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## PROCEEDINGS.

EVENING MEETINGS, Monday, 20th July, 1931.—The President (Mrs. Estelle Thomson) occupied the chair, and about 40 members were present. Miss H. F. Clarke and Mr. F. C. Bennett were elected members of the Club. Mr. G. H. Barker said that by direction of the Council Mr. J. E. Young and himself had written to the Government protesting against the open season for opossums and requesting that the rules regarding the use of spotlights, etc., should be strictly enforced. He also stated he had written the City Council in reference to a letter in the Press that had requested the removal of some birds from the protected list.

Mrs. Giles exhibited a spray of the flowering shrub, *Holmskioldia,* and Mr. J. E. Young exhibited flowering sprays and fruits of the Proteaceous Nut (*Hicksbeachia*).

Mr. Heber A. Longman (Director of the Queensland Museum) gave an address illustrated by specimens and lantern slides on

## MARSUPIAL REPRODUCTION.

In the course of the lecture, Mr. Longman gave a summary of some of the extraordinary facts now definitely known regarding the birth and development of marsupials. He claimed that to students of anatomy and physiology the study of the life history of marsupials was as interesting as a thrilling novel. Unlike the higher mammals, the marsupials had a double uterus, and after a relatively brief period of gestation (which in the common "marsupial cat" was about eight days) the young were born in a very immature condition. Strangely enough the embryo passed usually, if not invariably, to the external opening by a special passage between the right and left lower portions of the uterus. In immature marsupials this passage was inconspicuous and incomplete. In bandicoots this channel was only open at the time of giving birth, but in mature kangaroos it remained permanently open.

Although relatively tiny compared with higher mammals, the marsupial embryos had well-developed fore-limbs with claws, as might be seen by anyone who exam-

ined them with a lens. In several marsupials, if not in all, these tiny embryos had the power to make their way unaided to the pouch, and this fact had been witnessed by numerous observers. It had been recorded for the American opossum as long as 1806, and for the kangaroo by the Hon. L. Hope in 1882. Recent studies, especially with the American opossum, have placed these facts beyond doubt. This marsupial, after a period of gestation of about 11 days, lived in the pouch for about 65 days. Another remarkable fact about marsupials was the disrepancy between the number born and the accommodation in the pouch. In the kangaroo there were four nipples in the pouch, but usually only one embryo was born. In the ring-tailed opossum, however, five or six might be born, of which only two could survive in the pouch. In the common marsupial cat there were only six nipples in the pouch, but as many as 35 embryos had been recorded. This extraordinary condition illustrated the law of the survival of the fittest, and the virility and the power of movement of these tiny embryos when first born were surprising. When the young were actually attached to the nipples, as seen typically in the kangaroo, they could not be easily removed, and the special structure of the throat enabled them to breathe without choking.

Mr. Longman illustrated his remarks with actual specimens of embryos in the uterus and by a dissection of the reproductive system of a red kangaroo. With a series of lantern slides he illustrated the variety of marsupials, over 150 different species being found in Australia and about ninety in Queensland. A brief review was also given of fossil forms, and the lecturer claimed that these were even more distinctively Australian than those of to-day.

EVENING MEETING, Monday, 17th August, 1931.—The President (Mrs. Estelle Thomson) occupied the chair and about 32 members were present. Miss K. James and Mr. N. Jack were elected members of the Club. Brief reports on the excursion to Coronation Park were given by Mr. J. E. Young (general), Mr. J. O'N. Brenan (birds) and Mr. C. T. White (plants). Mr. L. Franzen exhibited specimens of Ant Lions and descriptions of two new species were taken as read. Mr. A. Perkins exhibited a case of Jewel Beetles. Dr. D. A. Herbert spoke on a piece of wood showing a growth of Mistletoe sent in by Mr. C. Dornbusch, Warwick, and exhibited a fungus (Xylostroma) from a "Stringybark" (Eucalyptus), Crown Gall (?) from a rose tree and a spore print of a mushroom.

## ANNUAL WILD FLOWER SHOW AND NATURAL HISTORY EXHIBITION.

### SATURDAY, 5th SEPTEMBER, 1931.

The Annual Wild Flower Show and Natural History Exhibition was held on Saturday afternoon and evening, the 5th September, in the Albert Hall.

Flowers were exhibited from Rochedale by Mrs. Estelle Thomson; Myora, Mr. Nicholson; Bribie Island, Mrs. Coungeau and Mr. Davies; Amity Point, Mr. and Miss Welsby; Mooloolaba, Mr. F. C. Simmonds and Mr. C. Clark; Nanango, Mrs. Waraker and Mrs. Robinson; Rockhampton, Mr. Bernard; Southport, Miss M. Birt; Albert River, Mrs. S. E. and Mr. and Mrs. D. Curtis; Springbrook, Mr. W. Rudder; Tambourine Mountain, Mrs. H. Curtis and Mr. M. Davidson; Thulimbah, Mrs. Slaughter; Glen Aplin, Mrs. Gittens; Stanthorpe, Miss Cock and Miss J. Westcott; Messines, Mr. Greener; Fletcher, Mr. Sutton. Interesting interstate displays were received from Melbourne (Victorian Field Naturalists' Club); Adelaide, Mr. J. F. Bailey and Field Naturalists Club and Perth, Mr. Urquhart. A very fine series of Australian wild flowers was sent from the private garden of Mr. W. Burdett, Basket Range, South Australia. A parcel of pressed specimens of Western Australian wild flowers, sent by Col. Godby, unfortunately arrived too late for the exhibition. It was decided later to exhibit these at a subsequent meeting of the Club, when they would be spoken on by Dr. D. A. Herbert.

An interesting display of a Macrozamia Denisonii cone, leaves and photographs, was sent by Mrs. H. Curtis, of Tambourine Mountain. Photographs of various aspects of Nature were lent by Mrs. H. Curtis and Messrs. W. G. Harvey, E. F. Robinson, and J. Nebe. Mrs. Estelle Thomson staged a display of paintings of Queensland wild flowers.

General exhibits consisted of collections of fossil plants by the Queensland Museum; economic insects by the Department of Agriculture and Stock; insects by Mr. A. Perkins and Mr. R. Illidge; shells by Mr. J. H. Simmonds; and mosquito diagrams by Dr. R. Hamblyn-Harris.

Seven State Schools forwarded flowers: Howard, Waterford, Thulimbah, Withcott, Coolum, Woodford and Ironside.

Several vases were arranged for decorative effect. Prizes were awarded to Mr. and Mrs. Densil Curtis.

The thanks of the Club are due to these exhibitors and also to the many members who assisted in arranging the exhibits, especially to Mrs. G. Barker, who supervised the sale of flowers; to Mrs. Jackson, who arranged the State School exhibits; to Mrs. Barker and Mrs. Nebe, who arranged extra lights; to the University for the loan of tables; and to Mrs. Thomson and Dr. D. A. Herbert for judging exhibits.

The receipts amounted to £45/19/3 and the expenditure to £27/8/1, leaving a credit balance of £18/11/2.

EVENING MEETING, Monday, 19th October, 1931. —The President (Mrs. Estelle Thomson) occupied the chair and about 40 members were present. Mr. J. O'N. Brenan spoke on birds seen during the recent week-end visit of the Club to Bribie Island. Reports on the excursion to Pine Mountain were given by Dr. E. O. Marks (geology) and Dr. D. A. Herbert (botany). Mr. J. O'N. Brenan spoke on birds recently seen on the Sandgate lagoons and referred especially to the number of Jacana here. Mrs. Comrie-Smith read a very interesting paper on birds seen near her home at Rochedale Road, Eight Mile Plains (see P. 11). Mr. H. G. Barnard spoke on "The Economic Value—or Otherwise—of Our Diurnal Birds of Prey" P. 7). Mr. J. O'N. Brenan showed specimens of some common birds of the Brisbane district. Mr. J. E. Young showed specimens of flower and fruit of Queensland Wisteria (Milletia megasperma). A remarkable example of fasciation in Asparagus plumosus was shown on behalf of Mrs. W. M. Mayo. Mr. Smith showed a specimen of Sansevieua which had been lying on a shelf for nine months without water and which when placed in water quickly developed roots.

EVENING MEETING, Monday, 16th November, 1931. —The President (Mrs. Estelle Thomson) occupied the chair, and 33 members were present. The President said a letter had been received from Mr. L. Franzen by the Council, tendering his resignation, and in reply to a request by the Council had refused to reconsider his resignation. Dr. E. O. Marks moved, and Mr. F. Kunze seconded a motion to the effect that a letter be sent Mr. Franzen from the Council, requesting him to continue his membership with the Club.

Miss Rose Winter was elected an ordinary member, and Mrs. R. L. Robinson a country member of the Club.

A report on birds observed during the Club's excursion to Lawnton was given by Mr. J. O'N. Brenan, who

reported having noted the following species:—Butcher birds, both black throated and grey. Blue-faced Honeyeater, whose face was almost turned to red from feeding on the flowers of the Moreton Bay chestnut; Pale-headed Rosella parrots; Noisy and Little Friars; Grey crowned Babblers, whose stick nests were noticed here and there; Black backed Magpie, adult and immature; Koel and Pallid Cuckoos; a pair of Double-barred Finches; Welcome Swallows; Fairy Martins, the latter apparently nesting in a concrete drain under the Railway Line; an Oriel or two; and, of course, many Peewees.

Prof. H. C. Richards, D.Sc. (Queensland University), gave a Lecture on—

## VOLCANIC ACTIVITY IN THE PACIFIC OCEAN REGIONS.

It was first first of all pointed out that a fairly efficient definition of a volcano is that it is merely an opening between the surface of the earth and the heated interior. This brings geysers and hot springs within the category of volcanoes. The erroneous idea of a volcano as a burning mountain was considered and it was shown that a volcano does not burn in the ordinary sense of the word, and that the mountainous mass of material is one of the effects of the volcanic action.

The general characters of volcanoes were discussed and the various strains and stresses to which the earth is subjected were pointed out. It was shown that those portions of the earth's crust which had experienced earth movements, comparatively recently, were just those regions which were affected by volcanic activity. It appears that wherever the earth's crust becomes weakened there is a better opportunity for the pent up forces within to give expression at the surface.

The true margin of the Pacific Ocean, which is marked by what is known as the "Girdle of Fire," has been subjected to comparatively recent folding movements, and is one of the best known and longest recorded lines of weakness of the earth's crust. Where this line of weakness, on the Western Pacific side, has been interseded by another in an E.W. direction in the neighbourhood of the East Indies, at Krakatoa, in one of the most intensive volcanic explosions known, took place in the early eighties.

Volcanic activity is only one phase associated with the movements of molten lavas. The cycle of phases being:

Firstly, volcanic activity; secondly, deep-seated intrusions; thirdly, minor intrusions into the outer portion of the earth's crust. Sometimes there is a repetition of the volcanic or extrusive phase.

Volcanoes may be divided into two main types: (1) those associated with fissure cracks, and (2) those associated with particular centres of eruption. The first type is much the more efficient and is usually much quicker in its mode of action than the central type. As a result of the association with the Mediterranean regions of the Central type of eruption, we have had handed down from our ancestors very much about the Central types of eruption, and very little about the fissure type. The central types of volcanoes are much more spectaeular and generally have a good deal of explosive phenomena associated with their action, but as far as pouring out lava on the surface is concerned, they are of comparatively little importance. Enormous quantities of volcanic roeks in Eastern Australia and the Deccan in India, and many other places, have been poured out from the fissure types of eruption. Fissure eruptions are associated with fissure cracks or vertical movements of the earth's crust, whereas central types of eruption are associated with regions of folding movement.

In the Pacific regions we have normally developed that type of central eruption whieh is very much akin to the fissure eruption as far as the efficiency of outpouring of lava is concerned; the Hawaiian volcanoes are the type examples of this.

The volcanoes of the Pacific region have been grouped into two sets (a) Circumpacific volcanoes whieh have associated with them lavas of an andesitic type; and (b) Intrapacific voleanoes which are characterised by basaltic lavas.

The volcanoes of the Andes, Central America, Alaska, Japan, Philippine Is., New Guinea, New Zealand, and Antaretica, come within the first category, whereas those of the Hawaiian Is., Society Is., Samoa, and other groups in Polynesia, Melanesia, and Micronesia, come within the second. It is of interest to note that the Intrapacific volcanoes which occur in distinct groups throughout the Pacific generally, are developed along a line which has a north-westerly and south-easterly trend.

From a study of volcanic action throughout the world it has been established that volcanoes of the fissure type have lavas richer in alkalies and poorer in lime and magnesia, than the normal type of voleanic roeks. The voleanoes associated with folding movements have the normal type of lava. These two types are known respectively as the alkaline and calcic types of volcanic rocks. Owing

to the close association of the calcic rocks with the Pacific Ocean, the term calcic and Pacific are sometimes used synonymously. The Atlantic Ocean is characterised much more by the presence of alkaline rocks.

Special consideration was given by the lecturer to the Hawaiian Volcanic activity, and especially to Kilauea. It was pointed out that at the latter place there was a special volcano station under the charge of Dr. Jaggar, and from it the mechanism of volcanoes was now much better understood as a result of studies made at this place.

Submarine volcanic activity was then considered and it was shown that the Hawaiian Islands had been built up from the sea-floor to a height of 30,000 feet.

By means of 60 carefully selected lantern slides the various features of the volcanoes of the Pacific were illustrated.

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## NOTES ON THE ECONOMIC VALUE (OR OTHERWISE) OF SOME OF OUR DIURNAL BIRDS OF PREY, INCLUDING CROWS.

By H. Greensill Barnard.

(Read before the Queensland Naturalists' Club, 19th October, 1931.)

My paper to-night will probably call forth adverse comment, from some of those present, because I intend to deal with the economic value, "or otherwise," of some of our most disliked birds. I refer to hawks and crows.

Many people, bushmen as well as those in settled parts, cannot see any good in either hawks or crows. Yet I venture to assert that if the hawks and crows were exterminated in the Central parts of Australia, it would be impossible to raise flocks and herds there.

After a dry season, when rainfalls and the young grass is again covering the ground with a mantle of green, one notices, when riding or driving over the country, dark brown patches. Some of these patches are small, others of large extent. On examination it will be found these patches consist of millions of baby grasshoppers, or locusts. Though if you called them locusts most bushmen would not know what you meant. They are all grasshoppers to the man on the land.

While the grasshoppers confine themselves mostly to the grass, swarms of caterpillars appear on the young herbage, and it is now that the value of some of our hawks and the crows is seen.

In dealing with the hawks, I will take first those that I consider of most value, namely, the Kites. These hawks live almost entirely on insects, mice and lizards. Very rarely on birds and then only on young ones unable to fly.

One of the commonest Kites in the West is the Black Kite (*Milvus migrans*). This bird is not really black, but a dark mottled brown. It is the common scavenger Kite of Egypt. They are very numerous in the interior of Queensland, and were at one time very common about the Rockhampton district, where they frequented the slaughter yards, now they seem to have confined themselves to the interior parts and are never seen in the coastal districts. They consume enormous numbers of grasshoppers, feeding among them on the ground, but when the hoppers develop wings, they are caught as they fly and devoured as the hawks circle in the air.

Other members of the Kite family, the square-tailed, the black-shouldered, and the letter-winged, are also splendid destroyers of insects and vermin.

Two other hawks that are valuable to the man on the land are classed with the Falcons. Why so, I do not know, as they have none of the destructive qualities of the Falcons.

I refer to the Brown Hawk (*Falco berigora*) and the Nankeen Kestrel (*Falco cenchroides*). The Brown Hawks, like the Kites, destroy great numbers of grasshoppers and other insects; they are also very impartial to lizards and snakes. I have frequently seen them with snakes from three to four feet in length. I lately saw one dart into dense smoke that was pouring from a hollow in a burning tree, and re-appear with a snake about eighteen inches long in its claws. The snake had evidently been driven from the hollow by the smoke.

A grass fire attracts numbers of these birds, and they frequently dart through the dense smoke almost into the flames, after insects, lizards, or small snakes that are driven out by the fire. The Brown Hawk is found all over Australia, and is far commoner in the interior parts than the coastal.

That pretty little hawk, the Nankeen Kestrel (*Falco cenchroides*) "mis-called the chicken hawk," is another valuable pest destroyer, as its food consists almost exclusively of insects, lizards and mice. I say, almost exclusively, as I have known them to catch young quail and larks. The Kestrel is a friendly little hawk and is often found about settlements where the ground is cleared, and where they have more room for their peculiar habit of

hovering while searching the ground for prey. The peculiar habit of hovering is also shared by two members of the Kite family, the Black-shouldered and the Letter-winged.

The Kestrel is frequently shot by settlers because it is a hawk, and all hawks have a bad name, especially with those who keep poultry.

Of the other members of the Falcon family little need be said, they are all bird killers, and though they do devour numbers of insects, I consider the harm they do by killing numbers of insect-eating birds, far outweighs the good they do, and it is an advantage to have them destroyed. Unfortunately, we have no books dealing with this subject to enlighten people, and so the good suffer with the bad.

Now we come to the Goshawk family, commonly known as sparrow-hawks, or chicken-hawks. There are four members of this family in Australia, and they are all bird killers. Being bold and fearless they will attack almost any bird. They destroy numbers of young birds that have just left the nest. Magpie-larks being especially favoured by them.

The largest member of the family, the Red Goshawk, is a very handsome bird, and a very daring one. I have known them to kill white cockatoos, and a white cockatoo takes some killing. I have also known them to strike down ducks while on the wing.

The number of birds killed by these hawks must be considerable. They are very destructive in a poultry yard, and it is by their misdeeds that all hawks have got a bad name. Unfortunately the Goshawks are very wary and it is not easy to shoot them. They should be shot on every opportunity.

Now we come to the Eagles. I have left the Eagles till the last, because I consider there are only two members of the Eagle family that really need mention. I refer to the Whistling Eagle (*Haliaster sphenurus*) and the Little Eagle (*Hieraaetus morphnoides*). Much could be said in a general way about the other members of the Eagle family, but Eagles are rather rare birds and the good, or harm, they do is pretty evenly balanced.

Take as a sample that noble bird the Wedge-tailed Eagle (*Uroaetus audax*). I know there have been many arguments over these birds. Some people can see nothing but harm in them, others can see only good. My own observations, extending over many years, is that the harm they do is balanced by the good. I have known them to kill small kangaroo, wallaby, kangaroo rats, plain turkey,

scrub turkey, curlew, and jackasses. In their nests I have found remains of opossums, frilled lizards, jew lizards, and portion of a large brown snake. They are said to kill lambs. Suppose they do, the carcase of an old sheep, with the pelt removed, poisoned, will destroy the eagle doing the mischief, also any others in the district. For where the carcase is, there will the eagles be found. Anyhow, Eagles are not numerous enough to upset the balance of nature either way.

But let us get back to the two I named, we will take the Whistling Eagle first. This is by far the most common Eagle we have, and the most destructive. During the breeding season of water-fowl these Hawks live about the swamps and lagoons, where they generally work in pairs, any young ducks or other young water-fowl fall victims to them. Their method of working is for one bird to swoop at a brood in the water, which immediately dive, the second Hawk is ready, and the instant the young birds show above the water they have to dive again. This is kept up till exhaustion compels the birds to remain on the surface, when they are picked up in the Eagle's claws and carried off to be eaten.

The little Eagle live mostly on such lizards as the Frilled and Jew. Two kinds of lizards that are very destructive to young birds and eggs. I have never known the little Eagle to catch a bird or take a young one, and I have frequently examined their nests, when they contained young, to see what they did feed on.

I now come to that evil bird "The Crow." I hate crows, and I think most people who know their habits will agree with me in calling them evil. Yet we must not let our dislike cloud our judgment, and it may surprise you to hear, that in spite of his evil ways, I consider the crow one of, if not the most, valuable birds we have in Australia.

In support of my contention I will first place before you what I consider the crow's bad points. Then the good, and you can judge for yourselves.

Crows are robbers, they steal birds' eggs whenever they get a chance. They rob the poultry yards, even to carrying off the china nest eggs. They are destructive in cultivation fields and orchards. In the grain fields they tear open the maize cobs and eat the juicy young grain. They eat grapes and other fruits, even pineapples. They spread the prickly pear. But their worst crime is in attacking weak animals and pecking their eyes out. They worry weak ewes, causing them to desert their lambs which then become victims of the crows. In these crimes the Crow does not have it all his own way. Take the poultry

yard. If a crow is shot and hung in a conspicuous place, the others will give that place a wide berth. The same applies to the cultivation paddock or orchard. For spreading the pear, a tax of 4d. per head was placed on them, and crows were shot and poisoned in thousands. The result of this destruction I will give later. I will only say here, that the money spent on their destruction was wasted, as the cactoblastis caterpillar wiped out more pear in a few months than the crows would spread in a lifetime.

Now for the good points. Crows are omnivirous. Wherever insect plagues are found, there will be the crows hard at work. Wherever cattle are, there are the crows cleaning the ticks off them. Put a mob of ticky cattle through a yard, as soon as the cattle are gone the crows will be in the yard cleaning up any fallen ticks. Follow the kangaroo shooter, the wallaby, and "possum" snarers who destroy hundreds of thousands of animals in a season. The pelt is taken off and the carcase left to breed millions of blow flies, before this can happen, along comes the crow and the result is a cleaned skeleton, thus saving thousands of sheep from destruction. It is estimated that something like a million pounds is lost annually to Australia through the ravages of the blow fly.

And now I will show how the destruction of the Crows was disastrous. Twelve months after the price was put on their heads, I was in Central Queensland, and visited several shooters' camps. Carcases were everywhere, and were a seething mass. The crows had been practically wiped out.

Fortunately, they are again increasing. Just think of the number of grasshoppers and other insects a brood of young crows would consume in one day. Crows have from four to six eggs for a setting.

I could give other instances of the value of crows but I think I have said enough to show the crow is not so black as he looks.

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## BIRD NOTES, EIGHT MILE PLAINS, OCTOBER, 1931.

(Contributed by Mrs. COMRIE-SMITH.)

I have lately been seeing some of the Spring migrants which come to nest with us, and some of which we just get a glimpse of as they pass south.

The Leaden Flycatcher (*Myiagra rubecula*) arrived on September 13th. It always nests in our paddock, making a very small cup built on a horizontal, sometimes dead,

branch high up and quite unprotected by any foliage. Last year, after sitting for some time, the birds suddenly disappeared, and I believe the kookaburras were responsible for taking the eggs, as they could be so easily seen in that exposed position.

The Black-faced Flycatcher (*Monarcha melanopsis*) I saw on September 15th, but it only stayed an hour or two. Le Soeuf says they nest in thick scrub and round here it is mainly eucalypt forest country. This is the first time I have seen the bird, and I would like to know whether anyone else has seen it near Brisbane. The male is a beautiful bird with a plain grey back, wings and tail, black throat and a rich rufous breast. The ring of black feathers round the eye makes it look very large.

The Varied Triller (*Lalage leucomela*) I saw first on 31st July among the thick Leptospermum near the creek, the male bird only. A week or two later I saw them both. Last year they nested here in October.

The Sacred Kingfishers (*Halcyon sanctus*) came back on September 22nd (last year September 12th), and started to make their hole in a white ant's nest on the 24th. They had their nesting hole in the same place last year, and some months ago I noticed that the white ants had filled in the hole and put a thick layer of fresh material all round it, and every other kingfisher hole I observed was filled in and covered over in the same way—all ready for the birds again. There are sometimes two holes in the same lump, one of which seems to be used as a feeding hole, as I have often seen the birds dash into the smaller hole, afterwards cleaning their bills, which they do not do when making the nesting hole.

This pair of Sacred Kingfishers had only worked tentatively at their hole for a few days when they were chased away by a pair of Forest Kingfishers (*Halcyon macleayi*), which took possession of the hole and have now completed it.

I have recorded some calls of the Sacred Kingfisher as follows:—

Call note: "Pee-pee-pee-pee" four or five times, each note separate and distinct, and falling a little at the end.

Warning call: "Chee-ah! Chee-ah! Chee-ah!" loud and shrill and harsh, falling a little at the end.

Low call note to young: "Purr-ew-e, purr-ew-e," soft and purring, the last note short and slightly higher.

Food call of young birds: A wheezing sound, rather like the twanging of a wire or wires, with a long vibration it is usually a double note, the second one lower. When the young first leave the nest, they continue to make this

double wheeze for the first day, after which the note is only given once, repeatedly and loud.

The Dollar Birds (*Eurystomus orientalis*) came on October 3rd (last year on October 2nd, and in 1929 on September 29th). I notice that they are very regular in their coming, while other birds this year seem to be later and especially to be nesting later.

The Pallid Cuckoo (*Cuculus pallidus*) I did not hear until September 21st.

The Little Friar Bird (*Philemon citreogularis*).—A pair always nests with us, but I have not seen or heard them this year.

The Rainbow Birds (*Merops ornatus*) have been with us off and on all winter, and on 23rd September, two pairs started their nesting tunnels in our grass paddock, one in the side of a distinct bank, but the other on the level ground only the opening being in a hump of grass a few inches above the general level. This tunnel is 42 inches long.

White-headed Sitella (*Neositta leucocephala*).—I found the most inconspicuous nest of this tiny pair plastered in an upright fork of a dead branch high up in a stringy-bark. It is neatly fitted into the narrow fork, the bottom of it smoothed on to the bark and it is so exactly the same dull greyish colour that one could never find it except by seeing the birds going to it. They are apt to desert the nest if watched while building.

Jacky Winter (*Microeca fascinans*).—This tiny nest is very hard to find unless one sees the birds going to it—a small shallow saucer in the horizontal fork of a bare or dead branch, high up. The nest was just being finished when I found it on August 29th, and the single young bird left the nest on October 6th.

Tawny Frogmouth (*Podargus strigoides*).—I thought I had found a Butcher Bird's nest, but an old one, as there was a thick dead branch lying right across it. On closer examination with my glasses, I saw that the seeming dead branch was a Frogmouth sitting on its nest. It was a wonderful example of protective colouring and shape.

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## DROUGHT-RESISTANT PROPERTIES OF EUCALYPTUS PAPUANA (*F.v. MUELL*).

(Extracts of letters from Mr. F. L. Berney.)

Writing to the Government Botanist (Mr. C. T. White), under date of 27/2/29, during one of the worst droughts in Western Queensland, Mr. F. L. Berney, Jundah, stated:—

"I have had nothing to trouble you about lately, everything botanical, owing to the shocking drought this

district is suffering from, being dead. The conditions have played up not only with the grasses and herbage, but with bushes and trees, both of which are dying in acres and hundreds. It is noticeable that some species of trees go under much more easily than others, they are more or less shallow rooters, but a few after five years drought still show no ill effects. One in particular, a eucalypt, locally known as the *White-barked Gum* (sometimes *Desert Gum*), looks as cheerful as ever, though perhaps not flowering as freely. I am sending you, per mail, a spray of this blossom, and would be glad if you can identify it for me.

"Though called by bushmen out here *White-barked Gum*, its *smooth* bark, which is periodically shed like scraps of ragged paper, is never *white*, but generally pale grey, with a tinge of pink or pale green, it does not grow to any great size, thirty-five feet would probably be the average height for adult trees.

"It is, I regret to say, quite useless for timber (fences or building), and is generally hollow. It roots very deeply, where necessary, for want of water, going down under ground twice its height above the surface, a tree thirty feet high would send down roots sixty feet. I say this from evidence gained from wells sunk among these trees.

"Our rainfall for the last five years has been as follows:—1925, 439 points; 1926, 816; 1927, 466; 1928, 598; 1929, 470 (to date). The average annual rainfall for the previous thirty-five years was about 16 inches."

Later, under date 20/1/1930, Mr. Berney wrote:—"I may add to what I have already written to you, that the neighbour who gave me the information concerning this species of gum rooting to what seems to me an unusual depth, adds that on another occasion the roots of one of these trees choked a pump that was down 98 feet in an uncased bore, and happened to be out of use for a time. The pump had to be lifted and the tools let down to clear the hole before pumping could be gone on with. I am sure of the reliability of my informant. The height of the tree in this case I do not know, but I doubt their ever growing to more than five and thirty feet in this district."

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## NOTES ON SOME NIGHT FLYING BIRDS.

(By G. H. Barker, R.A.O.U.)

One of the most interesting paths of Bird Study, in my opinion, is the question of the identity of the many bird calls one hears from time to time, as they pass over-

head at night. One knows, of course, that certain of our birds are definitely nocturnal, and unless disturbed move about only at night. Under this heading are grouped the Owls, Nightjars, Moreporks, Curlews, and certain Herons. The birds of this group, though they can see quite well in daylight, develop their full powers of sight during the hours of darkness, and hunt and catch their food at that time. I remember watching a Boobook Owl who, on one occasion was perched on the top of a clothes prop in our garden, and though he was exposed to a certain amount of light from the lamp on the back verandah, it did not seem to affect his powers of vision in the dark, for as I watched he sailed off to a dark corner of the garden and returned immediately with a grasshopper in his beak.

Another large section of our bird life that does not seem to worry whether it is day or night, as far as their activities are concerned, are the Waders. I have noticed, for a long time past, that the Sea Curlews, Whimbrels, and other similar birds who feed on the banks in our bays and estauries uncovered at each tide, regulate their lives by the incidence of the tides: working on the banks as the tide uncovers same, following it down to low water mark, and back again. During the periods of high water they fly out in flocks to the ocean beaches of certain islands and other undisturbed areas, resting during the few hours of high water, and then back again to the banks. As the tides are later each day, it follows therefore that these birds are found at all hours of the day or night at different times in these areas, and seem to be able to secure their food equally as well by day or night. Should the fishing be good they will often give up hunting at about half of the rising tide and rest on the banks themselves before moving off to the ocean beaches. I recall watching a small flock of Whimbrels thus resting on the sand flats in Tallebudgera Creek. They were all standing on one leg, with their heads tucked away in the feathers of the back. Every now and then one or other of the flock would raise its head and take a glance round, and then tuck its head away again among the feathers. As I watched, however, one of the watchers evidently saw something that didn't please him, or her, for it immediately gave a squawk and instantly the whole flock was in full flight without any waiting to investigate the cause. They circled round for about 15 minutes, and then decided it was a false alarm, and settled back in the same spot, and lost no time in getting back into their former attitude.

Other birds such as Swans seek seclusion in unfrequented spots during the day, and move off into the open at night, feeding on the more exposed lakes and streams,

This means a deal of night travelling for these birds, and the peculiar wailing honk of the former and the whistle of the wings of the latter, may often be heard, as they pass overhead on dark nights.

Grebes and Coots move about mostly at night, and their distinctive call may be heard as they fly over, especially on warm spring nights. Another bird that loves to travel about on moonlight nights, and who does it apparently just for the joy of travelling about, is the Spur-winged Plover. Mentioning the Plover, reminds one that a cousin of his, the Golden Plover, and several similar waders, have wonderful records of night travelling to their credit, for each year they travel across the globe, from North to South, and back again, in their great migrating flight, in some cases from here to Siberia, and some to the countries nearer on the same route. Nearly all this great journey is performed at night, the flocks resting by day whenever land is within reach.

Migration is also responsible for the night flying of other birds than these, notably the Cuckoos. The Koel, both male and female, though different in colour and size, are most regular visitors from the North each spring, returning in the Autumn. Though they are very evident in October, due to the persistent call "Tu-wong" of the male, and the answering "Ki, Ki, Ki," of the female, we do not hear them on the return as they are invariably silent. The great Channel-bill, their near relation, is a night-flyer when travelling North or South, and its strident call a loud braying note, once heard is never forgotten. Other Cuckoos are often heard on summer nights, but I have no record of them travelling at that time, and think he just calls from his perch in the same spirit as the Willie Wagtail, who is often heard from his tree on warm moonlight nights.

It is not generally known that the Kingfisher, either the sacred or the forest, delights to soar in the heavens at great heights on warm dark nights, and his staccato little "teek, teek, teek," heard at regular intervals, and compared with the distance he has apparently moved in the meantime, prompts one to conclude that he must be at a great height at the time.

Of the long list of birds that are grouped under the order, Passeriformes, the largest group in the Avian list I have no record of as night flyers, and very much doubt if any of them move about at night. However, I would be very glad to hear from any reader of this article any further names that should be added to this list, and of any records that may be known that would be useful in further study of this interesting by-path in bird observance.

THE
# QUEENSLAND NATURALIST
JOURNAL OF THE QUEENSLAND NATURALISTS' CLUB
AND NATURE-LOVERS' LEAGUE

VOL VIII. APRIL, 1932 No. 2

## PROCEEDINGS.

ANNUAL MEETING, Monday, 18th February, 1932. —The President (Mrs. Estelle Thomson) occupied the chair and 61 members and friends were present. Miss J. Byron (Ashgrove) was elected an ordinary member of the Club, and Miss E. Latimer (Nerang), a country member. The Annual Report of the Council for the year ended 31st January, 1931, was read by the Hon. Secretary (Miss E. E. Baird). Reports were read by the Hon. Librarian (Mrs. Eva M. Jackson) and Hon. Excursion Secretary (Mr. J. Edgar Young). The financial statement as read by the Hon. Treasurer (Mr. P. Sylow) showed a credit balance of £89/9/2, and £10/17/8 funds in hand of the Nature Lovers' League. Officers for the year were elected as set forth on the inner front cover page. The retiring President gave an address on "The Contribution made by some Women to the Study of Botany." Mr. J. Nebe showed a set of very fine moving pictures of natural life on the Great Barrier Reef. Mrs. Margaret Smith exhibited a Case Moth and Mrs. H. Curtis sent several botanical specimens from Tamborine Mountain.

EVENING MEETING, Monday, 21st March.—The President (Mr. J. Nebe) occupied the chair, and about thirty members were present. Miss M. B. Ralston, Miss G. Cameron and Miss H. James were elected members of the Club. Mr. C. T. White (Government Botanist) gave an address illustrated by mounted specimens on "Botanising in Tasmania." Exhibits included (1), a drawing book of Australian birds, received from the Gould League of Victoria; (2) two cases (by kind permission of the Department of Agriculture and Stock), showing mounted specimens, a Varied Triller and Bee-eater, by Mr. G. H. Barker; (3) a pineapple showing a number of terminal tufts of leaves in place of the usual single one, by Mr. G. H. Barker; (4) a yam and leaves of *Vitis opaca*, a native grape by Mr. Ken. Jackson; (5) corals from the Great Barrier Reef, by Mr. J. E. Nebe; (6) aboriginal implements collected in the Upper Albert District by Mr. J. Edgar Young; and (7) several botanical specimens from Tam-

borine Mountain, by Mrs. H. Curtis; these included specimens of the Tung Oil Tree (*Aleurites Fordii*) grown and seeded on the mountain. Mrs. H. Curtis sent a note on the Red-browed Finch, and Mr. J. Edgar Young spoke on birds from the West, recently seen by him in his garden at Graceville, near Brisbane.

## ANNUAL REPORT.
## FOR YEAR ENDING JANUARY 31st, 1931.

Ladies and Gentlemen,— ,

The Council of the Queensland Naturalists' Club has pleasure in submitting the Twenty-sixth Annual Report of the work of the Club.

MEETINGS.—Ten Council Meetings, nine Monthly Meetings, a Wildflower Show, and ten Field excursions have been held during the year.

Attendance at Council Meetings has been as follows: —Mrs. Thomson 9, Mr. Nebe 9, Mr. Perkins 3, Miss Baird 10, Mr. Sylow 10, Mrs. Mayo 2, Mr Young 9, Mrs. Jackson 10, Mr. Barker 6, Dr. Marks 10, Dr. Herbert 5, Mr. Sanderson 6, Mr. White 7. Mrs. Mayo resigned from the secretaryship of the Nature Lovers' League, and no one has taken up this work.

The attendance at the Monthly Meetings has been good; the average being 38. Interesting lectures and papers on many branches of Natural History have been given during the year. The lecturers included Mrs. Comrie Smith, Dr. Herbert, Messrs. Ratcliffe, Nebe, Kunze, Longman, Franzen, Perkins, Barnard, and Professor Richards. Lectures were in some cases illustrated by lantern slides or specimens. Reports of Field excursions and exhibits of interesting specimens have been made by Mrs. Thomson, Messrs. Young, White, Barker, Franzen, Nebe, Ken Jackson, Brenan, Brimblecombe, Dornbusch, Drs. Marks and Herbert, and other members.

The Wildflower Show was held on Saturday, September 5th, in the Albert Hall. The success of the Show was greatly due to the many friends who sent flowers and other specimens, and to those members who so cheerfully worked in arranging them.

MEMBERSHIP.—The loss by death of two members (Mrs. Arundell and Mr. J. Tait) is deeply regretted. Sixteen new members have been elected to membership, and

one former member has rejoined the Club. Through pressure of business, and in a few cases financial stringency, fifteen members have resigned; five have moved and given no new address, and two unfinancial members have been removed from the list of members. Club membership now stands at 141, of whom 6 are honorary members, 102 ordinary town members, and 33 country members.

THE NATURE LOVERS' LEAGUE.—There was little work done in connection with the League. A few certificates were sold.

"QUEENSLAND NATURALIST."—It is regretted that only two issues of the Club Journal were published during the year. A small sub-committee was appointed to assist the Editor. Members having notes of interest are requested to forward them to the Editor.

GENERAL.—During the year the "Native Plants Protection Act" became law, and it is hoped that the indiscriminate plucking of Wildflowers will be checked. Several rangers have been appointed.

Several portions of land have been proclaimed as reserves; one of the latest being a piece at Sunnybank, near Brisbane.

LIBRARY.—The Hon Librarian (Mrs. Eva M. Jackson) reports:—

Magazine Section.—The Club still continues to receive, by way of exchange, a large number of publications from many parts of the world. The most popular, from a lending point of view, are the illustrated ones, such as the National Geographic, Natural History, and Australian Museum Magazines. Mr. G. H. Barker has from time to time presented many copies of "Bird Lore," and 17 parts of "Hutchinson's Popular Botany" were also donated by Mr. C. T. White

Book Section.—This section is very popular, although the number of volumes has not increased as much as might be desired, only two books having been added during the year, namely, "The Field Book of a Jungle Wallah," donated by Dr. E. O. Marks, and "Thirty Years War for Wild Life," donated by Mr. G. H. Barker. The Club would be very grateful for donations of books, of no further use to members, and dealing with subjects of interest to nature lovers.

As the Library is such a very popular section of the Club, especially with the younger members, a few good books on Natural History subjects, i.e., botany, ornithology,

entomology, geology, etc., would be a most desirable addition. Many members are very interested in certain of these subjects, but lack knowledge of them, and a few fairly simple works thereon would be of great value and interest to those members.

The purchase, during the year of a roomy cupboard, has greatly relieved the congestion in the Library. The publications not so much in demand are now being stored therein, leaving the bookcase free for the more popular books and magazines.

As it was felt that Country Members were not receiving full benefits from the Club, the suggestion of the President, that parcels of magazines should be forwarded for circulation among those members was acted upon, and is apparently much appreciated.

At the beginning of the year a Scrap Book was acquired by the Club, with the idea of pasting therein any suitable pictures of natural history subjects which might be presented by members. So far, only two members have contributed pictures, and the Club would be very glad of a few more to add to those already in the book.

EXCURSIONS.—The Hon. Excursion Secretary (Mr. J. Edgar Young) reports:—

During the year the usual policy of holding excursions, ranging from an afternoon to the extended Easter camp, has been carried out, and in practically all cases these have been well attended. The most important being the Easter Camp, from Thursday evening until the following Monday afternoon. On this occasion the trip of 1928 to the head waters of the Coomera, near Canungra, was repeated, the previous visit having been so successful. Some 35 members and friends made the trip, the weather, fortunately, being fine.

Visits were paid during the week-end to Tamborine Mountain, Beechmont, The Gorge (where it has been proposed to build a dam for water supply), and on the last day on a timber train, by favour of Mr. Romeo Lahey, into the scrub and ranges adjoining the National Park.

Most branches of natural history were studied, more particularly Ornithology and Botany, the geologists also finding some interesting matters to investigate.

Whole day excursions were held to Mt. Sampson and Upper Brookfield; both places being amongst the ranges provided forest and jungle, in which bird life was abundant, in addition to the fine scenery on the winding roads.

A week-end to Bribie Island gave change to sand and

swampy country, with its different class of vegetation and insect life.

Half-day trips were also made to Nursery Road, near Mount Gravatt, Pine Mountain, Sandgate Lagoons (a bird day, when a considerable number of water and other fowl were recorded), Coronation Park (St. Lucia), and Lawnton, where Mr. Ewart, Hon. Secretary, and Mr. Allsop, Manager of the Acclimatisation Society, explained in detail the various fodders, fruits, nuts and other plants being experimented with.

Petrie was the rendezvous on another occasion, when Mr. W. R. Petrie entertained the party at "Murrumba," built by the late Mr. Tom Petrie, so well-known as one of the early pioneers, and an authority on the Aborigines. Mr. Petrie explained the various trees, plants and other items of interest to those present.

While the attendance has been good, it would be gratifying if an increased number of members would take a closer interest in matters generally, such as discussion on various natural history objects, and asking or giving information. Also there is ample scope for members to study and report habits and peculiarities of natural history subjects in any branch, which would result in increased interest to themselves and the edification of the whole Club.

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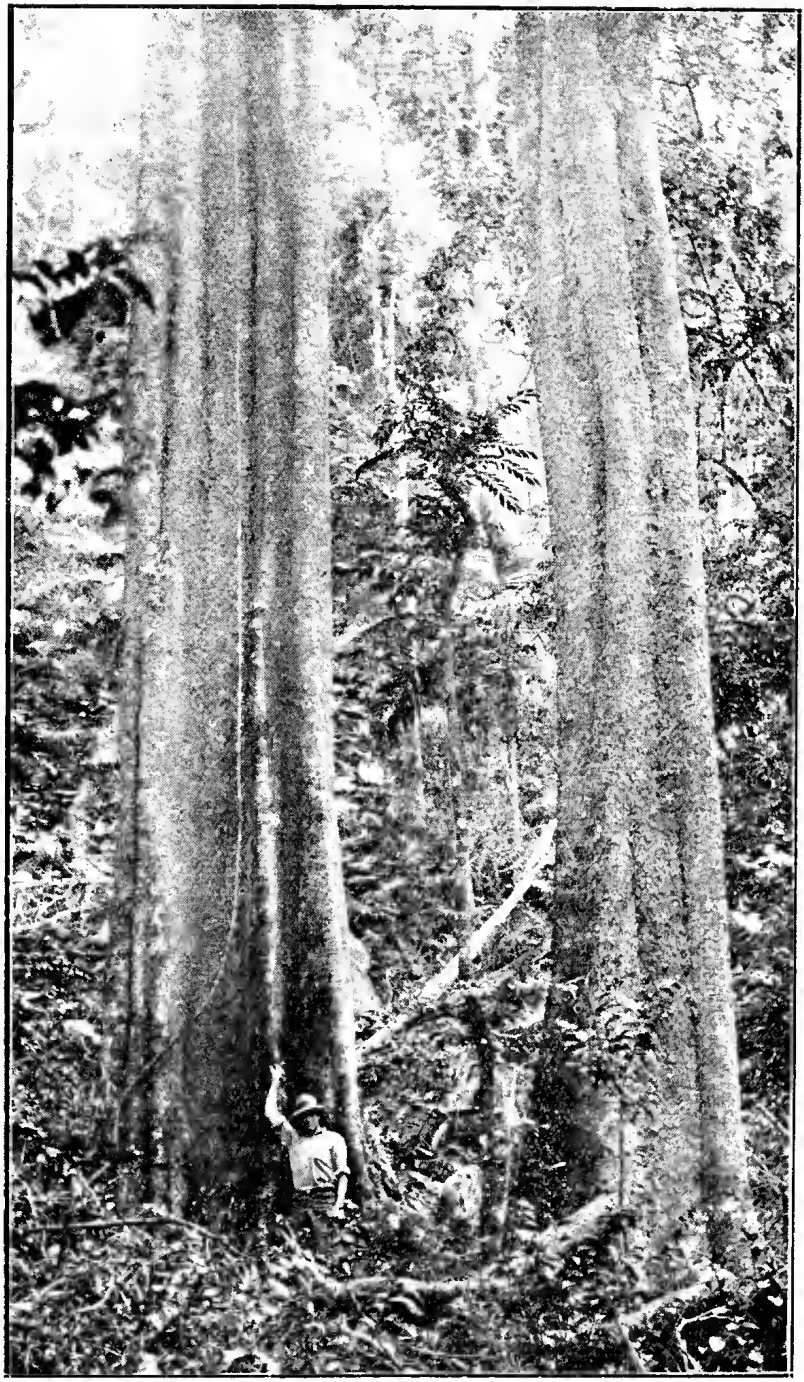
## THE LARGE-LEAFED OR GIANT STINGING TREE.

(By J. Edgar Young.)

One of the most noticeable features of the Eastern Australian "scrub," or rain forest, and one that perhaps most often makes its presence known, is the Large-leafed Stinging Tree, sometimes known as "Gympie Nettle" (*Laportea moroides*), though this venacular more properly belongs to an allied species.

It was scientifically known in the earlier part of last century as *Urtica gigas*, but was later named *Laportea gigas*. The genus *Laportea* commemmorates the name of Monsieur F. L. de Laporte, an early French entomologist. The tree, which is quite soft wooded, so much so that it is possible to almost bury an axehead in it at one blow, is fibrous and juicy, and attains to a great size, in suitable situations probably to 100 feet or more. The bark is light grey and fairly smooth.

The leaves, which give the tree its common name, are rather large and heart-shaped, and in the case of young and rapidly growing specimens attain to 12 and even 17



inches in diameter, usually of a lightish green in colour, and are covered thinly with fine stinging hairs; these when carelessly encountered cause considerable pain, which is persistent and recurs at each washing for days It has been reported as sending horses (which have a thin skin) mad.

The common Cunjevoi (*Alocasia macrorhiza*). with caladium-like leaves, usually found in the same localities, is a rather good remedy. The stem or root portion is sliced and rubbed on the affected parts. (Note.—This remedy does not appear to be so effective in the case of the smaller shining-leafed stinging tree (*L. photiniphyllx*).

The flowers of the stinging tree are insignificant, and the fruit forms a twisted fleshy mass.

The accompanying photo was taken at Cunningham's Gap, Main Dividing Range.

## NATIVE COMPANIONS AT LOWER NUDGEE, NEAR BRISBANE.

In response to a request for information, Mr. J. A. Beek writes:—

"The Native Companions which nest at Lower Nudgee are free birds and have been nesting for a number of years in the same vicinity. I have not had the privilege to see the nest myself, but no more than two eggs are laid, and sometimes only one. The nests are generally on private ground; the owner is rather keen about them and does not have them disturbed.

"Two years ago the birds nested on the reserve, and the eggs were taken and destroyed as they were nearly hatching. The birds rebuilt a distance from the old site and succeeded in rearing one chick. This last season they managed to get through with another chick. Last Thursday, February 25, a friend and myself were at Lower Nudgee and saw three birds flying low to the swamp and concluded they were the old and young birds.

"About August when birds are moving and migrating, the Native Companions assemble in big numbers on the flats at dusk, and my friend says it is very interesting to see them go through their different movements.

"We have counted 28 birds in one flock making for the flats at dusk presumably for feeding.

"Any further information I receive I will send along."

## THE PLANT ECOLOGY OF PALM ISLAND.

(By Dr. D. A. Herbert, Department of Biology, University of Queensland.)

(Continued from Vol. vii., p. 88.)

### (*g*) *Brackish Swamps.*

Towards the south-western corner where the low-lying flat cuts off the cape from the rest of the island, there is a fairly extensive peaty swamp. The water here is brackish, and a definite formation is developed. The dominant species is the paper-bark tea-tree—Melaleuca leucadendron—which attains a height of about thirty feet. At its base the peaty soil accumulates in heaps and the water lies round between the trees, leaving these small mounds projecting a few inches, or perhaps even one or two feet above the surface. Here and there are scrambling shrubs of Clerodendron inerme. The carpet flora consists almost entirely of ferns, the dominant species being Acrostichum aureum and Lygodium scandens, which climbs up the paper-bark trunks, forming a luxuriant lettuce-green mantle. Common also are Pteris ensiformis and Blechnum serrulatum, though these are not able to resist saline conditions as well as Acrostichum or Lygodium. As the swamp becomes more saline towards the sea, the tea-trees are replaced by mangroves—Avicennia officinalis (the Grey Mangrove), Bruguiera gymnorrhiza, Rhizophora mucronata, and Aegialitis annulata. Lygodium disappears first, and Acrostichum persists right to the edge of the pure mangrove forest. Acanthus ilicifolius, which occurs on the inner edge of some mangrove forests, is found at the transition zone.

Swamps of this type are found elsewhere on the western side of the island, though of very limited extent. They are to be found fringing estuarine mangrove swamps. On the one hand they grade into mangrove forest, and on the other into open Eucalyptus forest. The pioneer tree of the open forest round such swamps is Pandanus. The ground covering at the edge of the Acrostichum is Cyperus polystachyus and grasses which (with the exception of Paspalum distichum) were not flowering at the time of the examination. Where fires have swept this transition area Heteropogon contortus has established itself. At an elevation of a few feet above the swamp and about thirty yards from the outposts of the Acrostichum, the northern bloodwood (Eucalyptus terminalis) makes its appearance. Melaleuca leucadendron competes with the other members

of the open forest, though here it is rather sparsely scattered and of smaller size, attaining the rank of a second story tree only. It has a fairly wide range in the lowland formations, being found also along the rocky shores associated with Pandanus on the fringe of open forest. It reaches its greatest dimensions and maximum development in the fresh and brackish swamps where it is dominant, remaining a large tree along the rocky shore, but losing its importance and some of its size when it comes into competition with the Eucalypts in the open forest.

*The Flora of the Strand.*

The rocky headlands and abrupt cliffs which form a considerable part of the shore line of Great Palm Island are not favourable to the development of a typical strand flora. The rocks above high tide mark are frequently encrusted with lichen, mostly crustaceous, but occasionally specimens of Usnea are met with. Hoya australis sprawls over the boulders, and the brown-flowered orchid Dendrobium undulatum is very common. Occasionally D. teretifolium, the pencil orchid, is seen, though this is more common further inland on rocks and tree trunks. These plants, with Lygodium scandens, a climbing fern, form the outer fringe of the land vegetation of the rocky shores. Behind them are found small trees—Pandanus pedunculatus and Homalanthus populifolius. In drier situations these trees ascend the hill-sides, and soon are found interspersed with Eucalyptus tereticornis, E. corymbosa, E. tesselaris, E. alba, Albizzia procera, Macaranga tanarius, Cochlospermum Gillivraei, and other open forest types. Gradually the Pandanus disappears; the Cochlospermum, never abundant, is no longer found, and forest of the ordinary Eucalyptus formations is found.

Along the drier sandy belts, which are found best developed on the western side of the island, an open formation of a different type from that of the rocks occurs. This is the typical strand formation of the islands. A few creeping plants extend to the high tide mark. The two plants which advance farthest are Remirea maritima var. pedunculata, and Ipomoea pes-caprae. The former pushes a little ahead of the latter, its underground runners perhaps giving it a slight advantage over its competitor. The seaward edge of the caprae formation is sparsely covered, large areas of bare sand existing between the individual plants. A little distance behind the high tide mark, however, the plants grow closer, and the sand is almost covered by the canopy of leaves of the Ipomoea. In some areas, however, the parasite Cassytha filiformis attacks this

plant and covers it with its tangled threads. Its effect is very noticeable, the number of individuals of the host being greatly reduced and the covering power of the survivors considerably diminished. Ipomoea pes-caprae and Remirea maritima var. pedunculata usually form a fairly pure formation several yards in width. On the inner side they become mixed with such species as the Boerhaavia diffusa, Cenchrus echinatus (the burr grass), Sporobolus virginicus, Canavalia obtusifolia, Salsola Kali, Vitex trifolia, and the two succulent plants Euphorbia atoto and Sesuvium portulacastrum. Canavalia obtusifolia is very subject to the attacks of the parasitic Cassytha filiformis, which greatly handicaps it in its competition with its consociates. Tournefortia argentea, flowering while still a low shrub, is a pioneer tree, and behind the pes-caprae formation the littoral forest makes its appearance. Here occur Casuarina equisetifolia, Pandanus pedunculatus, Myoporum acuminatum, Heritiera littoralis, Hibiscus tiliaceus, Thespesia populnea, Abutilon mutieum, A. auritum, Cynometra ramiflora, Sophora tomentosa, Pleiogynium solandri, premna integrifolia, Erythrina sp., Calophyllum Vinophyllum, Morinda citrifolia, Guettardia speciosa, Barringtonia speciosa, Capparis lucida, and Scaevola Koenigii, Melaleuca leucadendron occurs in more sheltered places. Clerodendron inerme, a scrambling shrub, is found sprawling on the other plants, and Abrus precatorius, a climbing legume with red and black seeds, is common in places. Sarcostemma australe, a leafless asclepiad, scrambles over rocks and may ascend twenty or thirty feet in the branches of adjacent trees. On the south shore behind a mangrave forest, there is found a strand forest which consists almost entirely of Calophyllum inophyllum. These trees are magnificent spreading specimens of about thirty-five feet in height with a short stout trunk of two to three feet. Six to fifteen thick branches spread more or less horizontally, giving a canopy of thirty to forty feet diameter. The ground is carpeted with fruits and seedlings of the same species, but round the margins the grass, Heteropogon contortus, Brassaia actinophylla (the umbrella tree), and Homalanthus populifolius, are to be found. The rather sheltered position is not one in which Heteropogon would be expected, as it is not tolerant of shade, but it is not thoroughly at home. Brassaia also is at a disadvantage in the canopy area, and is not frequent. Behind the Calophyllum strip a rather peculiar formation extends across the sandy isthmus, which traverses the south-western cape. This is open forest, but not of the ordinary type such as is found on the hill-sides. It approximates floristically to the forest fringing the rocky shores. The dominant trees are

Eucalyptus tessellaris, E. alba, E. terminalis, E. tereticornis, Melaleuca leucadendron, Homalanthus populifolius, and Pandanus pedunculatus. Loranthus pendulus, the hanging mistletoe, is common on the Eucalypts, occasionally causing the death of the host. Sub-dominant trees are Acacia holosericea and A. flavescens, both second storey trees. Shrubs are not as common and are represented by Hibiscus tiliaceus, H. radiatus, Tephrosia astragaloides, and a number of malvaceous weeds. These latter, including Urena lobata, Sida cordifolia, and Sida acuta, are connected with the grazing of the flat. The ground covering of herbaceous plants is sparse and greatly altered by fires and grazing. Anthistiria imberbis (Kangaroo grass), Heteropogon contortus (this an after-product of bush fires), Paspalum distichum (in moister places), are common. A fern—Helminthostachys zeylanicum—occurs in occasional patches, apparently surviving the fires because of its underground stem, several inches below the surface.

The strand flora, where conditions are sufficiently sheltered to allow the Malayan forest to come down to the beach, is of a different appearance from the formation already described. A dense forest of the monsoon type rises like a wall some yards from high tide mark, and is mixed only at its fringe with ordinary strand types. Of these Casuarina equisetifolia is the most noticeable, as its switch-like branches are in marked contrast to the broad-leaved foliage of the trees in the background. Heritiera littoralis, Myoporum acuminatum, Guettardia spectabilis, Hibiscus tiliaceus, Pandanus pedunculatus, Sophora tomentosa, and Cynometra ramiflora are commonly seen, together littoralis, Myoporum acuminatum, Guettardia speciosa, australe, and the climbing Abrus precatorius. It is impossible to draw a line in many cases between strand and with the scramblers Clerodendron inerms and Sarcostemma Sarcocephalus cordatus, and othe rtrees common further inland grow side by side with Casuarina and its usual consociates; while twining or sprawling through them are Entada scandens, Mucuna gigantea, Abrus precatorius, and Sarcostemma australe. The first two are characteristic lianas of the monsoon forest.

*Mangrove Forest.*

The main development of the mangrove forest is on the mud flats at the mouths of tidal creeks, and at the foot of the steep hills that flank many of the bays. Amongst the rocks around the shore near the headlands where mud collects smaller patches of mangroves are to be found, and occasionally a stray seedling becomes established for a short time along the open shore. Eight species of mangrove were observed on Palm Island—Rhizophora mucronata,

Bruguiera Rheedii, B. gymnorrhiza, Ceriops candolleana, Sonneratia alba, Avicennia officinalis, Aegialitis annulata, Exoecaria agallocha, and Aegiceras majus. The last mentioned plant is not common, and does not form an important part of the general picture. It is found along the tidal creeks, generally on the outskirts of the formation. The dominant species are Rhizophora mucronata, Bruguiera Rheedii, Avicennia officinalis, and Bruguiera gymnorrhiza. At the northern end of Challenger Bay on a silting up coral flat the first stages of mangrove colonization may be seen. Here on the muddy sand small trees of Rhizophora mucronata are growing rapidly. Though no measurements were made the increase in size in the period which elapsed between the visits of 1925 and 1926 were very noticeable. Mud was accumulating round the prop roots of the trees and new plants had become established in it. The various aerial organs which are developed by all these mangroves for the purpose of aerating their roots have this secondary function of accumulating mud. Gradually the mud deposit becomes thicker and the area is reclaimed from the sea by degrees, and is able to support strand trees which are unable to invade the area below high tide mark. These trees do not immediately suppress the mangroves, and thus we get a mixed formation about the high tide mark. Gradations from the original colonization to the final strand-mangrove mixed formation may be observed within a distance of a mile or two in Challenger Bay. On the eastern shore of Eclipse Island the reclamation of the tidal strip has been effected in a remarkable way. Here immense quantities of coral debris have been thrown up on the shore amongst the mangroves. Without doubt these trees have assisted in the holding of the shingle, which has been colonized by a peculiar mixture of strand and monsoon forest types. A few mangroves, particularly Avicennia, persist in this mixture and indicate the past ecological history of the belt.

The adaptations of the various species of mangrove for root aeration vary considerably. Rhizophora mucronata, the Black Mangrove, is the only species of its genus on Palm Island (or in Queensland, for that matter), and can be identified at a glance by its prop roots. In a dense stand these are so interlaced that stepping from one to the other is the only way of penetrating the forest. The mangrove crabs cause a certain amount of damage by destroying the tips of the roots as they enter the ground. Bruguiera Rheedii has no prop roots, but the crabs cause a high mortality to its viviparous seedlings by nipping off the ends after they have fallen to the ground. In this species, which, like Rhizophora mucronata, attains a height

of twenty feet or more, the base of the trunk is prominently buttressed, Bruguiera gymnorrhiza is similar in habit, but attains a height of about twelve feet only, and its leaves and flowers are smaller. Both species occur together in places, but B. Rheedii is the common species, and is often found without B. gymnorrhiza.

Ceriops candolleana has a buttressed trunk like the Bruguieras, and its roots, which run horizontally near the surface, are bent up at intervals to form characteristic knees. It is usually found on the inner side of formations or in the upper parts of the tidal creeks with Avicennia officinalis. Sonneratia alba, a tree, attaining a height of thirty feet, also has spreading roots with upright processes, but these are in the form of stout conical pegs. This tree reaches its greatest development along the upper parts of the tidal creeks rather than along the muddy beaches. Avicennia officinalis, the Grey Mangrove, has a similar habit. Its roots run for a considerable distance just below the surface of the ground, sending up large numbers of rather slender peg roots. These shallow roots, like those of Ceriops, are often bared by the action of the sea. Avicennia does not extend into the sea as far as Rhizophora or Bruguiera Rheedii, and is more commonly found on the inner edge of the mangrove formations, though by no means always. Aegialitis annulata is a small rather fleshy leaved mangrove with a flared base. It grows on the edges of the mangrove formations. This position is compulsory, as the competition in a mature mangrove forest is severe; the trees grow so closely that seedlings and small species have little chance of development. The absence of light is an important factor, and its effect is shown in the death of the lower branches which in the open normally persist.

The line of demarcation between mangrove and strand is generally very sharp, and the two formations are usually separated by a belt of sand. Where this sandy strip does not exist, the adjacent formation is usually not strand. It may be grassland, open Melalenea leucadendron forest, or Eucalyptus forest; in the latter case there is a large admixture of Melalenea, at least at the edges. There is no invasion of the strand formation by the mangroves. Two strand trees, however, are frequently found growing on the inner edge of the mangrove forest, and amongst them in tidal creeks. They are Heritiera littoralis, the Looking-glass Tree (recognised by its long ovate leaves, shiny dark green above and silvery underneath), and Randia Fitzalani, conspicuous when in fruit because of its round fruits about the size of an orange. These fruits are quite inedible and possess a very disagreeable taste. Both these trees occur in the strand, and Randia also ascends the hillsides,

and is seen occasionally in both the Eucalyptus forest (on the south side of the ridges) and in the monsoon forest.

On the inner edge of the mangroves in some situations where the soil is firmer, occurs a small holly-leaved shrub, Acanthus ilicifolius, which has rather showy blue flowers. Usually this plant has no peculiarities of hibit, but occasionally is found with small prop roots. The plant is two to four feet in height, and these prop roots may be developed from rather trailing branches.

Clerodendron inerme, a scrambling shrub, occurs on the edges of the mangrove forest, and has rather thick leaves. In less saline situations the leaves are thin. The branches of this shrub take root where they touch the ground, and the plant comes in time to cover a fairly large area. Hoya australis, a thick-leaved Asclepiadaceous vine found in most of the woodland formations of the island, is also common. Two eprphytic orchids, Dendrobium undulatum and Cymbidium sp., are found in the branches of the mangroves, and extend to the other formations.

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## THE RED-BROWED FINCH.

(*Aginthα temporalis*).

By Mrs. H. CURTIS.

The Redhead is a very ordinary subject, but some of his funny little ways may not have been recorded from districts where he is not so common. This little finch is one of the most plentiful of the wee birds of Tamborine Mountain. With a whirring of tiny wings, large flocks often fly up from almost beneath your feet, where they feed on the seeds of grass or weeds.

The summer grass common on the farms here is a great favourite. When panicum or canary seed are grown for crops, these little acrobats have a great time—swinging on the swaying seed heads, feasting and enjoying themselves. It is comical to see them alight on a seed stem, then shuffle along the bending blade until the seed is reached, or to see them giving little leaps to reach a seed head just above.

Their nest (almost too well known to describe) is a large untidy mass of grass, like a big ball with a tunnel-like entrance on one side near the top. This ball of grass, often green, represents a lot of work for the tiny builders. The room inside is lined with feathers or thistle down, and in it the small white eggs are laid. Five is a usual clutch, but I have found as many as seven very often, and occasionally eight eggs in one nest, but whether two birds were using one nest or not I do not know. The nest is usually in a low shrub, the wild lime being a great favourite here,

though they don't seem to be particular. Orange or lemon trees, cocksfoot or lantana, anything, especially if a bit prickly.

With such large families the ambition of their order, they haven't time to be too particular in this, or in any of their housekeeping ways. Their nests are particularly unpleasant when the family is well grown and almost ready to leave, and I don't wonder that these babes climb out into the unkind prickles of the nesting tree, almost before a feather is unfolden. Nothing but a mass of pins adorns their tubby nakedness.

Nests may be found in use from January to June, and the quaint but common sight of a small bird with a long straw trailing behind is often seen. Also the playful antics of a bird with a feather. One will get a hen's feather, and sitting on the clothes line or a tree twig will toy with the stem, twirling the feather; dropping the toy another will catch it up; ofttimes several will chase the feather holder. Whether eventually used for a nest or not I don't know, as sometimes the feather holder goes out of sight and sometimes tired of play the feather drops and is abandoned. It seems to be a game they enjoy playing.

In dry weather they make free use of the frying pan set with water for the birds. A prettier trimming a frying pan never had than when this one is decorated all round and up the handle with living tiny birds. They drink and sometimes bathe: in this they are comical; there is no brave plunge in, as many birds do; cautiously they try the water with one foot, clinging to the rim with the other, then one or two jump in and in a moment the pan is a mass of tiny splashing birds. In just such another long moment the bath is over, and they all whirr off with much "seiving" to each other as they go.

The full plumaged bird, seen closely and for long enough to admire the colours, has a pretty neat appearance: the bill is the colour of red seal wax, the top of the tail and stripe over the eye being the same, with a grey head and underneath and a greeny brown back. He is a neat little chap but lacks the grace and daintiness of movement of many of our small birds.

Certain old nests are used as community sleeping houses, and I have watched incredible numbers crowd in at night. They certainly must be quite warm, though most unsanitary in their crowded dormitary. Neat in appearance, alert and business-like, these little birds lead a busy, useful community life, freeing the farmer of thousands of weed seed. They fall easy prey to cats and sparrow hawks but breed in such numbers there always seems to be hundreds left.

## *QUEENSLAND NATURALIST CLUB.*

*Annual Receipts and Expenditure to January 31st, 1932.*

### RECEIPTS.

| | £ | s | d |
|---|---|---|---|
| To Cash at Banks, Dec., 1930 | 65 | 19 | 5 |
| ,, Members' Subscriptions | 50 | 10 | 0 |
| ,, Flower Show | 47 | 0 | 3 |
| ,, Sale of "Naturalists" | 0 | 3 | 0 |
| ,, Lantern Hire | 2 | 2 | 0 |
| ,, Surplus from Easter Excursions | 3 | 6 | 8 |
| ,, Interest in Government Savings Bank | 1 | 19 | 0 |
| | £171 | 0 | 4 |

### EXPENDITURE.

| | £ | s | d |
|---|---|---|---|
| By Printing "Naturalist" | 16 | 5 | 6 |
| ,, Rent | 13 | 5 | 0 |
| ,, Petty Cash | 13 | 0 | 0 |
| ,, Flower Show | 28 | 9 | 1 |
| ,, Insurance | 0 | 9 | 10 |
| ,, Affiliation to Horticultural Society | 0 | 10 | 6 |
| ,, Circulars Printed | 1 | 7 | 6 |
| ,, Wrappers | 0 | 18 | 6 |
| ,, Projector Lamp | 1 | 11 | 9 |
| ,, Book Cupboard | 4 | 2 | 6 |
| ,, National Geografic | 1 | 6 | 0 |
| ,, Cheque Book | 0 | 5 | 0 |
| ,, Balance, 31st January, 1932 | 89 | 9 | 2 |
| | £171 | 0 | 4 |

C. W. HOLLAND,
30/1/32. Hon. Auditor.

## *NATURE LOVERS LEAGUE*, 1931.

| | £ | s | d |
|---|---|---|---|
| To Forward from 1930 | 10 | 18 | 10 |
| ,, Sale of Certificate (Mr. Longman) | 0 | 1 | 10 |
| | £11 | 0 | 8 |

| | £ | s | d |
|---|---|---|---|
| By Insurance of Certificate | 0 | 3 | 0 |
| ,, Balance at Bank, 31st January, 1932 | 10 | 17 | 8 |
| | £11 | 0 | 8 |

C. W. HOLLAND.
Hon. Auditor.

THE
# QUEENSLAND NATURALIST
JOURNAL OF THE QUEENSLAND NATURALISTS' CLUB
AND NATURE-LOVERS' LEAGUE

VOL VIII. AUGUST, 1932 No. 3

## PROCEEDINGS.

EVENING MEETING, 18th April, 1932.—The President (Mr. J. Nebe) occupied the chair, and 46 members were present. Mrs. N. E. Macdonald and Mr. D. Parker were elected ordinary members, and Mr. F. L. Berney a country member of the Club. Reports on the Easter excursion to Upper Cedar Creek were given by Mr. J. E. Young (General), Dr. E. O. Marks (Geology), Mr. G. H. Barker (Birds), and Mr. Ken. Jackson (Botany). The President (Mr. J. Nebe) exhibited slides and a moving film of the camp. A vote of thanks to Mr. Harlan, of Upper Cedar Creek, for his many kindnesses to members during the camp was moved by Mr. Nixon and carried unanimously. A report on the excursion to Ferny Grove was given by the Hon. Excursion Secretary (Mr. J. E. Young), who especially mentioned the fine bora rings observed and gave a few interesting notes on bora rings in general. A list of birds observed during the afternoon's excursion was read by Mr. J. O'N. Brenan.

EVENING MEETING, 16th May, 1932.—The President (Mr. J. Nebe) occupied the chair and 32 members were present. Mr. L. Pope was elected a member of the Club. A report by Mr. C. T. White on the botany of the excursion to Mt. Cotton was read. Mr. K. Jackson exhibited specimens of Water Vine (*Vitis*) and seeds of Quandong (*Elaeocarpus*) gathered on the excursion. Mr. F. A. Perkins, M.Sc., gave a very interesting lecture on "Primitive Insects." Mr. H. Young spoke of some shells, bones, pieces of iron, and a stone tomahawk which he and Mr. Nebe had collected at a kitchen midden at Burleigh.

EVENING MEETING, 20th June, 1932.—The President (Mr. J. Nebe) occupied the chair and 40 members were present. Miss M. Peak and Miss L. Bennett were elected members of the Club. A report on the excursion to Tarragindi was given by Dr. E. O. Marks. Mr. T. C. Marshall, of the Queensland Museum, gave a very interesting address, illustrated by lantern slides, on "Monsters of the Deep."

# THE CONTRIBUTION OF SOME WOMEN TO THE STUDY OF BOTANY.

(By Mrs. Estelle Thomson)

Presidential Address delivered before the Queensland Naturalists' Club, 13th February, 1932.

In offering these few notes on some women who have contributed towards the study of Botany I would say at the outset that it is not in any sense my intention to attempt to prove that this contribution is either a weighty or a bulky one. It is, in fact, a very small one indeed, and on that account perhaps liable to be overlooked.

I have purposely avoided the use of the term "women botanists," for it is not to the splendid work of such trained botanists as Dr. Jean White-Hainey and Dr. E. J. McLennan, to mention only two of a considerable and important list, that I mean to draw attention. Rather I have tried to find out a little about the amateur students of Botany who, by collecting, by drawing, by preparing and mounting microscope sections, and by publishing more or less popular works on the subject, have made their small contribution towards the study of plant life.

Having started to investigate the subject fully prepared to do a good deal of research in order to disinter some details of the lives of these women from their dusty oblivion, it was disappointing to find the results so meagre. In almost every case I am indebted to the late Mr. J. H. Maiden, for my information drawn from his papers on the Great Australian Botanists.

Before mentioning those few women who have done independent work of sufficiently enduring value to merit the inclusion of their names in Mr. Maiden's list, we might consider in passing those women who have in another way made their contribution to this science in particular—I mean the wives and sisters, the female relatives, in fact —of the men who have built up the science of Modern Botany as it stands to-day.

Biography of the briefer sort is usually silent as to the domestic life of great men, but when we read a more detailed life of some of these it becomes evident that their domestic relations had a marked effect on their public or scientific life.

Charles Darwin was helped in this way both by his wife and by one of his daughters-in-law who drew some of the illustrations for his "Climbing Plants." "Insectivorous Plants" and "Forms of Flowers." Mrs. Darwin

and his daughter, Mrs. Litchfield, did much of the proof-reading of his works.

Perhaps it is, therefore, not too rash to infer that other of the botanists of that day about whose private lives we know little were assisted at home in a similar manner.

To come nearer home in time and place I have always felt that E. J. Banfield owed much of the succes of his "Beachcomber" life on Dunk Island to his wife. It would hardly have been so happy had she not been an extremely adaptable woman, and one cannot help feeling that she must have been a little lonely.

But this is all speculation. Coming to actual fact, I have found no very early reference to definite botanical work being carried out by a woman in Australia (they probably had much too much else to do). Here and there plants are called after noble ladies, such as Princess Marie von Metternich (*Mariana*), Mary, Duchess of Beaufort (*Beaufortia*), and Frances, Countess of Hardenberg (*Hardenbergia*), but one feels that this was more likely to have been a tribute to their exalted position and an acknowledgment of patronage than a recognition of botanical interest.

To pass to women who have really produced work of their own. There was a Miss Drake whose name is mentioned in connection with *Drakea*, a genus of orchids. In several works the note is added that she contributed botanical drawings to the "Botanical Register," and this one fact is repeated without amplification all through such works as I have examined. Very tantalising! Perhaps with unlimited time and the Mitchell Library at one's disposal, something more might be discovered. Lindley, who called *Drakea* after her, died in 1865, so she must have done her drawing earlier than this.

Of the earlier Australian women botanists a little more is usually known, and it is surprising that Mr. Maiden mentions no woman in his list of the earlier botanists of Western Australia, because that botanists' paradise offers such exceptional opportunities to the botanical artist.

In South Australia there was published in 1861 a book called "Wild Flowers of S.A." by Miss F. E. de Molle; it contained 20 plates in colour by the author. As the three-colour process was not at that time invented, these plates may have been printed in black and white and coloured by hand in water-colour.

In a paper read before the Field Naturalists' Club of Victoria by Mr. Maiden, mention is made of three women, a Mrs. Barker of Cape Schank, who collected sea-weeds and other algae; a Mrs. Captain Mallard, who collected many interesting algae during a short visit to Port Philip; and Fanny Anne Charsley, the daughter of a Melbourne solicitor who in 1867 published in London in a large quarto edition, containing 13 coloured lithograph plates, which she called "The Wild Flowers Around Melbourne."

The collection of algae seems to have been fashionable in the mid-nineteenth century, for we find that a Mrs, Charlotte Smith, also a Mrs. May Smith (nee Ballantine), both collected algae—the latter was also one of the early collectors of Tasmanian flora.

Another Tasmanian of note is Mrs. Louisa Anne Meredith, who came to Tasmania with her husband at the age of about 30. She published several large illustrated works round about 1860, dealing with her life in the bush, and in 1891 a second series of "Bush Friends in Tasmania." I have seen a copy of the latter publication, and though it was easy to recognise many typical Australian plants, they seemed to have suffered as it were, a sort of translation into an English mode of expression. The stiff and erect Banksias, for example, were rendered with bends and curves reminiscent of the twisting eglantine. (The same effect, by the way, is to be observed in the "*Flora Australasica*," Sweet, London, 1825.)

About the same period Mrs. Caroline Calvert, nee Atkinson, in N.S.W. was collecting botanical specimens, including several new species; writing and illustrating country tales and sketches, and writing notes on the botany of the Hawkesbury district. She was an expert taxidermist and an excellent botanical artist. A lady of parts, this, and as she was known to her friends by the pretty name of Dianella, we can take it that she was charming as well as clever.

Of the extraordinary life of Amalie Dietrich, the peasant girl of Saxony, who became a well-known botanical and zoological collector, it is impossible to convey much in a few words. Having married a botanist of the name of Dietrich, who treated her very badly, she was forced to fend for herself and her little daughter, and turned the knowledge of botany she had gained from her husband to such good account, that she was finally commissioned by the Museum Godeffroy in Hambourg to collect for that institution in Australia, mainly in Queensland. Mr. Maiden refers to her as "this admirable collector."

It is hardly necessary to remind members of this club of the work of Mrs. Ellis Rowan. She was a botanical artist who had a great and genuine love for her subject. Her energy was indefatigable, and when one considers that a great deal of travelling was necessary to secure the fresh specimens she always used, her output is really amazing. As with most very prolific artists, her work is a little uneven, but it is unnecessary and unprofitable to seek for faults among so much that is excellent. The collection of her paintings in the Queensland Museum should be a delight and a source of inspiration to everyone interested in this subject.

Remains, then, the work of those women who are still living, and I propose merely to mention a few names as typical and representative of the wide botanical field in which Australian women are now working.

In Western Australia, Mrs. Emily Pelloe is pre-eminent both as artist and as writer, and the Misses Helen Ogden and Ida Richardson have published two excellent collections of coloured photographs of W.A. flowers.

In Victoria, Mrs. Edith Coleman has done work along original lines in connection with the fertilisation of orchids and Mrs. Eaves is an expert in stereo-photography both of flowers in their natural condition and also dissected.

N.S.W. has Miss Florence Sulman, whose invaluable "Wild Flowers of N.S.W." owes much to the excellent drawings of Miss E. Mort. Miss Annie Sulman, sister of the above has published two volumes of flower photographs. Miss Margaret Flocton did the illustrations for Maiden's "Critical Revision of the Genus Eucalyptus" and for "The Forest Flora of N.S.W."

In S.A., Miss Rosa Fiveash is known as the illustrator of some of Dr. Rogers' work on orchids, and Miss Olive Davies collaborated with Professor Ewart in the production of "The Flora of the Northern Territory," by Ewart and Davies.

Here in Queensland we have an admirable flower photographer in Mrs. Hilda Curtis, a member of this club, while another woman, Miss L. S. Gibbs, braved the discomforts and difficulties of collecting on Bellenden Ker during the wet summer months.

It is only by knowledge that a subject becomes absorbing and it is only by making steps of those pieces of knowledge laboriously acquired by ourselves that we can spring nimbly up the steep and slippery hill called Botany.

## BOTANISING IN TASMANIA.

(By C. T. White.)

(Resume of lecture delivered before Queensland Naturalists' Club, 21st March, 1932.)

Broadly speaking, Tasmania, unlike the Australian mainland, is practically all forest-covered. The forests are of two main types (a) open Eucalyptus forest, and (b) temperate rain-forest.

Around the coast, right on the low coastal dunes and immediately behind them, the She Oak, *Casuarina stricta*, is very abundant. In some localities on the east coast a Cypress Pine, *Callitris tasmanica*, comes down to the sea where the coast is at all rocky, though usually it is more abundant on low hills some distance inland. A large forest reserve near Swansea is set aside principally for the conservation and natural regeneration of this pine.

The open Eucalyptus forest varies considerably in composition, according to locality and habitat. On the low hills round the coast *Eucalyptus viminalis* (Manna Gum), *Eucalyptus amygdalina* (Peppermint), with in places its offshoots, *E. linearis* and *E. Risdoni*, and *Eucalyptus obliqua* are the principal Eucalypts. With these is associated a mixture of other trees and shrubs with a marked xerophytic habit, e.g., *Casuarina suberosa*, *Dodonaea viscosa*, *Beyeria opaca*, *Bursaria spinosa*, *Banksia marginata*, etc.

Following the gullies up there is a good mixture of more shade-loving trees and shrubs; *Eucalyptus globulus* and *E. obliqua* are two very common large trees. Of small trees and large shrubs the following are all common:— *Pittosporum bicolor*, *Pomaderris apetala*, *Prostanthera lasianthos*, *Zieria Smithii* var. *macrophylla*, *Bedfordia salicina*, *Leptospermum lanigerum*, *Coprosma hirtella*, *C. Billardieri* and *Pimelea drupacea*.

At approximately 2,500ft. altitude the forest changes, becoming thicker with more undergrowth. Many fine flowering shrubs, such as the Olearias (notably *O. pinifolia* and *O. Persoonioides*), *Bauera rubioides*, *Senecio centropappus*, *Leptospermum lanigerum*, various Epacridaceae, etc., make their appearance. At this level, *Hakea aciecularis* is a very common small tree, with elongated terete leaves, further up in more exposed situations it becomes dwarfed to a shrub with much shortened leaves.

Further on at about 3,000ft. altitude the Beech Myrtle (*Nothofagus Cunninghamii*) is abundant, though mostly dwarfed in the open forest to little more than a shrub. Some of the more alpine Eucalypts now become common, e.g., *Eucalyptus urnigera* (Urn Gum), *E. Gunnii* (Cider Gum), and *E. coccifera* (Mountain Peppermint), the last confined to Tasmania and ascending to the 4,000ft. level.

Some of the more interesting Coniferous trees are found at this level, e.g., *Phyllocladus rhomboidalis* (Celery Top Pine), *Arthrotaxis selaginoides* (King Billy Pine) and *A. cupressoides* (Pencil Cedar). Of shrubs, some of the more characteristic are *Gaultheria hispida* (Snow Berry), *Bauera rubioides*, *Coprosma nitida*, and various Epacrids such as *Trochocarpa*, *Lissanthe*, *Cyathodes*, etc.

At the 4,000ft. level, trees more or less disappear and shrubs growing in rock clefts or rock pockets are the characteristic plants. As in most countries it is at the higher altitudes that the greatest degree of endemism occurs. This extends in some cases, e.g., *Microcachrys* (Creeping Pine), *Bellendena* (Proteaceae), etc., to genera. Among the dominant shrubby genera in Tasmania may be noted *Baeckea*, *Leptospermum*, *Orites*, *Telopea*, *Pimelea*, *Cyanthodes*, *Richea*, *Helichrysum*, etc. Some of the herbaceous plants such as *Gentiana saxosa*, *Euphrasia Brownii*, *Celmisia longifolia*, *Brachycome scapiformis*, *Senecio pectinatis*, etc., are striking by reason of their beauty.

The rain-forest finds its greatest development on the west coast, but where conditions are suitable extends considerably eastward, being fully developed in the National Park, where the slopes of the Mount Field Range from a little above sea level to about 3,000ft. are clothed with a comparatively heavy temperate rain-forest. At the lower levels a dense sclerophyllous woodland may be developed in which *Eucalyptus obliqua* (messmate or Stringybark) and *Acacia melanoxylon* (Blackwood) are the dominant trees, with an undergrowth of *Zieria*, *Prosthanthera*, *Aristotelia*, etc. This gradually merges into typical rain-forest. In the wetter parts *Eucalyptus regnans* (Swamp Gum) becomes the dominant large tree, with *Atherosperma* (Sassafrass), *Eucryphia* (Leatherwood), *Anodopetalum* (Horizontal), *Nothofagus Cunninghamii* (Myrtle) and *Phyllocladus* (Celery Top Pine) as associated trees. Smaller trees very abundant in this zone are *Anopterus* (Laurel) and *Telopea* (Waratah) with an abundance of Tree-ferns (*Dicksonia*) everywhere. It may here be noted that at the time of my visit (February), the Waratah at the lower levels had long finished flowering, but in the mountains just below standing snow they were in full blossom.

As higher levels (2,500-3,000ft.) are reached *Eucalyptus regnans* gives place to the more typical mountain species *E. Gunii* (Cider Gum), *E. urnigera* (Urn Gum) and *E. coccifera* (Mountain Peppermint), with *Phyllocladus* (Celery Top Pine) and *Nothofagus* (Myrtle) are still quite abundant. Here the rain-forest gradually dwindles, these outlying species, however, persisting but becoming more and more dwarfed as the higher altitudes are reached.

On the mountain plateaux are developed what to a botanist from the tropical and sub-tropical parts of Australia are perhaps the most interesting feature, viz., the highland or Alpine Moors. It was interesting to see all over these a common fern, *Gleichenia dicarpa*, of the Queensland low moor, though here at 3,500ft. and over it was reduced to a plant a few inches high. A characteristic plant of the high moor is *Astelia alpina* (known locally as Artichoke or Wild Pineapple), covering very large areas and ascending the hillsides in depressions or where swampy conditions prevailed. A characteristic shrub of the area is the conifer *Phacrosphaera Hookeriana*, forming dark green cupressoid bushes about 4ft. high, badly attacked in many instances by a sooty mould. A similarly shaped bush, but of a more greyish green was the composite *Helichrysum baccharoides*, known locally from its resinous character as Kerosene Bush. Very abundant and in full flower at the time of my visit was *Boronia citriodora* (Thyme), its citron fragrance very noticeable as the low bushes crushed in walking over the moors. A common low spreading bush about 2ft. high in parts was *Melaleuca squamea*.

No account of the moors would be complete without some reference to the solid cushions about 1ft. high and 2-3ft. in diameter formed of a mixture of small moss-like flowering plants, principally Compositae and Epacridaceae

## MONSTERS OF THE DEEP.

(Resume of a lecture delivered by Mr. T. C. Marshall before the Queensland Naturalists' Club, 20th June, 1932.)

Of the five main groups of vertebrate animals the fishes are the lowest. They are cold-blooded, their limbs are shaped in the form of fins and they breathe by means of gills. Strictly speaking, the sharks and rays are not true fishes, but belong to a group known as the Sealachians or Cartilaginous Fishes. They differ in that they lack a true skeleton, having only cartilage in place of bone.

Australia, with its numerous rivers and lakes, surrounding seas and reefs, contains 1,900 species of fish, including the sharks and rays. Of this number at least 1,095 occur in Queensland.

The question is often asked, "Do sharks lay eggs or bring forth their young alive?" Generally speaking, very few species lay eggs, but those that do are mainly the smaller and less harmful ones. Most of the Wobbegongs, Dog Sharks and Blind Sharks lay eggs, which are curious horny coloured bags or cases. They usually have tendrils to anchor them to seaweeds or other objects and they are frequently washed up on seashores. Most of the man-eat-

ing sharks bring forth their young alive and in large numbers.

A curious shark not frequently seen in Queensland is the Thresher. This shark, which is harmless to man, possesses a tail over half its own length. As the name implies, this is used to round up schools of fish by threshing the water into foam, the fish meanwhile huddling together with fright. A sudden rush in amongst them and a thrust to right and left usually leaves several stunned to be devoured at leisure.

The Sea Devils or Mantas are enormous Rays which reach a width of twenty-four feet and an estimated weight of 10,000 pounds. A Sea Devil washed ashore at Cowan Cowan, in Moreton Bay, measured thirteen feet across.

The deadly and venomous Stone Fish which may be described as a muddy coloured, uneven and shapeless mass, lies concealed in the mud and rocks along our foreshores, its thirteen poisonous spines standing erect ready to pierce the foot of an unsuspecting wader. The venom from this fish causes intense agony and delirium lasting many hours, with often many days of sickness.

The Flying Fishes, which are related to the Gar Fish and Needle Fish, are capable of long and sustained flights. The fish usually turns into the wind when launching, and by taking advantage of the air currents, is able to remain aloft for as long as half a minute. Wood Jones notes Flying Fish to repeatedly outstrip a vessel doing seventeen knots.

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## BOTANY OF EASTER EXCURSION TO UPPER CEDAR CREEK.

(By Ken. Jackson.)

During the Easter vacation the Field Naturalists' camp was held at Upper Cedar Creek, in the D'Aguilar Range. This expedition proved a great success, especially as regards the botanical wealth of that locality. Of course, the prevailing dry weather did not have a good effect on the plant life, but as most of the collecting was done in the deep rain-forests, this effect was not very noticeable.

On Good Friday a trip was made to the Love Creek Falls. The vegetation here is composed wholly of rain forest of an exceedingly luxuriant character. The trees noted included Hoop Pines (*Araucaria Cunninghamii*) which, in the reserve above the falls, had attained an enormous size; Tulip Lancewoods (*Harpullia pendula*); these were fairly plentiful, being noticeable mainly by their peculiar and attractive seed cases which in places littered the ground; Crow's Ash (*Flindersia australis*), and the Bumpy Ash (*Flindersia Schottiana*), the latter being represented, in one case, by a fine specimen about

130ft. high, with the large humps (from which it derives its name) at intervals up the stem; the Brush Box *Tristania conferta*) was also growing in fair numbers, and many of these were in the course of being strangled by parasitic figs; the Carribin (*Sloanea Woollsii*) with its spiked seed capsules, which lay round abundantly at the foot of the falls. There were one or two Red Cedars (*Cedrela Toona var. australis*) along the creek and also one huge specimen near the falls, but unfortunately, although told of its existence, we were unable to find this last in the dense scrub. This type of tree, owing to its very valuable timber, has been largely cut out, not only the straight, but also the smaller and inferior ones. The Moreton Bay Fig (*Ficus macrophylla*), also *Ficus Cunninghamii*, and *Ficus Watkinsiana* were very common. The Gympie Stinging Tree (*Laportea moroides*), and the Shiny Leafed Stinging Tree (*Laportea photiniphylla*) were also present. There appeared to be only two species of palm present in the scrub, the Piccabin (*Archontophoenix Cunninghamii*) and the Lawyer Palm (*Calamus Muelleri*), Most of the larger trees were decked with epiphytes, Staghorns (*Platycerium grande*), Elk Horns (*Platycerium alicorne*), and the Bird's Nest Ferns (*Asplenium Nidus*). Hare's Foot Fern (*Davallia pyxidata*) and Mare's Tail Fern (*Asplenium adiantoides*) were growing on the cliffs and in dead epiphytes, but the Mare's Tail Fern was by no means common.

Among the orchids were King Orchids (*Dendrobium speciosum*), Pencil Orchids (*Dendrobium Beckleri*), Box Tree Orchids (*Dendrobium acinulum*), Cucumber Orchids (*Dendrobium cucumerinum*), Drooping Pencil Orchids (*Dendrobium teretifolium*), and *Dendrobium monophyllum* also a small *Sarcochilus*.

Among the ferns were the Prickly Tree Fern (*Alsophila Leichhardtiana*), growing fairly abundantly above the falls, and in one place entirely covering a bank above the creek. The two beautiful climbing ferns *Arthropteris tenella* and *Polypodium pustulatum*, were very common, growing on tree stems and rocks. Other ferns were *Pteris umbrosa* (growing amongst the rocks on the hillsides), *Psilotum complanatum*, *Pellaea falcata var. nana*, *Pellaea paradoxa*, and *Cyclophorus serpens*.

On the Saturday, several of the party took a trip to Mt. Samson. On this expedition most of the plants formerly mentioned were noted. However, there were also many new ones. The country passed through was mainly covered with rain-forest, although there were also tracts of eucalyptus forest. The orchid *Dendrobium Kingianum* was found on some cliffs which were traversed, but it was not very common, neither were the specimens very good,

owing probably to their exposed position. *Macrozamia miquelii* was fairly common and in some cases the cones had become ripe.

Among the ferns, Maiden Hair (*Adiantum Aethiopicum*) was very abundant in the gullies. On the peak of Mt. Samson there was a large patch of Star Fern (*Gleichenia flabellata*), which, I think, is rather strange, as this fern generally grows in very low lying, damp positions. The trees covering the peak were mostly *Casuarina, Banksia*, Grass Trees (*Xanthorrhoea*) and Eucalypts, but the lower slopes of the mountain are clothed in rain-forest. Other plants seen were *Lomatia silaifolia*, the Giant Stinging Tree (*Laportea gigas*), Wild Ginger (*Alpinia*), Kangaroo Grass (*Themeda*), the last covering the ground in most of the open forest areas.

On Easter Sunday a trip was made to Mt. Glorious via a snigging track from Stony Creek. This time the land traversed was covered for the most part with very fine eucalyptus forest, with strips of rain-forest in the gullies. Along the path here the fern *Doodia aspera* was very common, also the rock fern *Drynaria rigidula*. In the gullies the Piccabin Palm (*Archontophoenix Cunninghamii*) was also very common. On nearing the crest of the mountain we passed some rain-forest, which at one time had been very fine, but owing to the thinning out of timber and the subsequent growth of lantana, it had lost much of its former beauty. However, in this lantana there were some exceptionally large specimens of Giant Maiden Hair (*Adiantum formosum*). The top of the mountain itself was not very rich in plant life, owing probably to the dry weather and lantana which almost covered the slopes. A Wheel-of-fire Tree (*Stenocarpus sinuatus*) however, had been left standing in the cleared scrub, and as this was in full flower, it afforded a beautiful sight.

The return trip from Mt. Glorious, via the falls, was made by some of the party. The rain-forest first entered was almost wholly stripped of its staghorns and other epiphytes, but later on when more out-of-the-way forest was reached, the plants were found to be still in their natural state. The Cork Tree (*Erythrina vespertilio*) was growing in this area.

Among those plants growing near the camp were the Iris Orchids (*Oberonia iridifolia*), also the Weeping Myrtle Tree (*Eugenia Ventenattii*). A very noticeable thing also was the fact that the Brush Boxes (*Tristania conferta*) were in a very bad state owing to the dry weather, and in every case the leaves were hanging down. Even those trees growing above the water were in the same state, which shows that they are very shallow rooted.

## EASTER OUTING TO UPPER CEDAR CREEK—BIRDS OBSERVED.

(By G. H. Barker.)

This outing was held from March 25-28 in fine weather and at a very dry time and from an ornithological point of view there was nothing outstanding or startling to record. A list of fifty-seven (57) different species was observed, many of these being single specimens or at least very few. A pleasing sight were several fair sized flocks of the Crimson Rosella or Lowry, which were several times seen on the hillsides. Red Browed Finches were also very numerous along the creeks and grasslands. Grey Butcher Birds were also in evidence everywhere we went; so also were Grey Thrushes. On the other hand few Whip Birds were heard or Lewins seen. Appended is a detailed list of the species noted.

1—Brown Quail
2—Topknot Pigeon
3—Brown Pigeon
4—Peaceful Dove
5—Bar Shouldered Dove
6—Little Red Cormorant
7—Spur Winged Plover
8—Stone Curlew
9—Straw Necked Ibis
10—White Faced Heron
11—Sparrow Hawk
12—Boobook Owl
13—Scaly Breasted Lorrikeet
14—Red Tailed Black Cockatoo
15—King Parrot
16—Crimson Rosella or Lowry
17—Pale-headed Rosella
18—Azure Kingfisher
19—Kookaburra
20—Forest Kingfisher (Macleay's)
21—Sacred Kingfisher
22—Rainbow Bird, Bee-eater
23—Swift (? sp.)
24—Cuckoo (? sp.)
25—Noisy Pitta (Dragoon Bird)
26—Welcome Swallow
27—Grey Fantail
28—Rufous Fantail
29—Willie Wagtail
30—Yellow Robin
31—Golden Whistler
32—Grey Shrike Thrush
33—Magpie Lark (Pee-Wee)
34—Crested Shrike Tit
35—Eastern Whip Bird
36—Black Faced Cuckoo Shrike
37—Jardine's Caterpillar Eater.
38—White Throated Warbler
39—Little Thornbill
40—White Browed Scrub Wren
41—Wren (? sp.)
42—Brown Tree Creeper
43—Spotted Pardalote
44—Black Headed Pardalote
45—Silver Eye
46—Scarlet Honeyeater
47—Eastern Spinebill
48—Lewin Honeyeater
49—Yellow Faced Honeyeater
50—Noisy Miner
51—Leather Head
52—Red Browed Finch
53—Australian Raven
54—Pied Currawong
55—Red Butcher Bird
56—Grey Butcher Bird
57—Black Backed Magpie

## A FEW BIRD NOTES.

(By G. H. Barker.)

It is not necessary apparently to go into the bush these days to get interesting bird notes, as this week in Wilston, a populated suburb of Brisbane, my wife and I have had two curious experiences. Our house stands on the skyline on the western slopes of Eildon Hill and is surrounded by trees, mainly weeping figs. Nearly every year about this time we are visited by a Rufous Fantail (*Rhipidura rufifrons*), evidently on his way south for the winter. This in itself is curious, as we are nowhere near timber and scrub country, and therefore this little bird is a long way off his beaten track. However, this visit nearly came to be his last, as by some mischance he became tangled in some strong spider webbing in one of the weeping figs. My wife, attracted by his persistent calls, found him suspended by the tail, hanging head downwards and quite helpless in one of the trees near the verandah. It was an easy task to pull down the branch and liberate the little fellow and he was placed in the aviary to rest and clean himself. When liberated in the evening he appeared none the worse for his adventure and flew off quite strongly.

The second incident concerned a Podargus (alias Tawny Frogmouth, alias Mopoke). We were driving along through the suburb of Wilston, which thereabouts is well peopled. The particular street is a two-level one and has a guard rail between the levels and on the rail the bird must have been sitting. Our headlights evidently confused him and as the car approached he dashed at the lights. What happened, however, was that he flopped in behind the windscreen, knocking my wife's glasses off and bumping into me and then subsided on the floor between our feet. On stopping a little further on I picked him up and held him out clear of the car, when off he went without apparently any damage.

## A REQUEST TO COUNTRY MEMBERS.

In connection with the course in veterinary parasitology at the University, an attempt is being made to make as large a collection as possible of the ectoparasites of birds and animals. I am writing this in the hope that some of the country members of the club will see their way clear to assist me, and I can assure you that such assistance will be most welcome. A minor hope is that some member will become permanently interested in the subject which is a particularly intresting field for naturalists.

Ectoparasites are interesting on account of their specialised parasitic habits, peculiar life histories, and because of their important role in acting as carriers of disease in man and animals. In order to assist members I am including a summary of the habits, distribution, and most suitable methods of collecting and preserving the more important groups.

*Siphonaptera (Fleas).*—About forty species of fleas have been found in Australia, of which seven are introduced, the others being parasitic on native animals. Particularly interesting species are found on the Native Water Rat, Wombat, Echidna, Squirrels, Marsupials, Bats, and Rodents. Adult fleas can usually be found on their hosts, but generally speaking, a better hunting ground is the nest or burrow. The eggs are laid freely, not attached to the body of the host, and usually while the host is resting in its nest. The larva is an elongate, cylindrical grub which feeds on dust or refuse and in a short time spins a small cocoon in which it pupates, giving rise to the adult flea. By collecting some of the refuse in the bottom of the nests, and placing it in small tubes or boxes, the adult fleas are easily bred, and this is probably the easiest method of collection.

*Anoplura (Lice).*—Very little attention has been paid to the collection and study of Anoplura in Australia, with the result that only about 100 species are known, of which about 20 have been introduced. Practically all native and introduced species of birds and animals harbour at least one, and sometimes several, species of lice. Unlike the fleas the whole of the life cycle is passed on the host, the eggs being attached to the hairs or feathers. From the eggs emerge the nymphs, which resemble the adults in appearance, and which continue to live on the host. The lice live by sucking the blood of their host, or by feeding on the epidermal scales, and exudations from the skin.

*Diptera (Wallaby Flies, Sheep "Tick," etc.).*—These curious parasitic flies are found on marsupials, bats and birds, and there is an introduced species on sheep erroneously called the Sheep "Tick." Very often they are wingless, and as they possess long legs and a small hairy body, they resemble spiders or ticks. They are viviparous and the larvae are well developed when born. They immediately pupate and the small rounded pupae are often mistaken for eggs.

*Acarina (Ticks and Mites).*—These Arachnids are very common on native animals, birds, bats and reptiles, and also on certain introduced animals. Their life histories vary

considerably, for some spend the whole of their parasitic life on one host, while others require a number of hosts. A large number of eggs is laid, but only a small proportion of the larval or "seed" tick which emerge succeed in finding a host. They feed on the blood of their host by means of a toothed rostrum which is inserted into the skin. When collecting specimens the greatest care should be taken to avoid breaking this rostrum, for the recurved teeth make its withdrawal difficult. Specimens of varying size should be collected, for the males are much smaller than the females, and may be overlooked.

When collected, specimens should be preserved in small tubes of 70 per cent. alcohol, in which they will keep indefinitely. For purpose of study they should be mounted on microscope slides. I will be only too pleased to send a few collecting tubes to any member who would be so kind as to collect specimens for me. The name of the host, the locality and date of collection should be written on a small slip of paper in pencil, and inserted in the tube with the specimens. Any parasites of domestic animals and birds will be especially welcome.

F. A. PERKINS,
University, Brisbane.

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## ORIGIN OF LIFE: A THEORY.

At a meeting of the Royal Society of Queensland, held on 25th July, Mr. W. D. Francis read a paper entitled "The Production of Protein from Inorganic Material: Evidence suggestive of the Generation of Life." Iron, mostly in the form of wire, was suspended in a very dilute solution containing ammonium sulphate, potassium chloride, magnesium sulphate, potassium phosphate and calcium nitrate. After the lapse of several days the ferruginous material adhering to the iron wire was found to contain protein bodies of microscopic size. Precautions were taken to ensure sterilisation. The protein bodies were not produced when the air was freed of carbon dioxide. It is suggested that life may be generated from mineral compounds in a reduced state in the rocks and soils of the earth. The oxidation and hydration of ferrous hydroxide, on account of the special properties of this compound, are particularly mentioned as a possible starting point for the evolution of life.

The full paper will be published in the Proceedings of the Society.

THE
# QUEENSLAND NATURALIST
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## PROCEEDINGS.

EVENING MEETING, Monday, 18th July, 1932.—The President (Mr. J. Nebe) occupied the chair and 43 members and visitors were present. Dr. Brooke-Nicholls, a visitor from Melbourne, making a tour of South-Eastern Queensland with nature-study films, spoke of the work of the Victorian Field Naturalists' Club and of the Victorian Branch of the Gould League of Bird Lovers. Dr. Nicholls played a gramophone record of the laugh of a kookaburra.

Reports of the excursion to Broadwater were given by Messrs. J. E. Young, J. O'N. Brenan and J. Nebe.

As it had come to the knowledge of several Club members that protected birds were being killed and their destruction—through ignorance—paid for, Mr. G. H. Barker moved that in the opinion of the Club the Pest Destruction Boards as at present operating serve no useful purpose, and that the Government be petitioned to abolish them or to so radically change their method of operation that our native birds will be adequately protected from the effects of their management. The motion was seconded by Mr. J. E. Young, supported by Mr. H. G. Barnard, and carried unanimously.

Mr. J. H. Simmonds, M.Sc., showed a splendid series of lantern slides of American landscapes from photographs taken during his recent tour.

EVENING MEETING, 15th August, 1932.—The President (Mr. J. Nebe) occupied the chair and 22 members were present.

Reports of the excursion to Sandgate were given by Mr. N. Jack, Mr. G. H. Barker and the President.

Miss Spinks, a traveller from England, spoke of some of her experiences in South Africa.

An excellent series of lantern slides, from photographs taken at Ballandean National Park was shown and explained by Mr. J. Nebe and Mr. J. E. Young.

Mr. F. Kunze exhibited sprays of mangrove blossom and seed. Mr. J. E. Young tabled a piece of a limestone stalactite from the Albert River district. Some photographs taken by Mr. H. Tilse at Sandgate were shown.

## ANNUAL WILD FLOWER SHOW AND NATURAL HISTORY EXHIBITION, SATURDAY, 10th SEPTEMBER, 1932.

The Annual Wild Flower Show and Natural History Exhibition was held on Saturday afternoon and evening, 10th September, in the Albert Hall. In spite of the several months of dry weather before and during early Spring there was a very good display of wild flowers.

Flowers from places near Brisbane, e.g., Taylor's Range, Sunnybank, Rochedale and Chermside were staged by Miss Clarke, and Messrs. Jackson, Soutar, Mills, Barker, Smith and Wilkie.

Flowers from various places along the North Coast Line were staged by Mrs. Margaret Smith (Beerwah), Miss D. Grimes (Landsborough), Mrs. Yabsley (Coolum), Mr. W. F. King (Caloundra), Miss I. Ball (Eumundi), Mrs. C. Armstrong (Yeppoon), and Mrs. Lack (Maroochydore).

From Moreton Bay flowers were received from Bribie Island (Mr. and Miss Davies) and Stradbroke Island (Mr. Nicholson).

From South Coast localities specimens were forwarded by Mr. J. E. Young (Burleigh and district), Miss Latimer (Nerang) and Miss Birt (Southport). Mountain areas were represented by splendid collections from Springbrook tabled by Mr. W. Rudder, from Upper Albert by Mr. and Mrs. Densil Curtis, from Lamington National Park by Mr. and Mrs. B. O'Reilly and from Tamborine Mountain by Mr. and Mrs. Herbert Curtis.

The Granite Belt was well represented with displays of its typically brilliant flora from Stanthorpe (Miss J Westcott), Thulimbah (Mrs. Slaughter), Ballandean (Mr. R. Newman), Wyberba (Mrs. Gunn), and Fletcher (Mr. E. Sutton.)

Interstate exhibits consisted of a large collection of Victorian flowers forwarded by the Victorian Field Naturalists' Club (per Mr. J. W. Audas), of West Australian flowers from Mr. Berthoud, and of South Australian and West Australian plants grown at Basket Range, South Australia, by Mr. Burdett. A collection of dried specimens of West Australian plants was received from Col. Goadby. Specimens of West Australian Everlastings (*Rhodanthe* and *Acrolinium*) grown in Queensland were exhibited by Mrs. W. G. Curtis and Mrs. C. T. White. Specimens of Geraldton (W.A.) Wax Flower (*Chamaelaucium*) grown in Queensland were shown by Mrs. K. Baird and Mrs. Curtis. Mr. W. Matheson showed specimens of Sturt's Desert Pea (*Clianthus*) grown by him at

South Brisbane. Unfortunately an Interstate exhibit from Miss Winter arrived too late for show purposes.

General exhibits consisted of photographs of orchids and other flowers by Mrs. H. Curtis,, of buds and flowers from the Mackay district by Mr. W. G. Harvey, general natural history photographs by Mr. E. F. Robinson, and stereoscopic views by Mr. J. Nebe. A very fine series of Queensland shells was staged by Mr. J. H. Simmonds, senr., and of shells from Broome, North-West Australia, by Mr. H. W. Hermann. Insect cases were exhibited by the Department of Agriculture and Stock (per Mr. R. Veitch), Mr. D. Curtis (butterflies), and the Queensland University (beetles) per Mr. F. A. Perkins.

Seven State Schools forwarded flowers, prizes being awarded to Landsborough (North Coast), Russell Island (South Coast) and Thulimbah (Granite Belt).

Several vases and bowls of wild flowers were arranged for competitive effect, prizes being awarded to Miss J. K. Henderson, Mrs. D. Curtis and Miss G. Wood.

The thanks of the Club are due to these exhibitors and to the many members who assisted in arranging the exhibits, to the Curator of the Botanic Gardens (Mr. E. W. Biek) for the loan of pot plants, to the University for the loan of tables, and to Dr. E. O. Marks for the loan of water buckets.

The receipts amounted to £30/17/11, and the expenditure to £23/15/2, leaving a credit balance of £7/2/9.

EVENING MEETING, Monday, 17th October, 1932. —The President (Mr. J. Nebe) occupied the chair and 24 members were present.

Miss Joan Cue, B.Sc. was elected a member of the Club. A report of the Wildflower Show was read by the Honorary Secretary (Miss Baird). A vote of thanks to the Secretary, moved by Mr. J. E. Young, was carried by acclamation.

Reports of the excursion to Samford Range were made by Dr. E. O. Marks (Geology), Messrs. J. E. Young and Ken. Jackson (General), and Mr. G. H. Barker (Birds).

Mrs. G. L. Jackson and Mr. J. Nebe gave reports on the trip to Bribie Island.

Birds seen on Sunnybank excursion were listed by Mr. N. Jack.

Mr. G. H. Barker gave an interesting lecture on "The Perching Birds," illustrating his remarks with an excellent series of lantern slides. A vote of thanks moved by Mr. Jackson, seconded by Mr. Young, was carried by acclamation.

A letter announcing the formation of the "North Queensland Naturalists' Club" at Cairns was read.

Part. IX

# THE EUCALYPTS OR GUM TREES OF THE BRISBANE DISTRICT.

By C. T. White, Government Botanist.)

(Continued from the "Queensland Naturalist," Vol. VII., p. 39.)

## 17. Eucalyptus melanophloia (Silver-leaved Ironbark).

*Description.*—Medium sized tree with a hard furrowed black bark, somewhat friable, the cracks often carrying a dark red kino or "gum." Branchlets and leaves, flower buds and young fruits usually covered with a grey or bluish bloom. Coppice leaves or leaves on young trees opposite, coriaceous, ovate or somewhat orbicular, base cordate or auriculate, sessile or on a very short stalk, up to 5 inches long and nearly as broad but often very much smaller and similar to leaves on the adult trees; veins and veinlets clearly discernible on both faces, veining somewhat irregular, main nerves ¼ to nearly ½ inch apart, intramarginal vein indistinct and broken. Ordinary (secondary or adult) leaves coriaceous, ovate, oblong or nearly orbicular (or in some trees outside the Brisbane District lanceolate), base auriculate, cordate or in the lanceolate leaves somewhat cuneate, the rounded or oblong leaves sessile or very shortly stalked, the longer lanceolate leaves on stalks (petioles) up to ½ inch, apex rounded or less frequently acute or pointed, blade in the rounded or oblong leaves 1½–2in. long and 1½ to 3 times as long as broad, in the longer lanceolate leaves up to 6in. long and 4 to 5 times as long as broad, midrib distinct on both surfaces, lateral nerves rather indistinct, particularly in the thicker more coriaceous leaves, mostly arising from the midrib at an angle of about 45 degrees, intramarginal vein mostly about 1 line or slightly more removed from the margin. Flowers in umbels in the upper leaf axils, the terminal ones often forming short leafless panicles. Umbels 3–8 flowered: peduncle rather slender, one-third to one half inch long: calyx tube turbinate, merging at the base into the slender pedicel, calyx and pedicel together one-quarter to one-third inch long, operculum conical, pointed, 1½–2 lines high. Stamens in several series, all perfect, the longest filaments about ¼ inch long, anthers small opening by wide lateral slits. Seed capsule somewhat globular or broadly pear-shaped, truncate and slightly restricted at the top, 4–5 lines diam., 4–5-celled, the valves short included or very slightly protruding.

*Distribution.*—Eastern and Northern Australia from the neighbourhood of Scone (N.S.W.) through Queensland to the Northern Territory and North-West of Western Australia. In New South Wales it seems to be restricted to western localities, but in parts of Queensland comes right down to the coast.

*Common Names.*—Silver leaved or Silver-leaf Ironbark is the commonest vernacular. It is often called Broad-leaved Ironbark but this soubriquet is shared in Queensland with *E. siderophloia* F.v.M. and *E. nubilis* Maid. & Blakely.

*Botanical Name.*—Eucalyptus (see under No. 1), melanophloia from the Greek melas black and phloios bark.

*Timber.*—The timber is pale red, very durable and with a much interlocked grain. The trees are usually much branched, mostly with rather irregular trunks.

*Reference.*—Eucalyptus melanophloia Ferd. von Mueller in Journal of the Linnean Society (London) III., 93, 1859.

### 18. Eucalyptus siderophloia, Broad-leaved or Red Ironbark.

*Description.*—Large tree with a hard much furrowed thick coarse black bark, somewhat friable, the cracks often carrying a dark red kino or "gum." Young branchlets angular but soon becoming terete or rounded. Coppice leaves or leaves on young trees usually large and coarse, varying from broadly lanceolate to ovate or almost orbicular, up to 7 inches long and 4 inches diameter, or even more, sometimes as small as 2 inches long and 1 inch broad, and at the base of young shoots sometimes very small indeed, being about ½ inch long and ¼ inch wide; petiole or leaf stalk up to 1 inch long on the larger leaves, proportionately shorter on the smaller ones; lateral nerves and intermediate veins more or less clearly discernible on both faces, main nerves mostly about ¼ inch apart, intramarginal vein mostly about 1 line from the edge or in very broad leaves 2 lines from the edge with a further somewhat broken and indistinct one right close to the edge itself. Ordinary (secondary or adult) leaves thickly coriaceous, straight or falcate, lanceolate but often very broadly so, apex shortly acute or gradually drawn out to a long narrow point, petiole prominently twisted ½ to 1 inch long, blade up to 7 inches long and 1½ inches wide, in the narrower leaves 7 times, but in some of the shorter broader ones only about 3 times as long as broad, midrib distinct on both sides, lateral nerves rather obscure, oblique, mostly about ¼ inch apart, intramarginal vein in the wider leaves about 1 line removed from the edge, in the narrower longer leaves much closer. Flowers in umbels, the umbels arranged in terminal panicles, individual umbels 3–12 flowered peduncle stout angular or flattened, mostly about ½in. long. Operculum conical, usually narrowly so, pointed ¼ to ⅓in. long. Stamens in several series, all perfect; longer filaments about ⅛in. long, anthers small with distinct parallel cells opening widely by longitudinal slits. Seed-capsules broadly turbinate or

truncate globular, one-quarter to one-third inch diameter, 4–5 celled, valves protruding.

*Distribution.*—Eastern Australia from the counties of Cumberland and Camden (New South Wales) to Rockhampton, Central Queensland, and extending from the coast to about 100 miles inland.

*Common Names.*—Broad-leaved Ironbark and Red Ironbark are the two vernaculars in general use. The second name refers to the colour of the timber. The first is not always appropriate as the leaves, especially in very big trees, are often quite narrow.

*Botanical Name.*—Eucalyptus (see under No. 1); siderophloia from the Greek sideros iron and phloios bark.

*Timber.*—Wood dark red but not in great demand, suffering by comparison with the allied and better *E. creba* and *E. paniculata*. The largest trees are generally hollow.

*Botanical Reference.*—Eucalyptus siderophloia Bentham Flora Australiensis Vol. III., p. 220, 1866.

## A SECOND HOLIDAY ON THE BARRIER REEF ISLANDS.

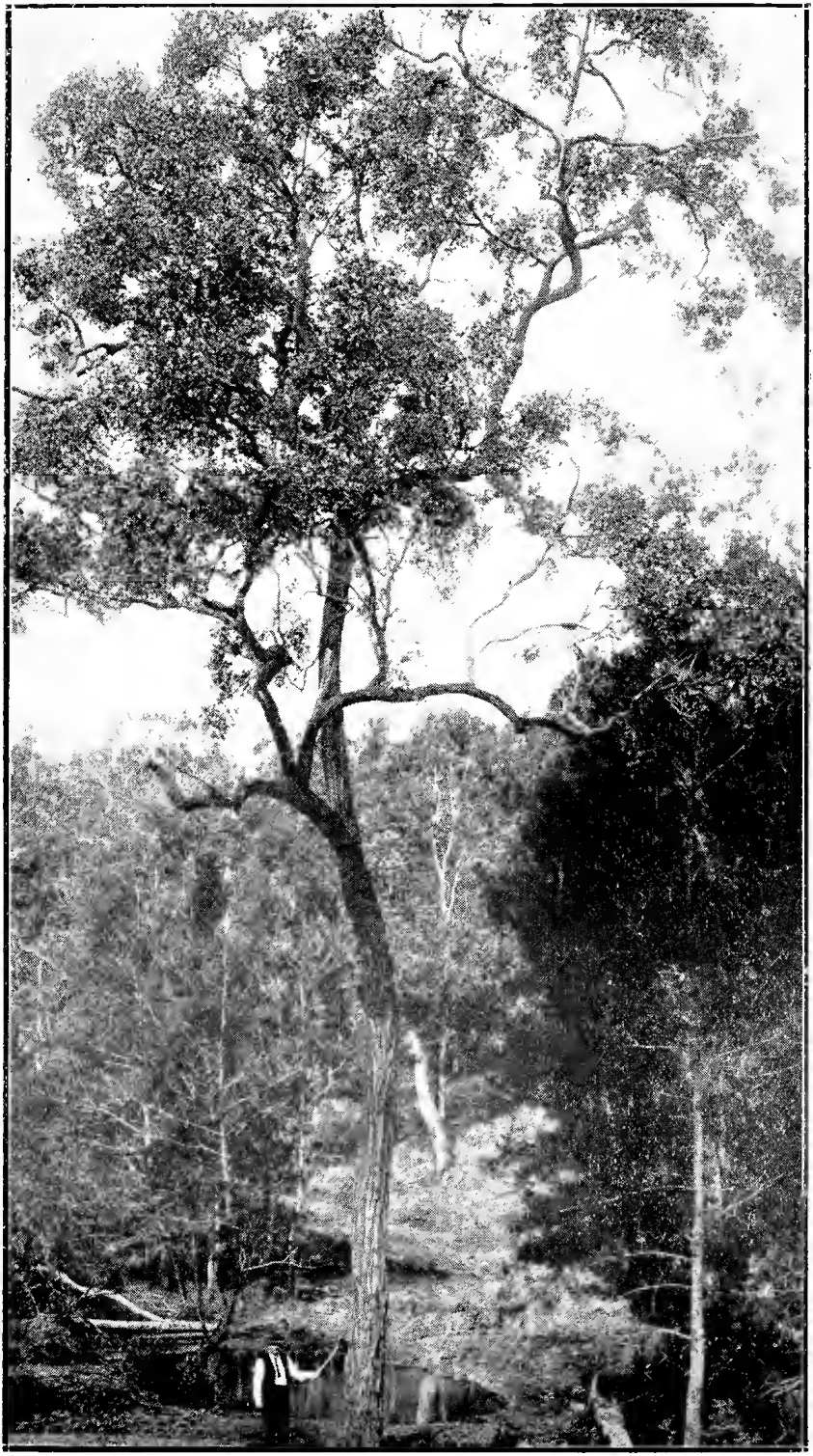
(By John Nebe.)

At the end of last year I had an opportunity to again visit some of the islands of the Bunker and Capricorn Groups of the Great Barrier Reef. This was my second trip to these islands, and it was one month later in the season than my first visit four years ago (see "Queensland Naturalist," Vol. VI., pp. 102-108). My time was limited to fourteen days; however, I was able to make further observations supplementing experiences on the first trip.

On the last visit we made our first camp on Fairfax Island and from there visited Lady Musgrave, also Hoskin Island, when the weather permitted. These islands are five to eight miles distant from Fairfax Island, but even a moderate south-easterly breeze can make the trips to the islands very unpleasant. We selected Fairfax Island for our camp as the best central position of the Bunker Group. This island, like all of the coral islands, has no natural fresh drinking water and the water we required had to be taken with us from Bundaberg. On Lady Musgrave there is now a small shelter shed provided with a small galvanized tank.

Of particular interest to Nature lovers is the great seabird life that exists on these groups of coral islands in the summer months.

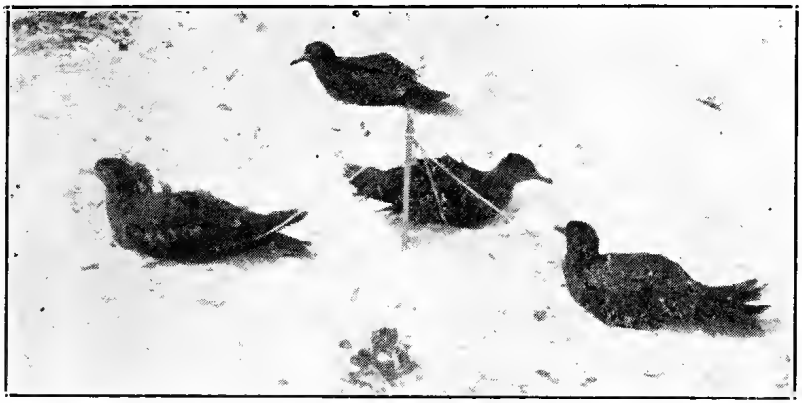
Fairfax and Hoskin Islands are the homes of the nesting Brown Gannet (*Sula leucogaster*), and these birds were present in great numbers. Most of the young birds



Eucalyptus melanophloia Silver-leaved Ironbark, Benarkin, Q.
Photo by the late E. H. Wilson, of the Arnold Arboretum.

Eucalyptus siderophloia Broad-leaved or Red Ironbark.
Gundiah, Q.

Photo: C. T. White.



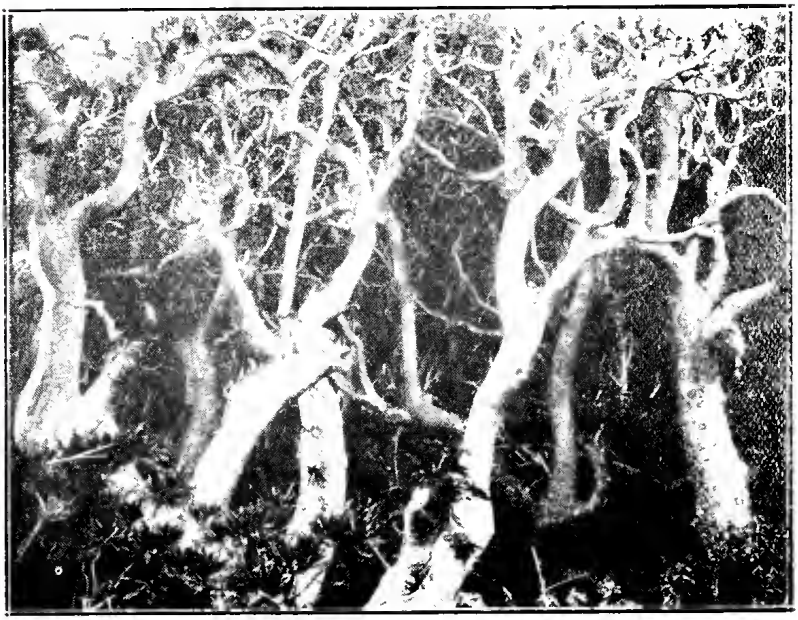
Mutton Birds: Great Barrier Reef.

Brown Gannet and Young: Great Barrier Reef.

Gannets: Hoskin Island.

Photos: J. Nebe.

Pandanus "Palms"; Fairfax Island.



Pisonia Forest; Great Barrier Reef.

Photo: S. J. Nebe

were so far advaneed that they could fly about. It was only on rare oeeasions that a broody bird still sat on eggs or was mothering very young ehicks, nearly all the young birds had passed the white downy stage and were developing brown feathers. At this stage of the chieks the parent gannets are not quite so tame and evidently less proteetion is given, perhaps the young birds are thought to be able to defend themselves. Often after a little teasing the young bird coughs up a few half digested fishes. This is offered as a bribe. The young bird seems to think the intruder is hungry and will then be satisfied and leave the poor little helpless ehiek in peaee. On my previous visit the young gannets were less advaneed and one of the parents would seldom fly away, unless hurriedly surprised. It was often possible to advanee within five feet.

In many cases two eggs are laid and it seems that both are hatehed. However, I never saw two young birds grown to full downy stage in one nest. I watched some nests where two little chicks were deserted by the parent when I approached too close, then one of the twins, which happened to be the bigger one, would peck mercilessly at the smaller nest-mate. I am inelined to think that the weakest is always murdered, whieh would aeeount for only one being reared. On one oeeasion, however, I noted two half-grown ones in a nest; these were of even size and would not fight even when I provoked them to anger.

It seems strange that Nature is so wasteful and even cruel, to give life and part proteetion to perhaps 40 per cent. of its offspring whieh a few days later is doomed to be killed and perhaps eaten by their own species. The eggs are laid on the ground and often without any preparation to make a nest. The Brown Gannet is about the size of a large duek, a good clean looking bird, rich brown baek and wings with a white abdomen and white lower breast.

Like all other seabirds they seem always hungry, and as there are thousands of gannets and their young, it requires a great number of fish to satisfy their appetite.

When I visited Lady Musgrave Island four years ago there was no undergrowth. All the trees were stripped of leaves up to a height that the introdueed goats could reaeh. There were about 300 goats living on the island of 50 acres. The ground was quite bare, everything edible was taken by the goats. Even the great numbers of white-eapped-Noddies (*Anous minutus*) that build their nests in trees from old leaves, ete., eould not find nest building material. During the interval the vegetation has greatly ehanged. A party of hunting men found pleasure in killing the goats and it is remarkable how

quickly the damage done to vegetation by the goats has recovered. Much undergrowth, mostly Abutilon and coarse grasses now grows all over the island. The white-capped-Noddies were more numerous than before, the nest building material was again in good supply, and most of the trees on the island, the Pisonias, fig trees, and even the Pandanus "palms" were literally full of nesting birds. As long as a neighbouring nest is beyond peeking distance of a brooding Noddie it is tolerated. It is believed that the male bird also takes a turn on the nest, giving the hen a spell and time to feed. The nest must always be guarded against invasion by the mischievous Sea Gull.

The Noddies are graceful little birds, the size of a pigeon, and are very tame as long as all is quiet, the least unusual noise, however, alarms them. On a few occasions I actually have touched their feathers. On the last visit most of the eggs were hatched and the young birds seen in all stages; none, however, were far enough advanced to fly. The Noddies feed on very small fish and fly out to sea 20 to 30 miles.

The Silver Gulls (*Larus novae-hollandiae*) were also very numerous on Lady Musgrave Island, and many of their young chicks were running in the grass on the edges of the island. These birds are very easily alarmed and before you can approach the young ones they are ushered to places of safety, logs and Mutton Bird burrows providing the shelter. The Silver Gulls were continually flying and sitting among the nesting Noddies, evidently stealing eggs or young ones when there was an opportunity.

On Hoskin Island seven or eight Lesser Frigate Birds (*Fregata ariel*) were seen, always in the air and watching the Gannets as they came home. When their keen eyes see a Gannet bringing in a fish to feed their young, they swoop down on them with lightning speed. To avoid a struggle the Gannet spits out the fish and the Frigate Bird catches and swallows it. The Frigate Birds are perfect flyers, they can almost stand still in the air and very seldom move their wings.

We intended visiting Bolt Reef from our camp at Fairfax Island. The south-easterly wind, however, would not moderate, and in the end we had to choose the first good day to move on to Heron Island for our second camp.

Heron Island is one of the best islands to camp on, an area of about 50 acres, covered with shady Pisonia trees and with a nice sandy beach. There is, however, no

lagoon or shelter for a boat. The reef round the island is very extensive and full of living coral. A few years ago a Turtle Soup Canning Factory was operating; this is now not working. Plenty of good tank water can be got from the caretaker.

The position of Heron Island is such that from there most of the other islands in the Capricorn Group can be visited by one-day trips, i.e., weather permitting. Landing on these islands is always more or less difficult and at times the boat has to return without landing any one. Getting wet at landing up to the waist, or even up to the neck, is not a rare experience. It puts life into the party and the waters are warm. One does not mind getting wet but as everyone wants to take snaps the problem is how to save the camera and films.

Four years ago we made an unsuccessful trip to Wreck Island, it had no shelter and the surf was too great. However, our luck was in on the last trip and we made a good landing on this seldom visited island. One coconut palm that grows in the middle of the island and is higher than the Pisonia trees, can be seen from afar. The Pisonia tree area is only small and very dense, almost impenetrable Tournefortia bushes surrounds it. I struggled through these bushes somehow—I wanted to see the inner part of the island, and when I got through a great sight was before me: there was no undergrowth among the Pisonias and this forest looked a picture, the trees were really graceful.

I soon found the sentinel Coconut tree, which had four nuts on. The nuts were later on hauled down and the juice of the fruit was delicious on that hot day. There were no coconuts lying on the ground and evidently the tree is a shy bearer.

We saw on Wreck Island four large white breasted Sea Eagles (*Haliaeetus leucogaster*), but could not find any nest, unless it was in the low Tournefortia, which is very unlikely. One would expect one pair of these Eagles to be breeding on this island. Every small island in these groups has one Eagle's nest and the larger islands two or three.

On the sandy coral beach of the northern end of Wreck Island were small breeding grounds of the Black-naped Terns (*Sterna sumatrana*). These pretty little birds were very shy; they also breed on Wilson Island, where I saw them four years ago.

We were blessed with another fairly fine day and took advantage of it by visiting Mast-head Island where

the Crested Terns (*Sterna bergii*) are nesting.

This time the birds had selected their breeding place further round to the north-east of the island as I noted they were, four years ago. The habit of these pretty and lively birds is to lay their eggs on the top of the sand, right in the open and just above high water mark. Each bird seems to lay one egg only and close to one that has already been laid; 12 to 18 inches is allowed for each broody Tern. It is evident that by breeding in close formation the Sea Gulls have less chance to interfere. It was noted with interest that on one end of the rookery only eggs were found and no eggs were hatched; in the middle part were some young ones and also eggs not hatched, while on the other end of the rookery all young chicks and no eggs were seen. Each bird seems to be obliged, when its turn comes to lay, to take a place alongside a sitting hen and not leave any unoccupied space. Many of the chicks were able to run and congregated on the rocky part of the beach at low water mark. Here they were cared for by the parent birds, the young chicks clamouring under the old bird's wings for protection from the hot sun. When I walked among the rookery I noted unprotected little ones to fall over and struggle helpless in the blazing sun's heat. It was remarkable that the stretch of beach where the terns were nesting was not disturbed by turtles that dig deep holes and scatter the sand in all directions when laying their eggs. On either end of the rookery was much evidence of the turtles' activities. The Crested Terns must have ways and means to shy off the turtles near their nesting ground. It would be interesting to watch what is going on at night time, but then who would like to spend a night at Masthead Island with the possibility of a high sea running the next day or two, and to be unable to again get aboard a boat.

On my previous visit to Masthead Island I noted 17 Lesser Frigate Birds hovering over the Terns' nesting grounds, but strange to say the last time there were none.

I took a stroll through the island and found the inner part covered with a stunted Pisonia forest, and every tree was full of nests of the white-capped-Noddies. There must be millions of these birds on the larger islands.

Masthead Island is riddled with Mutton Bird, also called Wedge-tailed Shearwater (*Puffinus pacificus*) burrows, as is the case everywhere on these islands where Pisonia trees grow; the roots of the Pisonias keep the sand from falling in. The birds prefer to crawl two to three feet along the burrows that are twelve to eighteen inches deep in the ground and hatch their young in the darkness.

It is on rare occasions that a nesting bird can be seen

in the day time from the outside of its burrow. It more often happens that one tramps on one as the burrow gives way when walking through the islands. At night time, however, the ground is alive with these tame Mutton Birds and the weird noises of cooing, love making and fighting is kept up till the early hours of the morning.

One more day I had to spend on Heron Island before returning. I did a little exploring of the reef at low tide and spent the rest of the day on the island. The Reef Herons (*Demigretta sacra*) that are common on Heron Island had finished nesting and the young birds, like the old ones, were shy and kept at safe distances. On my previous visit I saw and heard the calls of a half dozen Magpies. Whether they have died or flown away I cannot tell but there seem to be no Magpies there now. Kingfishers (*Halcyon sanctus*) were in fair numbers before, and I think that they have increased.

So great and varied is the seabird life in its ways and habits that each class in itself forms a study. My time was too short to note much of the reef, its life and coral. One needs calm weather and very low tides. We had no calm during the trip, and at the times when the tides were the lowest it was exceedingly rough.

## GREAT BARRIER REEF.
## CHRISTMAS EXPEDITION.

During every Christmas holiday season since 1925 expeditions of Nature lovers and others have been organised by Mr. E. F. Pollock, F.R.G.S., of the Royal Zoological Society of N.S.W., and the Royal Australasian Ornithologists' Union, to some specially attractive coastal locality where the members could combine Nature study with holiday making under most pleasurable conditions. Some of these excursions have been to the great Barrier Reef area in Queensland, and another one, to cover entirely new ground, has been planned for this year.

The party will embark on boats at Mackay in December, and finish up at Bowen in January. Altogether twenty-five islands, situated between these two ports, and all of fascinating interest are to be visited during the month. They include the whole of the famous Whitsunday group, and several others.

Among the special features of the trip which will assist in keeping the party entertained and interested are: Sea birds of many varieties nesting in millions; turtles and turtle riding; crocodile and dugong hunting; unequalled fishing, including emperor, trevalli, schnapper,

mackerel, kingfish, cod and bream, as well as huge gropers and immense sharks; corals and coral animals; shell collecting; oyster gathering; safe bathing and glorious scenery.

Anyone wishing to take part should communicate early with Mr. Pollock, at Carrington Avenue, Strathfield, N.S.W.

Royal Society of Queensland.—At the October meeting of the Society Mr. H. A. Longman, Director of the Queensland Museum, exhibited specimens *Astrotia stokesii* Gray. Giant sea snake, caught at Morey Reef, Port Douglas, and presented to the Queensland Museum by Mr. E. J. Whelan, Harbour Master, Port Douglas. This very bulky species, which was named after Captain Stokes, of H.M.S. "Beagle," ranges from Chinese and Indian seas to Australia. The specimen exhibited was seventy-three inches in length, with a maximum girth of twelve inches, and appeared to be the largest on record. The colour was uniform olive brown. (2) *Voluta Bednalli* Brazier. A fine specimen of this rare shell, found by a diver in deep water near Thursday Island, which had been received on loan from Mr. R. W. Millard.

At the same meeting, Miss N. M. Holdsworth exhibited a specimen of Coralline Algae, cf. *Lithothamnion sp.*, from Muckadilla, Queensland, presented to the Queensland Museum by Mr. F. W. Hacker. This is, apparently, the first record for this plant from Queensland Cretaceous rocks. *Archaeolithothamnion* has been recorded from Cretaceous beds in Southern India (*see* Nature, Vol. 128, 1931, p. 225).

THE

# QUEENSLAND NATURALIST

JOURNAL OF THE QUEENSLAND NATURALISTS' CLUB AND NATURE-LOVERS' LEAGUE

VOL VIII. MAY, 1933 No. 5

## PROCEEDINGS.

ANNUAL MEETING, Monday, February 20, 1933.—The President (Mr. J. Nebe) occupied the chair, and 33 members were present. Mr. J. C. Smith and Mr. H. G. Barnard were elected honorary members, and Miss M. Godfrey an ordinary member of the Club. The Annual Report of the Council for the year ended January 31, 1933, was read by the Hon. Secretary (Miss E. E. Baird).

Reports were read by the Hon. Librarian (Mrs. Eva M. Jackson) and Hon. Excursion Secretary (Mr. J. Edgar Young). The financial statement as read by the Hon. Treasurer (Mr. P. Sylow) showed a credit balance of £85/13/4 and £13/12/11 funds in hand of the Nature Lovers' League. Officers for the year were elected as set forth on the cover page of this issue. The retiring President gave an address on "Nature's Way and Harmony." Exhibits were staged (1) by Mr. F. O. Nixon, flowering spray of *Quisqualis indica* and parasite from it; (2) by Mr. Ken Jackson, stones, shells and grinding stones from a kitchen midden at Caloundra, also petrified wood; (3) by Miss E. E. Baird, cone of Bunya Bunya Pine (*Araucaria Bidwillii*).

EVENING MEETING, Monday, March 20, 1933.—The President (Mr. F. A. Perkins) occupied the chair, and 37 members were present. Mr. C. G. Austin was elected a member of the Club. Reports on the excursion to Kuraby were given by Mr. F. A. Perkins (Entomology) and Mr. G. H. Barker (Birds). Mr. J. F. Bailey gave a most interesting lecture, illustrated by a fine series of lantern slides, on "Ornamental Trees of Southern Gardens and Plantations." The lecturer stated many Queensland trees were being used in the Southern States for garden and street planting, notably the Brisbane Box (*Tristania conferta*), Flame Tree (*Stereulia acerifolia*), Figs (*Ficus marophylla* and others), etc. Trees of Europe and North America—planes, oaks, willows, poplars, etc.—are largely used. Some photographs of conifers included showed well grown examples of Queensland Bunya Pine (*Araucaria Bidwillii*) and Hoop Pine (*Araucaria Cunninghamii*). A collection of shells and seaweeds tabled by Mr. G. Jackson were commented on by Mr. J. H. Simmons.

# ANNUAL REPORT
## FOR THE YEAR ENDING JANUARY 31, 1933.

Ladies & Gentlemen.—

The Council of the Queensland Naturalists' Club has pleasure in submitting the 27th Annual Report of the work of the Club.

*Meetings.*—Ten Council Meetings, 9 Evening Meetings, a Wildflower Show, and twelve Field Excursions have been held during the year. Attendance at Council Meetings has been as follows:—Mr. Nebe 9, Mr. Perkins 8, Mr. Jackson 9, Mrs. Thomson 0, Miss Baird 10, Mr. Sylow Mr. J. E. Young, Mr. G. H. Barker and Prof. E. J. God-Herbert 5, Dr. Marks 9, Mr. Kunze 8, Mr. Sanderson 6, Mr. White 7.

The attendance at Evening Meetings has been good, the average being 38. Interesting lectures and papers on many branches of Natural History have been given during the year, many having been illustrated with lantern slides. The lecturers included Mr. C. T. White, Mr. F. A. Perkins, Mr. T. Marshall, Mr. J. H. Simmonds, Mr. J. Nebe, Mr. J. E. Young, Mr. S. H. Barker and Prof. E. J. Goddard. Dr. Brooke Nicholls (Victoria) and Miss Spinks were present at meetings, and spoke of their experiences while travelling in Queensland.

Reports of Excursions and Exhibits have been given by many members.

The Wildflower Show was held in Albert Hall on Saturday, September 10th. The success of the Show was due to the work of many country friends who sent flowers for exhibition, and those local members who arranged them. It is hoped that more members will assist this year.

*Membership.*—It is with regret that the deaths of Dr. G. Comyn and of Mr. E. F. Robinson is recorded.

Sixteen new members have been elected during the year, and 12 have resigned. The Aquarium Society severed its affiliation with the Club. Membership now stands at 140.

*Nature Lovers' League.*—Little work in connection with the League has been done.

*"Queensland Naturalist."*—Three issues of the Club journal were published during the year. The Editor appeals to members for material suitable for publication.

*General.*—Pest Destruction Boards: It came to the notice of the Council that due to the want of requisite knowledge on the part of certain officials connected with these boards, many of our protected birds were being destroyed and passed off as starlings, etc., and were being paid for as such. The attention of the Department was

drawn to these practices, and in view of the opinion held by the Naturalists' Club that most of the birds classed as pests do more good than harm, also that the present Act provides sufficient loopholes to keep such as are pests in check, the Council requested that these boards should be abolished or that no one but a qualified officer should be allowed to pay for any specimens submitted. The Minister undertook to see that the latter part of our request would be observed in the future.

The attention of the Minister was drawn to the destruction of bird life on the Barrier Reef by tourists and others, and largely due to the Club's interest, more honorary Rangers were appointed and further sanctuaries declared.

The Club interested itself in the possible danger that threatened our bird life due to the recent activities of the Government with the Donkin Dingo Bait. On enquiry, however, it was found that these baits were not destructive to bird life, so no further action was taken.

*Library.*—The Hon. Librarian (Mrs. Eva M. Jackson) reports:—During the past year the Library has been increasingly popular with members, probably owing to the fact that a large number of suitable books has been added to it. Some of these were bought out of Club funds, and others generously donated by members. Prominent among these latter is "What Bird is That?" by N. W. Cayley, and presented by Mr. Geo. H. Barker, who has also from time to time given many magazines. Mr. H. G. Barnard has donated a number of very interesting books. Mr. H. Longman donated a copy of his book, "The Religion of a Naturalist." The complete series of "Hutchinson's Popular Botany," presented by Mr. C. T. White some time ago has been suitably bound, and is now available in two handy volumes.

In the magazine section, the National Geographic and Natural History Magazines are the most popular, owing probably to their wonderful illustrations. The subscription to the former was given up last year owing to increased cost, exchange, etc., but the Club has not suffered, as Mr. Nebe has most generously passed on his own copies for use in the Library.

Many back numbers of the "Emu" have been added, and the Mines Department are now sending regular copies of "The Queensland Mining Journal." The United States Department of Agriculture has notified that they will forward their publications in so far as they are available.

During the year a large parcel of back numbers of "United Empire" magazines was sent to the State Stores to be forwarded to Dunwich or Peel Island.

Although perhaps unknown to some of the more recent members, an Album solely devoted to snapshots of Club activities and interests, is kept in the Library, and any photos of that nature which could be spared by members would be most gratefully received.

The scrap-book, which was acquired for the purpose of holding suitable pictures, is in need of donations, which would also be much appreciated.

The parcels of magazines, etc., forwarded from time to time to country members by the Hon. Secretary, are proving acceptable and several requests for further parcels have been received.

*Excursions.*—The Hon. Excursion Secretary (Mr. J. Edgar Young) reports:—

During the year just ended the periodic excursions have been held as usual, there having been eleven in all, one having to be cancelled owing to lack of support.

The Easter Camp in March, being as always the most important and extensive, was held at Upper Cedar Creek, in the Samford district. It was attended by 35 persons. Here by the courtesy of Mr. Harlan, we were fortunate in having the use of a large sawmill shed, not in use at the time, and also barracks for dining and sleeping accommodation, storeroom, etc. The transport was by means of motor vehicles.

The district is a mountainous one, and some of the geological features were found to be very interesting, one being a newly established granite quarry, included in with both grey and red varieties were found, the output going to the new A.M.P. Building in Brisbane.

The surrounding mountains were: Glorious, Sampson, Lawson, O'Reilly and D'Aguilar.

Various trips were made to each of these vantage points, also to the scrubs on the creeks and mountain sides, and many prized specimens of various kinds were collected, mostly botanical in nature, also protographs and one or two moving pictures.

One other week-end was spent at Bribie Island in September, and enjoyed by about 12 members, the locality in this case being sandy bush and swamp. The interests were mostly botanical and ornithological.

Other day and half-day excursions were held to the City Council Laboratory, where the methods of mosquito control were explained by Dr. Hamlyn Harris.

The Bora Ring, in Ferny Grove District, was visited by quite a number of members on a showery afternoon. The ring, made by aboriginals for ceremonial purposes, was plainly visible, also the old track towards a second and smaller ring, which could not, however, be definitely

located, possibly owing to a more recent railway cutting.

A 'bus trip to Mt. Cotton occupied Labour Day, in a district not much visited previously.

Other trips were held to Broadwater Lagoons (general), Sandgate Lagoons (mainly ornithological), Sunnybank (mainly botanical and ornithological), Draper's Crossing (very poorly attended, botanical), Samford Range (leaving the train at summit and walking back to Ferny Grove, well attended, botanical, geological and ornithological).

It is to be regretted that of late Entomology has not received the attention that it deserves, and it is to be hoped that our membership in this branch may ere long be increased.

On the whole the attendance at outings has been good, but the results, especially as regards evening meetings, might be materially improved by more specialised study by members.

Various members have made trips to other places further afield, such as Ballandean, National Park, Mt. Lindesay and Mt. Barney, Upper Albert River, Barrier Reef, etc., many of the results being communicated to the Club at meetings and in the "Queensland Naturalist."

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## BOOK REVIEW.

"What Butterfly Is That?" by Dr. G. A. Waterhouse (Angus & Robertson), is a very welcome addition to our literature on Natural History, and a copy should be in the library of all field naturalists. Practically every Australian butterfly is figured, accompanied by a popular description, and an interesting account of its habits, life history and distribution. Each species has been given a common name in addition to full details of its taxonomic position. The chapter on collecting and the preparation of specimens is particularly instructive and valuable for Dr. Waterhouse is noted for the manner in which his specimens are mounted and arranged. The coloured plates are excellent, and even the novice should have no difficulty in identifying any butterfly he catches. To experienced collectors the book should prove an incentive to fill some of the few gaps in our knowledge of the life histories of Australian butterflies. It contains 279 pages and 34 plates, and is priced very reasonably at 12/6.

F. A. PERKINS.

## NATURE'S WAY AND HARMONY.

(By John Nebe.)

(Presidential Address delivered before Queensland Naturalists' Club, 20th February, 1933.)

The subject selected for my address this evening is somewhat on broad lines in nature study, and I will try and outline some of the harmony that occurs in nature.

My favourite pastime is to observe the electric phenomena of the atmosphere, the wonderful, powerful, graceful, and even spectacular effect occurring in nature on a grand scale. The power of these forces is so great that it seems beyond our comprehension, but whatever nature does or what occurs in nature is for a good purpose, and cannot be dispensed with to maintain life on this little earth of ours.

The animal life depending for its existence on the plant life, plant life in turn must look to favourable weather conditions, suitable soil, and needs certain elements for preparing plant food, as well as moisture; let us see how a thunderstorm is assisting and working in harmony with the plant kingdom.

It is true that a thunderstorm can be very severe and leave great destruction along its course. Have we not seen our flower gardens and the farm crops knocked about by the fierce winds and the heavy rain. We will, however, give this matter a little consideration in a light of construction, and we may find that such destruction by a storm is more apparent than real.

Let us look at the grass, the flowers in the garden, the crops and the trees in the field on the morning after a storm. They may tell us a story. Full of renewed energy, vigour and strength, displaying their leaves in a rich, deep green, suggesting health and growth, and looking as if they are intending to carry out the demand of God Who said, "Be ye fruitful and multiply." What was it that endowed them with new life? Was it merely the rain the night before? It certainly helped a lot, for without sufficient moisture the plant cannot exist, but we must not overlook the fact that the plant needs food as well as drink. One of the elements of life's necessities is nitrogen, plants as well as animals need it. Animals cannot assimilate free nitrogen, and must depend for their supply upon the plant. The nitrogen available in cultivated lands soon becomes depleted, and the deficiency has to be made good if plant life is to be expected to thrive. Here the harmony between the storm's fury and the quiet life of the plant kingdom comes in. The lightning, which is an electric discharge in the air, heating the air in its part of con-

ductance to incandescency, has the effect of combining nitrogen with hydrogen and oxygen to form salts of ammonia. The more violent the electric disturbance is the more nitrogen will be distributed with the rain to the ground and taken up by the roots of the plant for food. Is it a wonder then, that the plant that has survived the storm is looking so well and healthy on the following day? What the night before appeared to be destruction turned out to be a real blessing.

There is harmony in nature. If we fail to see it immediately, let us wait till an opportune time comes for observation, and we will find that nature's tendency is to be constructive.

Sunshine to give warmth and light, alternating with clouds, dull days and rain is all beneficial. Even daylight and the night's darkness cannot be dispensed with; plants need daylight for their development and rest at night. Also many plants depend in their flowering seasons on moths and insects that are afraid to show themselves in the light of the day, for distribution of pollen, for subsequent fertilization of the seed. There also must be seasons to complete nature's harmony, a time to germinate, a time to grow, a time to fertilize, a time to seed and a time to rest.

One of the greater harmonies exists between the plant and animal kingdoms. The plant with the ability of constructive life is able to form out of inorganic matter substances necessary for the conditions of life, that is, into organic material. The elements, C, N, H, O and S, are combined by the activities of the plant life into proteids, the raw material into protoplasm.

In the animal life we find that it is unable to manufacture life-giving properties. Lifeless matter cannot be converted into suitable food; being unable to manufacture proteids the animal food must be prepared by the plants—indeed, animal life, including that of man, cannot exist without the plant.

Should we now just go to the plant and rob it of life-giving substances it has prepared, and that are so valuable for its own existence, as well as for the welfare of all living creatures, without giving consideration as to how to repay or contribute and assist the plant in its generous work? The lazy man may think he can do so, but will soon find that the plant's ability to supply has limitations. The thrifty man, however, will see that the seed of the plant is sown in a proper time, in suitably prepared soil, and then looked after during its growth. Then, in turn, the plant will not fail to produce abundantly, sufficient for its own requirements as well as to its benefactor.

The plant and man must work together for their mutual benefit to complete the harmony in nature.

Another example of harmony we have in the respiratory systems of plant and animal life. All living creatures need oxygen to burn up the waste products of the body. The oxygen and the waste combining form carbonic acid gas, which is given off by expiration. The plant, however, can make good use of the carbonic acid gas derived from the atmosphere which is inhaled through the green leaves. The carbon combining with other elements and the oxygen is set free.

I think we all have experienced the fresh air in the bush on our naturalist excursions, how the extra supply of oxygen present inspired us to new life and actions, with a night of peaceful rest and sleep to follow.

So important is the demand of oxygen for our existence that our life will cease if the supply is withheld for only a few minutes. Inhaling air in the cities, where the atmosphere is more or less contaminated with carbonic acid gas, has injurious effects, and if it were not for the wind coming to the rescue as a harmonizing agent to dispel the poisonous gas, we could not live in confined quarters.

Now how about the animals, the birds and the insects? Are they going to reap from what they have not sown and taking from the substances of the plant without paying a reward? In most cases they also have to do their share and may even suffer hardship and danger in collecting the necessities for their existence from the plant. Let us take the bee as an example; how busy she always is collecting honey for herself and her race to live. The flowers of most plants seem to offer the honey sparingly, and rightly so, for is it not offered (unconsciously to the bees and insects perhaps) as a means whereby pollen will be distributed. The honey is not required by the plant for its own self; this is clearly seen by the flowers producing windborn pollen as no honey is found in their flowers. The honey is only produced as an attraction for insects requiring this kind of food for their existence. It is not offered free and to all that may have a taste for sweetness. The greedy ant, for instance, that likes honey very much, cannot partake and abstract it from the flowers. The plant only offers and gives the favoured juice to those insects that are able and willing to do its bidding.

Likewise the birds that feed on honey flowers may be expected to do similar work as that done by the bees and insects. Some plants producing small fruits and seeds are expecting such birds that are feeding on them to distribute seeds to new ground: often the kernels are hard and do

not yield to digestion, and it becomes scattered far and wide.

The herbiverous animals must also do a share. They can roam about and many seeds cling to the feet and hairs of the animals, and are by this means carried to new ground and distributed. The seeds of noxious weeds are as a rule gifted specially for such distribution. Then also the animals trample many seeds into the ground, where they can germinate and have a better chance of living than the seed that lays on the top of the ground uncovered.

We saw that it is man's duty to be constructive and assist the plant kingdom in every possible way, to regard its existence and welfare as much, if not more, than his own, and not wantonly destroy any plants, herbs, grasses, flowers or trees. Collectively they are all required, as a completeness of creation, to make our existence not only tolerable but even possible and pleasurable.

It would indeed be hard to estimate the value mankind is receiving from the plant kingdom. The herbs, the cereals and the fruits to feed him, the flowers in the garden and field are his delight, the trees give him shelter from the wind and protection from the sun, and the timbers he can use in many ways for home comfort. What a blessing it is to live in a country with an abundance of timber as compared with a land which has a scanty supply, or no timber at all.

To live in harmony with nature man must not try to reap a crop he has not sown. If he does so he is destructive. Nature's ways are constructive, and it is man's duty to replant our forests and to take care of them in return out of gratitude for all the benefit he receives. As another example, we have the animals. If we observe how their bodies are built and the use they make of their organs, we come to the conclusion that the animals are in complete harmony in operation and customary with the surroundings. They are fitted to withstand heat and cold, dry conditions and wet conditions, able to move on the land, in the water or in the air, according to their special organs. They are able to hunt and find the right sort of food, and can either escape their enemies or overcome them.

All life, plant and aniaml, including micro-organisms and vitamines, is dependent on a temperature of from zero to 100 degrees Centigrade, or in other words, when the water is in a liquid state. Life must die if the temperature falls below zero, or rises to and above boiling point. This is a very important factor which the intelligent human being often disregards and even abuses in the preparation of his foods. We will not conclude that the element of fire is not required, unwanted and destructive.

If we assume that attitude, it would not be in harmony with nature. Fires can start in natural ways, that is, without human aid. As it is a natural gift we must take it for granted that it also must be constructive according to the laws of natnre. It is an aid if not too severe, to open up hard seeds and seed pods in the plant kingdom, whereby the kernels or life germ can get in contact with the soil and moisture to start new life. At the same time the fire does the clearing and prepares the ground. By this means a fresh start is given to certain plant life that may otherwise have less chance of continuing existence. Also the fire is a great help to mankind in clearing and burning up waste, and supplies the necessary warmth in cold climate for comfort and domestic purposes.

As previously referred to, the plant kingdom has to provide all living creatures with life-giving substanees, and all life, it does not matter in what form, will die if the temperature is raised to and above boiling point. Here man's folly comes in, he is always afraid that a lean time may overtake him, and he likes to provide for such emergencies by preserving large supplies of vegetables, fruit and grain by methods contrary to nature's ways. Nature will not permit life to exist in a temperature beyond natural means, but in order to preserve anything at all, that is, to prevent it from deeaying it needs a high temperature to kill the life that is contained in the substance. After the life is killed and the then dead matter, if not exposed to the air will keep, but may I ask for what purpose? For ornaments on our shelves and to show to our friends what we have grown in the season may be warranted: to partake of it and eat it is out of the question. The substanee, no matter how well prepared for our taste, is void of life and decidedly harmful. Remember, we eannot live entirely on lifeless products. The question may arise, is it contrary to nature to cook our food at all? Friends, it may seem so. All animals without exception have no means whatever to cook their food. They live from day to day on food as they find it prepared by the plants. What is not in season or not agreeable to their taste and requirements is left alone. Are the animals suffering from hardships and sicknesses by eating natural, uneooked, unprepared and unpreserved food? No, not at all; because this is nature's ways and in harmony with it.

A human being does not differ materially in construction, and life's requirements from animals is subjeet to the same laws governing life. He has, however, one great advantage (or shall I say disadvantage) over all other creatures, and that is the power of reasoning and thinking. Is he using these powers to attain and maintain health and

Red Cedar Trees, 10-15 years old, Widgee Creek, S.E. Queensland

Photo by J. E. Young

Red Cedar Tree, Lamington National Park

Photo by J. E. Young

happiness? No, often he uses these powers to avoid the command. "In the sweat of thy face shalt thou eat thy bread." He is always inclined to concern himself with to-morrow, to build barns and lay up in store, is discontented, and life is to him a burden, unknowingly. His body is ill and his mind is clouded, all because he is violating nature's laws. Mankind is starving in the midst of plenty and does not know how to overcome the many ailments that assail him, all because he forgets that he must work in conjunction and in harmony with nature to live a long, healthy, happy and contented life.

When our first parents were in Paradise they had a constructive mind and were not afraid to meet their Maker at the closing of the day. They were obedient to the laws, but when they transgressed the laws they became troubled in their minds and destruction came upon them. Man gifted with a free will was the Lord on the earth, and to some extent he may claim this superiority now. By using his will-power wrongly, even when he is angry or hates his neighbour, he is out of harmony; when he finds fault here and there, or even with the good work of creation he certainly is not in accord with nature. She is kind and rewards well all those that obey her laws. It seems the only way to attain a long, healthy and happy life.

## THE RED CEDAR.

(By J. Edgar Young.)

The common Red Cedar (*Cedrela Toona* var. *australis*), natural order Meliaceae, belongs to a genus occurring in tropical America, Asia, and Eastern Australia. The single Australian species was at one time common in the "scrubs" or rain forests, then sometimes called "cedar brushes," along the coastal rivers of Queensland and New South Wales, even to south of Sydney.

It is one of the few Australian deciduous trees. The leaves are pinnate and rather large, the flowers in panicles, small but fragrant, the seed capsule nearly an inch in length. It is, however, difficult to secure seed owing to their being usually destroyed by the larvae of the Cedar tip moth.

During a great part of last century the timber-getters in addition to procuring pine and beech, went long distances searching for the larger Cedar trees (now extremely rare), sometimes far up the rivers and amongst the ranges, and then went to great labour in getting the logs to market by means of bullock teams.

In many cases logs were abandoned owing to difficulties of transport being found too great, and in some instances these still lie partly decayed on the ground.

Two such large trees lie near the one illustrated, much

of the wood being still sound, for it is one of the most durable of scrub timbers.

The prices obtained towards the 80's and 90's were quite high comparatively, as the supply was becoming exhausted owing to the demand, for cedar was greatly in use for building as well as for cabinet work.

There are still many old homes, built wholly or partly of this fine timber, and it was even used for slabs. It is not an uncommon thing to come across cedar doors in the older settled districts, though too frequently they have been covered with a coating of paint instead of being cleaned and polished.

The tree illustrated which is in what is now the Lamington National Park, Queensland, on the border of New South Wales, is one which was passed over forty years ago as impracticable to market. Later by some twenty years, other men put two "scarves" in it, and again it was left. Then the park was gazetted, making it secure for ever. One of the "scarves" is seen in the photo, partly grown over with a small carbuncle below, there being a much larger carbuncle on the right side. (These carbuncles should now be quite valuable for veneer cutting purposes.)

The circumference of the tree at about 3 feet is 44 feet. There is a large branch near by blown off by storm, lying breast high, though torn from the trunk some 50 or 60 feet above.

The second photo is taken in the same district, a mile or two away, on Widgee Creek, but on private land adjoining the Park, and is that of a grove of young cedars, some 10 to 15 years of age, growing naturally on a "bench" of cleared scrub land and doing well. This is the only such case the writer knows of, though occasional young trees of this size are not at all uncommon. It should be interesting to watch the development of this group from a reafforestation point of view.

## NOTES.

Writing under date 17/4/1933 from Eumundi to the Hon. Secretary of the Club, Miss M. C. Trundle states:—

Those who visit the Noosa district of the North Coast Line pass through what is known as Clark's Waterholes, and it is there that the Ground Parrot has been seen. It is about the size of a Blue Mountain, and the flight resembles a quail. It has been seen three times on the plains. The Christmas Bells are in full bloom after passing Weyba Bridge, so much so that the earth is a blaze of colour. So far they are safe, but those Christmas Bells (*Blandfordia*) growing on Bribie Island have suffered much from the emus; they cross over from the mainland and eat the roots of the lilies, and soon Bribie will be without the Bells.

## QUEENSLAND NATURALISTS' CLUB.

## ANNUAL RECEIPTS AND EXPENDITURE, YEAR ENDING DECEMBER 31, 1932.

### RECEIPTS.

| | £ | s. | d. |
|---|---|---|---|
| To Cash at Banks, December, 1931 | 89 | 9 | 2 |
| „ Members' Subscriptions | 49 | 7 | 6 |
| „ Flower Show | 32 | 8 | 3 |
| „ Sale of "Naturalist" | 1 | 17 | 0 |
| „ Lantern Hire | 1 | 1 | 0 |
| „ Surplus from Excursions | 3 | 12 | 0 |
| „ Tent Hire | 3 | 0 | 0 |
| „ Interest in Government Savings Bank | 1 | 17 | 0 |
| | £182 | 11 | 11 |

### EXPENDITURE.

| | £ | s. | d. |
|---|---|---|---|
| By Printing "Naturalist" (3 issues) | 27 | 19 | 3 |
| „ Rent, W.C. | 11 | 10 | 0 |
| „ Secretary, Petty Cash | 15 | 0 | 0 |
| „ Flower Show | 24 | 15 | 6 |
| „ Insurance | | 9 | 3 |
| „ Affiliation to Horticultural Society | | 10 | 6 |
| „ Wrappers | | 18 | 6 |
| „ R.S. Ornithologist Un. | 1 | 8 | 6 |
| „ Books Purchased for Library | 3 | 12 | 1 |
| „ Stencil Plate and Paint | | 5 | 0 |
| „ Presentation to Hon. Secretary | 10 | 10 | 0 |
| „ Balance at Banks | 85 | 13 | 4 |
| | £182 | 11 | 11 |

### RECEIPTS.

| | £ | s. | d. |
|---|---|---|---|
| To Forward from 1931 | 10 | 17 | 8 |
| „ Petty Cash Returned | 2 | 16 | 1 |
| „ Sale of Certificates (Mr. Longman) | | 1 | 2 |
| | £13 | 14 | 11 |

### EXPENDITURE.

| | £ | s. | d. |
|---|---|---|---|
| By Insurance of Certificates | | 3 | 0 |
| Balance—At Banks | 13 | 10 | 9 |
| Cash | | 1 | 2 |
| | £13 | 14 | 11 |

THE
# QUEENSLAND NATURALIST

JOURNAL OF THE QUEENSLAND NATURALISTS' CLUB
AND NATURE-LOVERS' LEAGUE

VOL VIII. SEPTEMBER 1933 No. 6

## PROCEEDINGS.

EVENING MEETING, Monday, 15th May, 1933.—The President (Mr. F. A. Perkins) occupied the chair and 33 members and visitors were present. Miss M. Cooper was elected a member of the Club. Reports on the Easter excursion to Caloundra were given by Mr. J. E. Young (general), Mr. Ken Jackson (botany) and Mr. G. H. Barker (birds). A report on the insects observed and collected by Mr. A. R. Brimblecombe was communicated in the author's absence by the President. A general account of the marine plants of the Caloundra district was given by Dr. D. A. Herbert. Reports on the Labour Day (May 1st) excursion to the Samford Range were given by the President (entomology) and Mr. Ken. Jackson (botany). Mr. G. H. Barker gave a general account of the birds of the region. A report on the excursion to the Kingston Gold Mines was given by Dr. E. O. Marks, and it was proposed to write a letter to Mr. Kussmann, who acted as leader on that occasion. Exhibits were staged by Mr. J. Nebe of photographs taken on excursion to Kingston; by Mr. J. E. Young of coral from Caloundra and blue chalcedony, from Widgee Creek; by Mr. J. H. Simmonds, geological specimens; by Mr. Kunze, a peculiar seed; and by Mr. K. Jackson, geological specimens from Jolly's Lookout, Samford Range.

EVENING MEETING, Monday, 19th June, 1933.—The President (Mr. F. A. Perkins) occupied the chair and 38 members and visitors were present. Miss N. I. Whiting and Mr. E. E. Gurney were elected as ordinary members and Mr. N. L. Reilly as a country member of the Club. A collection of plants made on the Club's excursion to the Samford Range was staged by Mr. C. T. White. A lecture on "Tree Surgery" was delivered by Dr. D. A. Herbert. Exhibits were staged by Mr. J. H. Simmonds of photographs of Bella Sombra Tree (*Phytolacca dioica*); by Dr. E. O. Marks of grains of gold from specimens obtained during excursion to Kingston Gold Mine; by Mr. F. O. Nixon of specimens of *Abrus precatorius*, Crab's Eyes or Prayer Seeds, grown in his garden at Sherwood, near Brisbane; by Mr. J. Nebe and Mr. C. Dornbusch of photographs; by Mrs. Macdonald of spider and its egg case; by Mr. J. E. Young of peculiar elongated swellings in branches of a lemon tree from Burleigh caused by the

eitrus gall wasp, and peeuliar fungus from the National Park; by Mr. C. T. White of speeimen of the Osage Orange from Pittsworth; and by Mr. Ken. Jaekson of stone axe head.

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## BOTANY OF CALOUNDRA.
## REPORT ON EASTER EXCURSION BY G. K. JACKSON.

Around Caloundra are areas of fine eucalyptus forest, rain forest and tea-tree, boronia and mangrove swamps, in addition to a rieh beaeh flora.

Large areas of eucalyptus forest stretehes towards the west, a eonspieuous feature of these being the enormous woolly-butt trees (*Eucalyptus saligna*). Another eommon tree here is the brush box (*Tristania conferta*), whieh overshadow the small but beautiful Persoonia trees, with their masses of yellow flowers. The forest oak (*Casuarina torulosa*), is thiekly seattered over this area, and the tallow wood (*Eucalyptus microcorys*) is also eommon. Many of the trees bear several varieties of Mistletoe (*Loranthus*), and among the eucalypts are great numbers of grass trees (*Xanthorrhoea*), which possess a very palatable heart comprised of the base of the younger leaves.

In the lower portions of this undulating area are situated large tea-tree swamps, which eontain as well as the ordinary *Melaleuca leucadendron*, some very large specimens of the swamp mahogony (*Tristania suaveolens*). This last is an extremely hard-wooded tree, and the bark was used formerly by the aboriginals for eanoe building. In one plaee the edge of the swamp is dotted with the beautiful little purple flower *Burmannia*, while here and there the balloon eotton (*Gomphocarpus fruiticosus*) is eonspieuous with its large balloon-like seed eases.

Of rain forest there are two distinet types—the typieal eoastal sand flat serub sueh as is found here and there on Bribie Island and a mueh more luxuriant sort found inland about a half mile or so west of Caloundra. In this first mentioned the trees are not very large and eomprise mostly speeimens of myrtle or wild eherry (*Eugenia*), saffron heart (*Halfordia drupifera*) and eypress pine (*Callitris columellaris*). Blueberry ash (*Elaeocarpus obovatus*) is also fairly eommon, and a wild grape with its small bunehes of rather sour fruit is seen everywhere draping the trees. The patehes of serub mentioned as growing a little way inland are some of them very dense and luxuriant, although apparently growing in almost pure sand. Among the tangle of vegetation lawyer eane palms (*Calamus muelleri*) seem most prominent, and eabbage palms (*Livistona australis*) are very eommon, while pieeabin palms (*Archontophoenix Cunninghamii*) are found

to a more limited extent. Among the trees are the red ash (*Alphitonia petriei*), saffron heart (*Halfordia drupifera*), wild cherry (*Eugenia*), blueberry ash (*Elaeocarpus obovatus*) and water gum (*Tristania laurina*). Epiphytic orchids are not very common in the district, the most plentiful being the Lily of the Valley (*Dendrobium monophyllum*), which grows on rain forest trees in large masses. The long-stemmed arrowroot orchid (*Cymbidium sauve*) is found mostly in decaying timber or hollow trees, and the long-leafed arrowroot orchid (*Cymbidium albuciflorum*) on trunks of growing trees.

The Boronia swamps are, of course, the ideal wild flower areas, and great tracts of these extend around and about Caloundra. Swamp boronia (*Boronia falcifolia*) is here found growing in profusion amidst pink and white Leptospermum. Other flowers are *Phyllota phylicoides, Pultenaea, spp. Hakea gibbosa, Grevillea leiophylla*, the beautiful and popular Christmas Bells (*Blandfordia flammea*) (both red and yellow), and the broadleafed Banksia (*Banksia latifolia*).

A very common tree on the low ridges is the apple-tree bloodwood (*Angophora Woodsiana*), which in general appearance is very like the ordinary bloodwood.

Along the coast is found in abundance the weeping she-oak (*Casuarina equisetifolia*), a rather small tree with long droping branchlets; it grows on the sandhills and does not appear to be affected by the sea winds. Pandanus palms (*Pandanus peduneulatus*) and *Banksia collina* are also very common.

The principal ferns and fern allies include *Psilotum triquetrum*, growing in the scrub on Bribie; *Gleichenia flabellata* or star fern; *Blechnum serrulatum;* and a species of Adiantum. A small gully within the township of Caloundra appears to be the only place in which maidenhair (*Adiantum aethiopicum*) grows. On the rain forest trees of both Bribie and the mainland, Staghorns (*Platycerium grande*), Elkhorns (*Platycerium alcicorns*), and Bird's Nest Ferns (*Asplenium nidus*) are to be found, although by no means plentiful.

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## BIRDS OF CALOUNDRA.
## REPORT ON EASTER EXCURSION BY GEORGE H. BARKER.

Due to the nature of the outing and the variety of country covered, this year's excursion was essentially a bird observer's holiday. The trip down the river and across the bay to Bribie, then the halt at Bribie itself. The next day's journey up the Passage to Caloundra, and then

the outings from the camp all gave one new and entirely different fields and work to observe.

Owing to the high tide, the river end of the outing did not offer so much variety as usual, as the banks were not uncovered. Cormorants, Curlews and Gulls were, of course, in evidence, with a few Bitterns and small waders. The bay was given over to a few Cormorants, but at Bribie the honey parrots had taken possession and towards evening flocks of hundreds of scaly breasts and blnies wheeled and circled amidst noisy clamour till dusk. None of these birds were observed feeding and as a matter of fact no trees were noticed in bloom. In the trees in which they rested from time to time, they appeared to be just fraternising in pairs, whilst others performed acrobatic stunts in the leaves and branches.

During the run up in the launch on the following day we had many pleasant surprises, chief of which was the abundance of black swans still to be seen along the course of the Channel, a conservative estimate of the number we saw would be 1,500 and in view of the reports that reach us from time to time of the wanton destruction of these birds on the bay and rivers, one is glad to know that they are holding their own. Numbers of white ibis were also seen and each bank that we passed had its quota of cormorants, curlews, whimbrels, godwits, stints and dotterels. Several sea eagles, whistling eagles and wedge tails were seen and two larg nests, presumably of the latter, were noticed as we passed. At Caloundra itself, whilst there was a good sprinkling of the birds we expected to meet, there was nothing outstanding to report, though the writer had hoped that the rare ground parrot that Mrs. Mayo and himself had flushed on different occasions quite recently, would be seen again, but the advent of rain on the day set out for this excursion spoiled the hope. A list of the birds seen during the whole trip is here appended for record purposes. The number and order is taken from the R.A.O.U. Check List.

10 *Synoicus australis*—Brown Quail.
30 *Geopelia placida*—Peaceful Dove.
32 *Geopelia humeralis*—Bar-shouldered Dove.
99 *Phalerocorax varius*—Pied Cormorant.
100 *Microcarbo melanoleucus*—Little Pied Cormorant.
104 *Sula serrator*—Australian Gannet.
106 *Pelecanus conspicillatus*—Australian Pelican.
111 *Gelochelidon nilotica*—Gull Billed Tern.
112 *Hydroprogne caspia*—Caspian Tern.
118 *Sterna nereis*—Fairy Tern.
125 *Larus novae-hollandiae*—Silver Gull.
133 *Lobibyx novae-hollandiae*—Spur-winged Plover.

137 *Pluvialis dominicus*—Eastern Golden Plover.
143 *Charadrius ruficapillus*—Red-capped Dotterel.
149 *Numenius cyanopus*—Eastern Curlew.
150 *Numenius phaeopus*—Whimbrel.
153 *Limosa capponica*—Bar-tailed Godwit.
157 *Tringa hypoleuca*—Common Sandpiper.
162 *Erolia ruficollis*—Little Stint.
174 *Burhinus magnirostris*—Stone Curlew.
177 *Megalornis rubicundus*—Native Companion.
179 *Threskiornis molucca*—White Ibis.
180 *Threskiornis spinicollis*—Straw-necked Ibis.
187 *Egretta alba*—White Heron.
188 *Notophoyx novae-hollandiae*—White-faced Heron.
189 *Notophyox pacifica*—White-necked Heron.
193 *Butorides striata*—Mangrove Heron.
203 *Chenopis atrata*—Black Swan.
208 *Anas superciliosa*—Black Duck.
224 *Uroaetus audax*—Wedge-tailed Eagle.
226 *Hallaetus leucogaster*—White-breasted Sea-Eagle.
227 *Haliastur indus*—Red-backed Sea Eagle.
228 *Haliastur sphenurus*—Whistling Eagle.
254 *Trichoglossus moluccanus*—Rainbow Lorikeet.
255 *Trichoglossus chlorolepidotus*—Scaly-breast.
319 *Alcyone azurea*—Azure Kingfisher.
322 *Dacelo gigas*—Kookaburra.
326 *Halcyon sanctus*—Sacred Kingfisher.
327 *Halcyon chloris*—Mangrove Kingfisher.
329 *Merops ornatus*—Bee-eater.
338 *Cacomantis flabelliformis*—Fan-tailed Cuckoo.
357 *Hirundo neoxena*—Welcome Swallow.
361 *Rhipidura flabellifera*—Grey Fantail.
362 *Rhipidura rufifrons*—Rufous Fantail.
364 *Rhipidura leucophrys*—Wagtail.
393 *Eopsaltria chrysorrhoa*—Northern Yellow Robin.
398 *Pachycephala pectoralis*—Golden Whistler.
401 *Pachycephala rufiventris*—Rufous Whistler.
408 *Colluricincla harmonica*—Grey Shrike Thrush.
415 *Grallina cyanoleuca*—Magpie Lark.
421 *Psophodes olivaceus*—Eastern Whipbird.
424 *Coracina novae-hollandiae*—Graucalus.
429 *Edoliisoma tenuirostre*—Jardine Caterpillar-eater.
431 *Lalage leucomela*—Varied Triller.
453 *Gerygone olivacea*—White-throated Warbler.
471 *Acanthiza nana*—Little Thornbill.
486 *Acanthiza chrysorrhoa*—Yellow Tailed Tit.
536 *Malurus lamberti*—Variegated Wren.
558 *Climacteris leucophaea*—White-throated Tree Creeper.
564. *Dicaeum Hirundinaceum*—Mistletoe Bird.
565 *Pardalotus punctatus*—Spotted Pardalote.
569 *Pardalotus melanocephalus*—Blackheaded
574 *Zosterops halmaturina*—Silver-eye.

578 *Melithreptus lunatus*—White-naped Honey-eater.
586 *Myzomela erythrocephala*—Scarlet Honey-eater.
591 *Acanthorynehus tenuirostrus*—Spine-billed Honey-
597 *Gliciphila indistineta*—Brown Honey-eater.
605 *Meliphaga lewini*—Lewin Honey-eater.
610 *Meliphaga fasciogularis*—Mangrove Honey-eater.
614 *Meliphaga chrysops*—Yellow-faced Honey-eater.
631 *Meliornis novae-hollandiae*—Yellow-winged Honey-eater.
634 *Myzantha melanocephala*—Noisy Miner.
641 *Entomyzon cyanotis*—Blue-faced Honey-eater.
645 *Philemon corniculatus*—Noisy Friar Bird.
646 *Philemon citreogularis*—Little Friar Bird.
647 *Anthus australis*—Pipit.
662 *Aegintha temporalis*—Red-browed Finch.
690 *Corvus coronoides*—Australian Raven.
694 *Strepera graculina*—Currawong.
700 *Cracticus nigrogularis*—Pied Butcher Bird.
702 *Cracticus torquatus*—Grey Butcher Bird.
705 *Gymnorhina tibicen*—Magpie.

This list was compiled as the result of notes made as we travelled. The nature of the outing this year militated against any special bird-hunting, otherwise the list would assuredly run to three figures. Much of the area over which we worked has been proclaimed sanctuary for bird life, and it is sickening to hear of the destruction by organised shooting parties of protected birds in and around Bribie Island, which the Police seem powerless to prevent. It is to be hoped that the authorities will some day take drastic action against these law-breakers.

G. H. BARKER.

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## OBSERVATIONS ON THE INSECTS OF CALOUNDRA.

### REPORT OF THE EASTER EXCURSION.

By A. R. Brimblecombe.

The insect population observed at Caloundra during the Easter Camp of the Queensland Naturalists' Club was not large, thought it was of an extremely varied nature. It is for the latter reason that the locality is so popular entomologically.

On this occasion a general collection was not made, my attention being directed to only a few orders. However the following are some general observations.

*Diptera.*—The most conspicuous members of this order were the mosquitoes. Those club members not providing themselves with nets will bear me out on this

point. One morning we found, on waking, that during the night a species of *Anopheles* had been feasting on us. These were noted because of their particular habit of posure. It will be remembered that *Anopheles* is a carrier of malaria.

Other Diptera under notice were crane flies and midges, both being attracted to light. The former are slender insects characterised by particularly long legs, hence the name. The midges are also very slender insects and usually very small.

Some large robber flies were seen on the wing. These are predaceous in habit, possessing spear-like piercing mouth parts for stabbing their prey. They must not be confused with march flies, which have similar mouth parts, but usually suck blood from the higher warm-blooded animals, as was experienced. The robber flies never do this; their food consists purely of other insects.

*Orthoptera.*—Grasshoppers of various kinds were often disturbed from grass.

A member of this order happened to be the most attractive and interesting find during the camp. It belongs to the family *Phasmatidae,* whose general name, under which they are very well known, is "Stick Insects." The specimen was collected by a local resident who, knowing of the Club's camp, brought it to us. It is known scientifically as *Extatosoma tiaratum,* and affords a wonderful example in the study of protective adaptations in the insect class. It is a large insect 4 to 5 inches long, of rather stout build, green in colour, having the abdomen fringed with spiny processes, and the legs irregularly dilated, somewhat resembling leaves; in fact, the whole insect closely resembles a portion of a spiny-leaved plant. The females, to which the specimen secured belonged, have rudimentary wings. The males are smaller insects and are provided with ample wings.

A few wood cockroaches were disturbed when bark was peeled from dead trees; a preying mantid was found amongst grass, while crickets were heard at night.

*Hemiptera.*—Some plant bugs were secured by beating grass, but in general bugs were not common.

Leaf-hoppers, interesting because of the sudden hop they make when disturbed, and an attractive little species of Psyllidae were common on Acacias.

According to the noise produced, Cicadas were numerous amongst the forest trees; some were observed flying about.

*Coleoptera.*—Beetles were not abundant. A few small weevils were found by beating grass and tree foliage. Ground beetles occurred under logs and in leaf mould.

*Hymenoptera.*—Honey bees were common in flowers. Ants, such as the greenhead, the little black ant, were plentiful, while nests of meat ants and a nest of jumpers were found.

An interesting spectacle was a cluster of sawfly larvae on a twig of Eucalyptus coppice. These when disturbed erected themselves on their tail ends and exuded a liquid from their mouths.

By beating foliage a number of pretty minute parasitic wasps were collected.

*Lepidoptera.*—Several attractive butterflies fluttered through the bush. The beautiful brown and black butterfly, *Danaida archippus* ("The Wanderer") was on the wing. The larvae of this species is characteristically transversely striped and feeds on the milk weed, *Asclepias.* (*Asclepias*).

Several "Whites" were also on the wing; of these the "Travelling Butterfly" (*Anaphaeis java teutonia*) was the commonest.

A pretty specimen of one of the species of "Blues" was seen. This family of insects is an exceedingly pretty one, the metallic tints on the wings change with varying light. It is of this group that attractive broaches are made.

*Odonata.*—Dragon flies were common; some flying in the sun were beautiful, the varying light enhancing their colours.

Of the remaining orders no special mention is necessary, except that *Thysanoptera* (thrips) were abundant in flowers; *Isoptera* (white ants) occurred in rotting logs; *Thysanura* (silverfish) under bark, and *Collembola* (spring tails) were common in leaf mould.

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Part X

## THE EUCALYPTS OR GUM TREES OF THE BRISBANE DISTRICT.

(By C. T. White, Government Botanist.)

(Continued from the "Queensland Naturalist," Vol. viii., p. 54.)

### 19. Eucalyptus paniculata (Grey Ironbark).

*Description.*—Large tree with a hard, furrowed, thick, coarse, black, or blackish grey bark, somewhat friable, the cracks often carrying a dark red gum or kino. Sometimes in the best class Eucalyptus forest (approaching rain-forest in character) the bark is much less furrowed and inclined to be tesselated. Coppice shoots at first very angular but very soon terete, young tips often suffused with purple. Coppice leaves broadly ovate to ovate lanceolate, then soon merging into the adult form, in the broader ones more than twice as long as broad, in

Eucalyptus paniculata (Grey Ironbark) Brookfield, near Brisbane

Photo by C. T. White

the narrower ones nearly three times as long as broad, mostly about 3 inches long; petiole or leaf-stalks about ¼ inch long; lateral nerves and intermediate veins more or less clearly discernible on both faces, main nerves 3–4 lines apart but often the finer intermediate ones scarcely distinguishable from them; intra-marginal vein ½ to 1 line removed from the edge, but occasionally very strong and far removed (up to 3 lines) from the edge, in which case there is another right close to the edge itself. Ordinary (secondary or adult leaves) coriaceous, straight or falcate, lanceolate, apex acute, base acute, often unequal sided, sometimes markedly so; petiole twisted, about ½ inch long, blade up to 7 inches long and 1½ inches broad in the coarser leaved forms, averaging about 5 inches long and less than 1 inch broad in the narrower leaved ones; midrib distinct on both faces, lateral nerves and veinlets more or less clearly discernible on both faces, particularly in the less coriaceous leaves, lateral nerves 1-2 lines apart, oblique, arising from the midrib at an angle 40 to 60 degrees; intramarginal vein in the broader leaves up to ½ line removed from the edge, but in the narrower ones much closer. Flowers in umbels, the umbels arranged in terminal panicles, individual umbels 3-7 flowered, peduncle ¼ inch long, angular or flattened. Calyx tube narrowly turbinate, merging at the base into the somewhat flattened or angular pedicel, calyx and pedicel together 4 lines long. Operculum conical, 2 lines high. Stamens in several series, the outermost filaments bearing small abortive anthers, outer filaments about ¼ inch long, innermost ones only about half this length; anthers at first opening by terminal pores, but the pores developing with age into rather short, wide slits. Seed capsules broadly turbinate, sometimes slightly contracted at the orifice, about ¼ inch in diameter on an angular pedicel of 1-2 lines; 3-5 celled, the valves flush with the rim or very slightly protruding.

*Distribution.*—Eastern Australia from Southern New South Wales (according to Maiden within a few miles of the Victorian border) to the Wide Bay District, Queensland. Never found any great distance from the coast.

*Common Name.*—Grey Ironbark is the established vernacular for this species in Queensland.

*Botanical Name.*—*Eucalyptus* (see under No. 1) *paniculata*, paniculate referring to the arrangement of the flowers (from the Latin *panicula*, a tuft).

*Timber.*—One of the most extensively used of all Australian hardwoods, especially favoured where great strength and durability are required.

*Botanical Reference.*—Eucalyptus paniculata Smith in Transactions of the Linnean Society of London, 1797.

## BOOK NOTICES.

The Insect Book, by Walter W. Froggatt (Shakespeare Head Press, Sydney), 103 pp., with numerous text figures. Price, 2/-.

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The Insect Book by W. W. Froggatt, the first of the Shakespeare Head Australian Nature Books, should prove very useful in the schools, and to all those people interested in natural history who wish to acquire an elementary knowledge of insects. It is written by one who has made a life-long study of the habits of Australian insects, and the 103 pages are crammed with short interesting accounts of the life history of most of the common insects. It is well illustrated and even small children should have no trouble in recognising the common species from their pictures.

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See also Vict. Nat. 81: 8-12 (May 1964)

## AMALIE DIETRICH—A FORGOTTEN NATURALIST.

(By A. JEFFERIS TURNER, M.D., F.E.S.)

There is one of our Skipper Butterflies named Cephrenes amalia by Semper in the Journal of the Godeffroy Museum. Perhaps some of you like myself may have been puzzled at the meaning of this name. It is the christian name of a forgotten Queensland entomologist. I first heard of her by reading her life story written by her daughter, and appropriately entitled "The Hard Road."

In the little Saxon hill-town of Siebenlehn there lived a worthy couple, Gottlieb Nelle and his wife, Cordel. He had a small business making leather goods—purses and such like. His only son Karl had emigrated to Bucharest, where he had prospered and married a Roumanian. There only remained his daughter Amalie, a bright girl, the pet of the family.

One evening old Granny Krummbiegelu called on the Nelles with news. She had let her room to a *gentleman*, who was a *rara avis* indeed. He had left the position of assistant to the local chemist, and placed on his door a black plate with yellow letters, "A. W. S. Dietrich, Naturalist." What "Naturalist" meant no one knew, but Granny was confident it meant witchcraft.

It was autumn. Mother Cordel and Amalie set off for the Zell Wood in search of mushrooms. They climbed a knoll looking down on a clear woodland stream, and from the top they noticed that someone was lying down on the mossy bank. It was a man—one of the gentry. The

stranger was carefully studying a tiny tuft of moss through a lens. Against the nearest tree-trunk was leaning a long stick with a net. The reputed wizard was an attractive young man. He offered to guide them to a spot rich in mushrooms. Having filled their baskets, they invited him to a mushroom supper. He did not confine himself to one evening. He brought books on fungi with coloured plates and gave Amalie lessons on botany. Amalie was fascinated. Before long Dietrich proposed marriage, and the parents, though loth, had to consent. They did more. They sold their belongings and came to live with the young couple. Amalie's time was all taken up with the botanical and entomological collections. Madame Cordel looked after the house-keeping.

A happy busy life now began in the new home, and for a time all went well. The high racks of the herbarium covered all the walls right up to the ceiling. The cupboards originally intended for housekeeping stood in the adjoining room filled with books, minerals, insects, amphibians, shells and seeds. Each fine day the young couple went out collecting. Dietrich took pleasure in instructing his keen and clever young wife in Natural History. Her zeal in collecting made light of all obstacles. No hill was too high or too steep, no meadow too marshy, no ditch too wide, and no stream too deep. Off came her shoes and stockings and the coveted plant was secured from the opposite bank. When they returned home heavily laden, dusty and tired, Mother Cordel quietly placed some soup or porridge on the table. The rest of the day until far in the night was spent in carefully arranging the plants as naturally as possible on paper for pressing. Amalie had to press the most difficult plants. In the winter months all had to be classified and labelled. She also learnt to carefully set all the insects, even to the smallest. The collections were a joy to behold, and were eagerly sought after. But payment was a different matter, for a general depression had swept over the country. They realised little, and living was difficult. In course of time a small daughter arrived. Some years after Cordel was taken ill and died. Left alone with her child and the housekeeping, which she had never learnt, in addition to all her other work, Amalie found the burden too great. An assistant had to be found. She arrived, a clever but rather frivolous girl with red-gold hair and a pretty face, in short, too attractive. There was friction, and one day after striking the child, she was abruptly dismissed.

In order to sell his collections and obtain fresh orders, Dietrich had to travel. One day he announced that he must go to Berlin to collect some money owing. Soon after.

the little girl who had been named Charitas, found a letter in her father's pocket and determined to play postman. So very importantly she delivered the letter to her mother. It was from the dismissed assistant, and revealed the real reason for Dietrich's visit to Berlin. Amalie's happiness fell to the ground like a house of cards. In desperation and despair she left the house with her child determined to go to her brother in Bucharest, no light undertaking for a woman travelling alone in those days.

Karl received her kindly. So in her own way did Leanka, his wife. She saw that they were well clothed and would like to have adopted the little girl. Differing altogether in sentiments and tastes, the two women could not hit it off. With the kind help of the German Pastor, Amalie obtained a situation with a compatriot in Transylvania, leaving her child behind. Here for the first time she learnt housekeeping. It was a beautiful country and she revelled in the mountain flora. These and a wonderful find of fossils she sent to Dietrich. Finally she decided that in spite of his moral weakness it was her duty to return to her husband.

It was a hard life to which she returned. They travelled all over Germany and beyond, disposing of their collections. As the stronger, Amalie always carried the burden until her back was chafed raw. Then they procured a dog and cart, but she had to do her share of the pulling. Now it was only her shoulders that were chafed. Occasionally on a hill Dietrich pushed. Later on she and the dog travelled alone. Untidy and travel-stained, she was welcomed by scientific men who talked to her as an equal. One day she remarked to her husband, "Do you know what is being said? That the Linnean system is obsolete. Before long nobody will bother any more about Linnean classifications and orders." Dietrich was dumbfounded. "Linnaeus antiquated," he at length uttered with difficulty, "if Linnaeus is not to count any longer, then of what purpose, pray, has my whole life been," and with a groan he rested his head on his hands.

One more lonely trip she was to make to collect coastal plants and seaweeds in Belguim and Holland. She was tired in mind and body, and the summer was cold and wet. Though the sales were good, the journey was a failure. Gathering seaweed in the cold grey mists she went down with fever and found herself in hospital. When at length she returned home she found it empty. Dietrich had taken a position as tutor in a nobleman's family. He received her coolly, and declared that he was unable to do anything to help his wife or daughter. So Amalie took a small room

and prepared some of their old collections for sale. When on a visit to Hamburg her fortune changed. In that city lived a remarkable man, Caesar Godeffroy, a merchant prince locally known as "the King of the South Seas." His hobby was the Godeffroy Museum, for which he was sending collectors to the South Seas. Would he send a woman? Amalie resolved to try, but on her first visit she was sent back with a curt refusal. Not daunted, she determined to try again, and for this collected some testimonials. The following is one of them:—"For a number of years I have known Frau Amalie Dietrich as a gifted botanist. A pupil of her husband, Wilhelm Dietrich, who belongs to the well-known family of botanists, she has had an excellent training. The collections that were put on the market by Wilhelm and Amalie Dietrich were always to be recommended. They were carefully prepared, and arranged with taste and judgment. Frau Dietrich has exceptional talent for her profession, a keen well-tried eye for all that Nature presents, and great certainty in the classification of the collected material. On her long and, as a rule, remarkable journeys she has invariably shown remarkable perseverance and fortitude. I only hope she may find some occupation in which her great gifts can be used to the best advantage." Professor Dr. Mortiz Willkomm, Forestry School, Tharand, 1862.

This time she obtained an audience. Her services were accepted. "We must have no half measures," said Godeffroy in the drawing up of the contract. There was only one difficulty, her daughter. Fortunately her kind Hamburg friends undertook to see to Charitas' education, for which Amalie now had the means. She went to bid Dietrich farewell. After all, to him she owed her scientific education. Various things essential to her work had still to be learnt. She was taught how to handle fire-arms, how to skin birds and mammals, how to preserve reptiles and fish. An ample outfit was provided her. Reban's Natural History, Meuller's Vegetable Kingdom, Lennis's Botany in four volumes, Wildenow's Botany, Willkomm's Plant Atlas, David Dietrich's Plant Lexicon, Williams' English Dictionary, Three English Lesson Books, one pocket lens, One microscope, twenty-five retorts, six insect cases, ten reams of paper, rags for packing, six tins of spirits, twenty pounds of plaster of Paris, twenty pounds of tow, entomological pins, three quires of tissue paper, five quires of brown paper, four flasks of small shot, ten pounds of gunpowder, one box of percussion caps, two boxes of poison, four boxes for live snakes and lizards, three casks of salt, one hundred glass jars with large stoppers. I daresay some of us would like to go out to some new country so

equipped. But if Godeffroy was generous in providing supplies, he expected results. Amalie landed in Brisbane in August, 1863, after a voyage of 83 days. Godeffroy's agent, Mr. Heussler, had been instructed to help her in every way. She stayed in Queensland eight years.

I have, unfortunately, no record of Frau Dietrich's scientific work before me, but I can give extracts from some of her letters. "The houses here look as if they had legs and wanted to run away. When I told Mr. Heussler so, he laughed and explained that the houses are built on piles because of white ants. 'Ah,' thought I, 'there is something to collect already.'" "With a truly festive feeling I got ready for my first collecting trip in the new continent. I slung over my shoulders my case, filled with flour, salt, tea and matches, put on my large straw hat, and set off on my wanderings. Is it really I, this lonely wanderer in the Australian forest? After some time I succeeded in finding water. I collected some dry wood, made a fire, looked for a strong piece of bark, cleaned it carefully, mixed the flour with water, made some flat cakes, and baked them in the hot ashes. When I thought they were ready, I blew off the ashes, made some tea, and had my first meal of a kind such as will probably often be my lot in many days to come. Then I started collecting. I first filled my vasculum. Here everything is new, and such a wealth of material abounds that one is quite at a loss to know where to begin. For insects I had brought nothing but small glass jars with spirits. It is only after looking round a bit that one finds out how best to equip oneself. Unfortunately I have to wear a veil. Sometimes I think this must be a punishment for having so often made fun of other women for wearing them. But without one the mosquitoes would be too troublesome."

She collected extensively around Brisbane. In April, 1864, she writes from Rockhampton, and was impressed there by the luxuriance of the vegetation and the interesting animal life. She mentions disembowelling crocodiles up to 22ft. long. "What freedom I enjoy here as a collector! No one circumscribes my zeal. I stride across the wide plains and wander through the virgin forest. I have trees felled in order to collect various kinds of wood, blossoms, and fruit. I cross rivers and lakes in a small canoe, visit islands and collect—collect—collect. I speedily forget the discomforts of heat and mosquitoes in the unbounded feeling of joy that animates me when at every step I light upon treasures that no one has discovered before me. I have no fear of not fulfilling the expectations that Godeffoy has placed in me."

At Rockhampton she was nearly drowned in securing some blue water-lilies, being rescued by some blacks, who pushed a small canoe through the rushes, waving fire-sticks. After that she suffered from intermittent fever. Before she had recovered her little hut of bamboos and palm-leaves was burnt down. All her precious collections and all her equipment were destroyed. This stopped all her work, but probably the rest was needed. A German family took her in, but did not like her having live snakes and lizards in her room. Godeffroy wrote sympathising about the loss of the collections, and replaced all the equipment. He desired skeletons of the larger mammals, and as many skeletons and skulls of the aboriginals as possible, as well as weapons and implements.

In January, 1869 we find her in Mackay. There she watches from a hiding place an inter-tribal fight of the aborigines, and gives a description of it. She does much bartering with them. She discovers and preserves a bower and the birds that made it. From there she accompanied a bullock team inland to Lake Elphinstone, an eleven months' trip. After her return to Mackay she started a caterpillar farm in order to obtain perfect specimens of the large butterflies. In September of the same year she writes from Bowen. Here again she got into close relations with the natives. Skeletons were hard to get, but she shipped home thirteen and several skulls. Then to Port Denison and from there in a canoe accompanied by two assistants to the Holborn Islands to collect the wonderful fishes of the coral reef and other marine material.

She returned to Brisbane to fill up some gaps in her previous collecting. In 1871 she was in Melbourne, where she called on Baron von Mueller, on her way to the Tonga Is. After collecting there she rounded the Horn and rejoined her daughter at Hamburg in March, 1873, after an absence of ten years.

The long hard road had been traversed and left triumphantly behind. Godeffroy provided here with a suite of rooms in his great house, and for thirteen years she worked in the Godeffroy Museum. After his death she received a post at the Botanical Museum under the Municipality. She had a wide circle of friends of every class, and often visited her daughter, who had become the wife of a pastor. There she played with a lively little boy, her grandchild. She was honoured in her own country. In the world of science botanists will remember her by Acaeia Dietrichiana and Bonamia Dietrichiana, hymenopterists by Nortonia Amaliae and Odynerus Dietrichianus, Monumentum aere perennius. A memorial more lasting than brass.

## FLORA OF NORTH QUEENSLAND.

Contributions from the Arnold Arboretum of Harvard University No. 4 is entitled "Ligneous Plants Collected for the Arnold Arboretum in North Queensland by S. F. Kajewski in 1929." The plants are enumerated by Mr. C. T. White, Queensland Government Botanist. The work is the result of about nine months' collecting in the rain forests of North Queensland, particularly in the wetter parts of the Atherton Tableland, Mount Bartle Frere, and the Daintree River. The collections made proved to be exceedingly valuable, and the published account adds considerably to our knowledge of the flora of North Queensland.

Several genera of plants not previously known as Australian are recorded. These are *Rinorea* of the *Family Violaceae*, *Corynocarpus* of the *Corynocarpaceae*, *Microsemma* of the *Family Gonystylaceae*, and *Parathrophis* of the *Family Moraceae*. The finding of *Corynocarpus* and *Microsemma* was particularly interesting, as not only these genera but the families to which they belong are new to the Australian flora.

Several new genera were described. One of the most striking is *Austrobaileya*, commemorating the name of the late F. M. Bailey and his work on the Australian flora. It is a vine with a large flower, and has been put tentatively in the *Magnoliaceae*.

## OBITUARY.

Naturalists throughout Australia will regret to learn of the death at Hobart (Tas.) on Saturday, July 15th, of Mr. Clive Errol Lord at the early age of 43 years. The late Mr. Lord was trained for the profession of architecture, but early in life devoted the whole of his attention to the study of natural history, particularly the zoology of Tasmania. At the time of his death he was Director of the Tasmanian Museum and was associated with the management of the Hobart Botanical Gardens. He took a very active part in the Royal Society of Tasmania, the Royal Australian Ornithologists' Union, and particularly in the Field Naturalists' Club of Tasmania. He was a very keen yachtsman, and did a great deal of marine zoological work in his private yawl around the coasts of Tasmania. His kindly disposition and generous hospitality towards visiting naturalists will always be a pleasant memory for those who visited Tasmania in pursuit of natural history studies.