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T H E ' N O R T H Q U E E N S L A N D
N A T U R A L I S T .

The Official Journal and Magazine of the North
Queensland Naturalist Club.

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E D I T O R I A L .

Progress since last issue has been marked in several directions. Although the sought for cooperation of the Cairns City Council has not been successful in some important matters, it seems to have been from a misunderstanding by Aldermen rather than from antagonism to the Club's suggestions. In other ways the Club has received help and valuable assistance. The museum has been advanced a stage by the donation of cases by timber merchants and cabinet makers, besides 100 large glass jars for the holding of specimens. The Green Island Guide service is being proceeded with also and field excursions are yielding satisfactory results in research work. This Journal, despite its primitive form, is subscribed to by a number of libraries and individuals

THE NORTH QUEENSLAND NATURALISTS CLUB.

Meeting Rooms: Motor Boat Club Rooms, Cairns.

General meetings are held on the second Monday in each month and committee meetings are held on the first Monday, both meetings at 8 p.m.

Agenda Paper — Minutes, Correspondence, Reports, Nomination and election of members (New members are nominated at one meeting and elected by ballot at the following monthly meeting).

Excursions - Members are invited to submit plans and suggestions for outdoor excursions to the meetings.

Exhibits. - It is desired that members having interesting specimens to exhibit at general meetings shall also make a few explanatory remarks upon them and hand a written summary of the remarks to the Secretary (Mr. J. Wyer) for inclusion in the Club's books. This request is also made to the lecturers at the meetings.

Lecture and adjournment - After the ten minute interval, Miss K. Dodd will deliver a lecture.

Date of Meeting - April 10th, 1933.

CLUB OFFICIALS: President, Dr. H. Flecker; Vice-Presidents, Capt. W. P. Fish and Miss Hooper; Secretary, J. Wyer; Executive Committee, the foregoing with the addition of M. J. Manski and W. M. Grant; Treasurer, R. J. Gorton; Editor and Librarian, Victor Kennedy.

LIFE HISTORY OF AMBLYPODIA AMYTIS.

(By M. J. Manski.)

My observations with the life history of this butterfly is well worth recording, and although the larvae and pupae and butterfly have been described, still there remains sufficient to warrant publishing. The eggs, which are very small, are milky white, somewhat flattened out with ribbed sides and smooth top which gradually tapers to the centre which is black and forms a hollow. They are deposited in the young stems of the food plants (Cassia Brewsterii and C. Alata also various species of wild Hibiscus) in groups (29 in one group) so close together that they appear to touch one another and are closely guarded by the green ant (Cecophylla Smaragdina). The young larvae are gregarious feeders and are directed to the young leaves by the ants. I have taken the larvae on emergence and tried to rear them without ants but they all died within 24 hours. On taking larvae from the ants one week old they likewise died; at ten days old the larvae pupated next day but the small larvae did not mature. On taking larvae 14 days old they pupated next day and the butterflies emerged 14 days later. Taking larvae 10 days old with a number of ants, I reared them until they pupated and they likewise emerged butterflies. After pupation the ants died off and so possibly the fluid from the glands on back of the larvae is a source of nourishment for the ants. The larvae, on preparing to pupate, curls the side of the leaf over just sufficient to cover it and fastens it with silk.

Just a few days before the butterfly emerges the wing colours can be seen a light purple which gradually turns to deep blue, and the time of emergence is in the morning.

GEOLOGY OF THE BARRIER REEF.

The lecture adjournment of the March meeting was occupied by Mr. Victor Kennedy, who detailed the geological structure of the Great Barrier Reef, leading the meeting through the literature that had accumulated upon the subject since Darwin's studies appeared. Darwin as a result of his voyage in the Beagle and his brief study of the Cocos Keeling Atoll, formulated the theory of subsidence by which he sought to explain the shape and growth of atolls. A reef had formed around an island which had ultimately slowly subsided, the ring of coral meanwhile continuing to grow upward. As the land mass had sunk beneath the sea surface the fringing coral had grown above it and accounted for the ring shape and for the lagoon in the middle. The strong support given Darwin by the American J.D. Dana ("Corals and Coral Islands") in 1875 gave the name Darwin-Dana Theory to this suggestion. But Dr. John Murray who accompanied the Challenger expedition in the mid-seventies published a counter theory in 1880. He concluded that there had been no subsidence but in fact the reef had been built upon an emerged bank. The lagoon had then been formed by solution by sea water. The solution theory had been discounted, but there was good evidence for the emergence theory in regard to some atolls; the Challenger expedition also the works of Admiral Wharton and others had established (what Darwin could not know) that such submarine banks did actually exist in the oceans. Darwin of course had admitted that an atoll could be formed where banks existed and even the ancient theories of submerged volcano rings could be true in isolated instances. Professor Wood-Jones in 1906 established at Cocos-Keeling that there had been no evidence of subsidence there. This study of atolls was important in a study of Barrier Reefs such as the Barrier Reef of Queensland.

Professor Beete Jukes of Dublin, a member of H.M.S. "Fly" expedition, published the first scientific account of the Great Barrier Reef in 1880. He contended that there had been definite subsidence of a shelf of the mainland - the Continental Shelf - and upon this the reef had grown. Alexander Agassiz however cruised along the reef in 1890 and concluded that the shelf, which undoubtedly existed, had been caused by sea erosion of the mainland. An interesting theory concerning the shelf was also that of Professor R.A. Daly who suggested that the waters of the circum-equatorial regions had been lowered during the great ice ages by about 30 fathoms by the accumulation of waters, in the form of ice, at the poles. When this ice melted the waters flowed back to the oceans and raised the level of the seas to its former level. Meanwhile however the low level had cut a margin along the continent which was 30 fathoms deep when the waters returned. Upon that ledge the coral grew. While Wood-Jones was at Cocos Keeling in 1906, Mr. Charles Hedley was publishing his "Coral Reefs of the Barrier" in which he claimed definite evidences of subsidence in the region of the Barrier Reef. Two years ago Dr. C.M. Yonge at Low Island added his support to the subsidence theory which seemed to be a fact in regard to the Barrier Reef. The speaker also referred to the expedition to Funafuti in the Ellice group, the reports of which were published in 1904, and the boring by Charles Hedley on Oyster Cay in Michaelmas Reef in 1926 - expeditions of great geological importance. Having a bank or ledge that comes to within say 40 fathoms of the surface and in waters free of sediment, reef coral would grow. The coral colonies having grown and been killed gave rise to new colonies upon them. To this were added sediment, the remains of dead

sea animals and vegetations that ultimately lifted the great mass to just below low tide level. Thus, in the case of the Great Barrier Reef, a broad platform of coral brossia cemented by the lime and sand and fragments was formed above the shelf. On the seaward edge the mighty rollers of the Pacific hurled themselves for centuries, at times tearing up masses of coral, rock and boulders from the slope and hurtling them upon the edge of the reef. Some would be too big to be trundled further and would remain as a raised edge of the reef cemented there by lime and coral growths and lithothamnionae. Smaller fragments would be rushed across the reef flat towards the mainland. Crevice's would be filled with sand and lime that ultimately would settle it harder than any cement known to man. Pieces of large rock would wear this flat smooth and prevent the lodgment of more fragments or growth of new coral. The smaller pieces of rock and sand would be swept further across this flat until some pieces lodged. Around these would gather smaller fragments and sand and as the centuries passed this would be added to until the mass was raised slightly above sea level as a sand cay. Birds would come to rest and nest upon and then fertilise it with low grasses as in the case of Oyster Cay and Upola Bank. The grass would act as a binder, the birds would keep fertilising it, water resisting seeds such as coconuts would be thrown up, more sand would come and ultimately the island grew larger become more covered with vegetation and stand out as a typical coral island, such as Green Island. A few hardy corals would grow in the shelter of the rocks and pools of the seaward edge, none on the flat and a profusion in the immediate surroundings of the island. Further towards the mainland the reef diminished and ceased owing to the sediment borne down by the mainland rivers thus leaving a deep water channel along the coast for shipping.

EXCURSIONS.

Two particular excursions have been held since last issue, one to the proposed site of the Council botanical gardens and along the Edgehill road. This centre is a happy hunting ground for Naturalists with a bent for flora and insect study. Dr. Flecker and Messrs. M.J. Manski and L. Wright were particularly valuable as guides to the party which was organised by the Excursion Secretary, Mr. W.M. Grant. The second outing was held on Sunday March 26th, to Green Island. It was made primarily with the purpose of instructing and examining guides although a number of others joined the party including several visitors from the South. Only one prospective guide, however, submitted himself for examination by Dr. Flecker and Mr. V. Kennedy of the Board of Examiners. The tide was low for about three hours before the boat left on return, and a good study of the reef was had. Several specimens of extended *Fungia Danae* (Mushroom coral) were seen and a large number of holothurians, soft coral, *Porites*, *Acropora*, and *Pavonia* corals, sea urchins, anemones with crabs and coral fish, encrusting lithothamnion, star fish, a sea hare, and a host of other forms of marine life that can only be seen by wading out at low tide. The visitors expressed their appreciation of the help that the Naturalists Club through its representatives had been to them. Unfortunately there was insufficient time to study the island itself for which another trip is proposed. It is of interest to note that the Club's "Comprehensive Guide Book to Green Island" is nearing completion. It is in the expert hands of Dr. Flecker.

GENERAL NOTES.

THE STARGAZER ---- ICHTHYSCOPUS.

The Stargazer, exhibited at the February meeting of the Club as an unknown fish, has been identified as *Ichthyscopus lecker*. It was caught on a fishing line by Mr. Rasmussen about two miles from the mouth of the Barron River, and about half a mile from the shore. Upon the lines being hauled in, the fish fell into the bottom of the boat but immediately started to climb up the side where it remained. Its breathing could be noted by the peculiar respiratory organs (quite apart from its gills) on each side of the dorsal aspect behind the head.

WEEPING GUM ----- MAHOGANY.

A specimen of this tree, *Eucalyptus botryoides*, raised from seed about nine months ago in Cairns, which has been planted at the South West corner of the Old Age Pensioners Reserve, Cairns, is already over three feet high and is probably one of the first planted in this district. It is a native of Gippsland, Victoria and apparently thrives very well here.
