the sporangia open the indusium shrivels and it, the spores, and many of the disintegrated sporangia intermingle into fine dust. The spores are sparsely covered with short spines, which, however, are not dense enough to obscure the dark shining epispore from which they arise. Some that I planted on the 16th April produced prothalli on the 26th May, a germinating period of 40 days for the autumn season.

According to Bailey there are three forms of **A. aethiopicum.** One is forma **queenslandiae** Bail., which has very dark stipes and an erect growth. But this description can also be applied to the normal species. The second is forma **assimile** (Sw.) Bail., which is identical with **A. assimile** Sw., so called because of its similarity to **A. capillus-veneris.** This form is described as having reddish-brown stipes, whereas **A capillus-veneris** has brownish-black stipes. The third is forma **variegata** Bail., which has yellow pencilled pinnules. This form was discovered in the Bundaberg district, and is probably a sport.

A. aethiopicum does not grow in the dense rain forest, neither does it thrive in the open forest. It prefers situations on the edge of a thick forest where it can get plenty of light but no direct sun rays. In cultivation similar conditions should be aimed at.

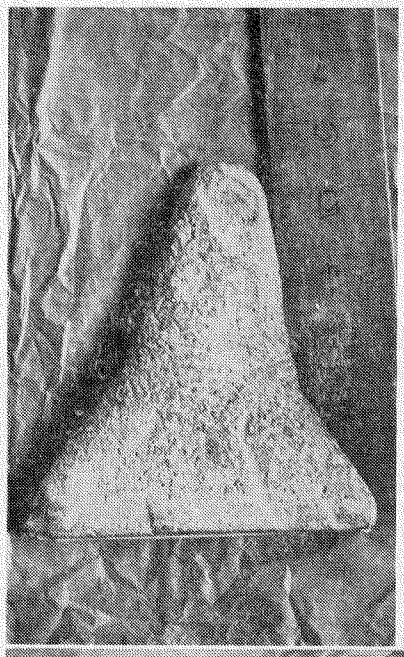
There are many garden varieties of this beautiful genus, ranging from the minute **A. micropinnulum** to giant varieties with pinnules a couple of inches in width. They are derived from both the Northern and Southern species, and some of the pedate species which are found in Australia, Asia, Africa and South America.

References——

COPELAND — Genera Filicum, p.82.
BAILEY — Comprehensive Catalogue of Queensland Flora, 1909

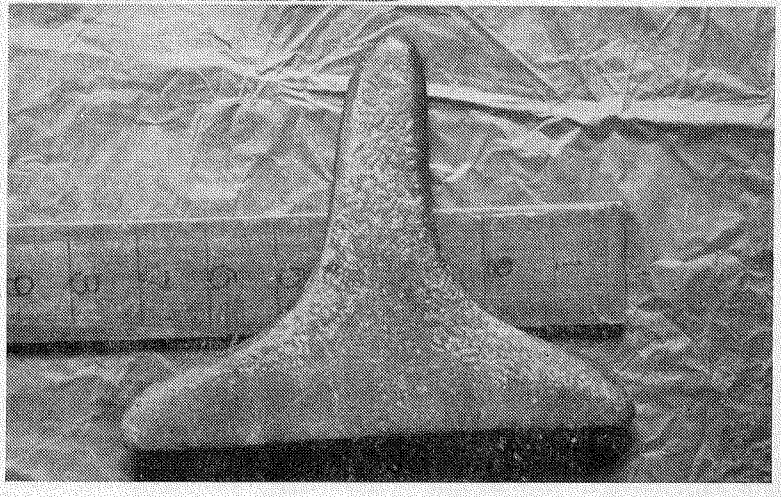
TWO MORE OOYURKAS

By H. FLECKER, F.R.G.S.A.



IN SERIES with 19 other ooyurkas, previously listed, and some of these illustrated and described in the North Queensland Naturalist, No. 108, 1st May, 1954, are two more here illustrated by photographs.

20. Source and origin unknown. Material apparently slaty, roughly pitted all over the two main surfaces and somewhat damaged near the extremity of the tang. The tang is inclined some ten or twenty degrees from the perpendicular. The shoulder is a little less prominent on the inclined than on the opposite side. The base is almost flat, both longitudinally and transversely, smooth and polished with some mostly longitudinal, but scarcely parallel scratchings. It is 186 mm. in length from one side to the other and 16 mm. in breadth being rounded at each extremity. The height of the tang from the



Top Photo No. 21. **Bottom Photo No. 20.**

Photos by Chargois Studios, Cairns.

base is 143 mm. and thus is the tallest of the series, and varies in width from about 60 mm. near the base to about 27 mm. near the apex. Its weight is 13 oz.

21. This was found at Josephine Creek by M. Demartini, a farmer of Pawngilly whilst driving a tractor, which may have caused the damage to the tang. Weighing 17¾ oz. it is almost as heavy as the 18 oz. specimen described as No. 16. Its composition appears to be of slate, and compared with other specimens is of very rough workmanship and much pitted. Like the preceding specimen its base is almost flat, both from end to end and from side to side, measuring 103 mm. from shoulder to shoulder, but of thickness varying from about 14 to 27 mm. The tang is slightly inclined to one side varying in width from about 70 mm. near its base to 32 mm. near the apex.

North Queensland Naturalists' Club

Meets at School of Arts, Shields St., Cairns, usually on second Tuesday in month, at 8 p.m.

MEETINGS

10th January, 1956: Decided to enlist police support for action to limit destruction of birds. Mr. Elliott, of Atherton, reports shooting of bower birds and pelican. Numerous exhibits shown.

14th February, 1956: Receipt of further £40 in addition to £10 previously sent and added to Crommelin Fund. Decided to secure report of scheme re formation of garden for indigenous plants in South Africa.

13th March, 1956: C. T. White Memorial Lecture delivered by Mr. G. W. Taylor entitled, Recent Advances in Botany.

10th April, 1956: Announcement of appointment of Mr. W. Hosmer, F.Z.S., to staff of Anthropological Department, University of Melbourne.

8th May, 1956: It was resolved to send invitations to a number of likely individuals scattered throughout North Queensland to establish gardens of indigenous plants in furtherance of scheme based on Miss Crommelin's ideas.

12th June, 1956: Considerale collection of exhibits shown.

10th July, 1956: Resolved to send out circulars to all members and others specially interested outlining new scheme of botanical gardens devoted to the cultivation of native plants.

NEW MEMBERS ELECTED

10th January, 1956: Robert Morton, 156 Martyn St., Cairns.

13th March, 1956: Ross Keith Pengilley, Alfred St., St. George.

8th May, 1956: L. J. Cady, Sans Souci, N.S.W. J. P. Hing, 69 Sheridan St., Cairns. Russell White (Junior Member), 51 Grove St., Cairns.

10th July, 1956: H. A. Bosworth, Muggamuggee, Victoria Estate, Ingham.

Sunday Australian Printery