
THE NORTH QUEENSLAND NATURALIST

CAIRNS

Journal of

NORTH QUEENSLAND NATURALISTS CLUB

Founder, Presd. The late Dr. HUGO FLECKER.

OBJECTS - The furtherance of the study of the various branches of Natural History and the preservation of our heritage of indigenous fauna and flora.

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"Each Author is responsible for the opinions and facts expressed in his or her article".

Club Officers -- September 30, 1969 to September 30, 1970.

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BOOK REVIEW

"ORCHIDS IN AUSTRALIA"

The long-awaited complete works of the late W. H. Nicholls have been reproduced in one volume by the Publishing firm Thomas Nelson of Melbourne under the title of "Orchids of Australia". This is a large volume with the sheets 13 x 10 inches and comprising 129 pages of descriptions and 476 pages of illustrations in full colour. It is unquestionably the most significant or at least as significant as any contribution to Australian orchidology this century and will undoubtedly remain an important reference work on Australian orchids for all time. One wonders how a man in a short lifetime could produce so much in such detail and it is a matter of the deepest regret that the author did not live to see his complete works published (he died in 1951).

The descriptions are excellent and the illustrations magnificent, giving, for the most part, a flowering plant in natural size and natural colour and enlargements in detail of some of the important parts of the flower. One must also compliment D. L. Jones and T. B. Muir for their excellent editing. Their task of arranging in an orderly fashion all of Nicholls' works and checking the nomenclature and bringing it up to date must have, indeed, been very onerous. Compliments are also due to the publishers who have been able to produce such a volume to retail at 30 dollars.

Being such an excellent work, one is loth to be at all critical but as a reviewer, one is duty bound to point out a few of the shortcomings. The work is entitled "Orchids of Australia" which is apt to give the impression that the work covers all the orchids of Australia but this is not the case; as one instance, a single species of *Habenaria* is described and illustrated, whereas about 15 occur in Australia. It would have greatly enhanced the value of the volume if at least mention had been made of those Australian species not described and illustrated in the work. In the editors' introduction, one is assured that the arrangement of the genera is basically (with a few minor modifications) that of Pfitzer in *Naturlichen Pflanzenfamilien* ii, 6 (1889). However on going through the text one is not always sure of the affinities of each genus as no indication is given of where a group begins and ends, and unless the reader has a copy of the relevant volume of *Naturlichen Pflanzenfamilien*, which the average reader certainly would not possess, he is often left guessing. There are two small criticisms that could be levelled at the publishers: a few of the reproductions of the illustrations are blurred and the binding looks rather fragile for such a volume that will be used repeatedly for many years.

One is very hesitant to say anything about the author's work as the general standard is very high. However, the colour, in some instances, seems to be slightly garish. Longitudinal sections of the labellum and column in some of the genera, particularly those of the subtribe *Sarcanthinae*, would have greatly assisted the average reader in gaining an understanding of the distinguishing features of a particular genus. Keys to the species of the various genera would have greatly enhanced the usefulness of the book but their absence is understandable when one realises that the author did not live to complete his task.

A. Dockrill.

TRINITY BAY

A brief discussion on its mudflats, mangroves and swamps.

Cairns is a growing city situated on Trinity Bay. Visitors seeing for the first time the mudflats and mangroves which comprise our foreshores and the swamps in the middle of the city, may be excused a disparaging remark or two, particularly if they have been expecting coral sands and bikini clad girls so popular with writers of tourist literature. Yet these same mangroves, mudflats and swamps - or wetlands as they are called - both in Trinity Bay and elsewhere round the coast of Queensland will play an important part in our country's ability to feed an ever increasing population.

It has long been recognised that these wetlands serve as developing grounds or nurseries for prawns and shelter and feed many juvenile and adult species of estuarine and coastal fishes (barramundi is one) together with many other marine creatures such as crabs, oysters, eels etc. There is an abundant supply of food available to them either growing amongst the mangroves and sea grasses or on the mudflats and this is added to daily by plankton brought in from the sea by the tides. Visual evidence of this is the tremendous numbers of crabs, mudskippers, etc. that can be seen on the mudflats and the thousands of wading birds that feed on them for many months of each year.

As the prawning industry of North Queensland is potentially a big one, and therefore important to the economy of Queensland as a whole and Cairns in particular, it may be in order at this stage to make a brief mention of the life cycle of the commercial prawn.

Spawned in the deeper waters off the coast, the eggs hatch and the young prawns in their millions gravitate to the upper layers of the sea where they become part of the food chain of fishes and other marine animals. Being free swimming and helped by favourable winds and currents, the survivors move into the coast and find some shelter from predators among the mangroves, up the river estuaries and in the swamps that connect with the sea. Here they spend the greater part of their lives feeding and developing and in the course of doing so many become prey for the fishes in this habitat. When fully grown and with the appropriate season and conditions they move out to deeper waters where mainly they are caught and become food for man.

As well as the Barron River, many small creeks flow into Trinity Bay and the total length of mangrove fringed shoreline up these estuaries and around Admiralty Island is considerable. They must maintain a tremendous marine population whose withdrawal for any reason would have considerable impact on the total number of prawns taken each season by trawlers, with a similar effect on the catch of coastal and estuarine fishes.

These wetlands have been in existence for many years but that is no guarantee that they will continue for a similar period in the future. They and their inhabitants are very vulnerable to pollution in whatever form it may take, be it harmful effluent from factories, city drains or sewer, excessive silt from dredging, pesticides carried by streams into the bay, from a major spill from an oil tanker or reef drilling, or other causes. Reclamation for industry and housing and also the draining of swamps has its effect in reducing the total area of these wetlands so

that serious thought must be given to their preservation. Otherwise the contribution they now make to the total food supply available for man's consumption would be curtailed.

Jack Cassels.

DO GIANT CLAMS EAT STARFISH EGGS?

Conservation of the Great Barrier Reef is a matter on which widely varying opinions continue to be expressed. What has emerged most clearly is the inadequate state of our knowledge of reef life as a whole.

Mr. Doug. Scullett of Port Douglas was one of those who aroused public concern at the harvesting of giant clams (*Tridacna* sp.) also other fauna, from the Reef by Chinese fishermen. A letter from Mr. Scullett says, in part: "Re. the growth of giant clams, very little research has been done on this bivalve. From personal observations, I believe the initial growth from spawn to about one foot is rather rapid, say two to three years, then the rate decreases to nil eventually. I know of a few shells about two feet that have made no apparent change in size over fifteen years. It follows that the shells the poachers were harvesting about three feet and upwards - would take at least fifty years to grow.

"It is noticeable that the quantity ratio between giant clams and horse-shoe clams (*Hippopus hippopus*) on any reef is about 100 to 1 in favour of the horse-shoe clam. ... Some of our larger fish predate on the horse-shoe clam. Thus the reproduction rate of the giant clam on the reefs that have been pirated will be extremely slow and probably take centuries to get back to normal".

Could the depletion of giant clams on large areas of reef over a period of years have contributed to the build-up, during these same years, of the Crown of Thorn starfish plague?

K. J. Morris.

COLOUR CHANGE OF BLACK BUTCHER BIRDS

In the December 1969 issue of the journal, Mr. J. Moore tells of a Black Butcher bird, brown phase, changing its colour to black. I have had numerous butcher birds of both colour phases in my garden and have never seen this change. However, on Feb. 24th 1970 a bird came into the garden in a peculiar mottled state, obviously in the middle of its colour change. It was more black than brown, but still had numerous areas of brown feathering. I am therefore able to confirm Mr. Moore's observations on this little known fact.

Marion Cassels.
Edge Hill 1970.

ANOTHER AUSTRALIAN NOVELTY

In various parts of east coastal Australia, it is not unusual following rain to find on concrete paths, long, narrow, flat, green, brown or grey, slow-moving worms which are very sticky to the touch and most difficult to pick up. These are land-planarians. They range up to five or six inches, and longer, and extended fully may be less than a quarter of an inch in width. They are similar to freshwater, marine and parasitic flat-worms (such as the fluke), and zoologically curious since without any important obvious distinctive change, they possess the ability to live on land, in damp places such as in forest litter, under fallen bark, under stones, and similar shelter.

In such a place, the members of the North Queensland Naturalist's Club found a flat worm about $2\frac{1}{2}$ inches long, just under $\frac{1}{2}$ inch wide, handsomely chocolate-brown above, nearly white below, and sticky. The latter the sign of an animal which moves on a slime trail, as do the slugs and snails.

Received, it was obvious on sight that this was a land-planarian; but as has been my experience with other of the lesser Australian animals, it quickly proved itself to be typically Australian. It was entirely unfamiliar with the rules and etiquette of being an ordinary land-planarian.

It moved rapidly. Worse! It could and did in an entirely improper unplanarian manner, raise the anterior third of the body high off the ground, extend and move this rapidly from side to side, gently touch only the tip down to the ground, lower the whole to the ground and raise it again; and repeat this to a degree which ordinary planarians do not do.

With this behaviour, it rapidly persuaded me I was in error in thinking it only a land-planarian. Searching all the other possibilities, excluding one after the other, left only that it is indeed an astonishingly different kind of land-planarian, another of the amazingly novel animals of the Australian fauna, a matter which nobody could recognize who knew it only as a preserved specimen in a bottle.

It can only be hoped that the Club will again be fortunate, find more specimens which will provide the opportunity for the further desirable observations on the live animal.

L. R. Richardson.

POT POURRI

NEW BIRD FOR CAIRNS?

In February 1969 I was driving down the Esplanade, Cairns, when I noticed a large bird on the tidal flats that I had not seen before. It was standing beside some Silver Gulls (*Larus novae-hollandiae*) and was more than twice the size of them. It had a heavy black bill, hooked and tipped with white; the tail was wedged, white with a black edge; the body and wings were noddled brown and buff and there were slight striations down the side of the neck and shoulders; the underparts were whitish and a dark line extended back from the eye; short black legs and black feet; there was a faint brownish ring around the head. I could not identify this bird myself

so sent the description to Mr. Keith Hindwood who told me it was either a juvenile Dominican Gull (*L. dominicanus*) or Pacific Gull (*L. pacifica*). The bird was seen by various other bird watchers namely Mr. Noel Jack of Brisbane, Mr. Len Robinson of Melbourne and Mr. Ellis McNamara of Mt. Kembla. Now in November 1969 the bird is in just about full adult plumage and Mr. Len Robinson who was visiting Cairns at this time positively identified it as a Dominican Gull. I have not seen any record of this bird being found in this area before. My thanks to these gentlemen for confirming the presence of this bird and identifying it for me.

Marion Cassels.

ANOTHER PREDATOR ON THE CANE TOAD (*BUFO MARINUS*)

At Yorkeys Knob in the garden of Dr. S. Watsford, a female Koel is a regular visitor and has become so tame that she will eat food thrown down at Dr. Watsford's feet. One day he was working at a garden table made from slatted wood, when the Koel flew down with a small cane toad, wedged it tightly in the slats of the table, then ripped the toad open and eviscerated it. Having enjoyed her meal she flew away and came back with another one which she proceeded to deal with in the same manner. She repeated this another twice before being satisfied.

Marion Cassels as told by Dr. Watsford.

oOo

AN AMAZING BEETLE FROM NEW GUINEA

Phillip H. Colman
Department of Molluscs.
Australian Museum

For two years until recently I was a Field Associate in Entomology for the Bernice Bishop Museum of Honolulu, and my stamping ground was New Guinea. The Bishop Museum, under Dr. J. Linsley Gressitt as Director of the Entomological Department, has had a continuing programme of entomological research in the Pacific, and a large part of this has been centred in New Guinea. Although the final aim is to collect and describe all insects from these areas, certain groups have been particularly sought after and are being written up at present in the Bishop Museum journal "Pacific Insects". So, Dr. Gressitt has published considerably on the beetle family Crysomelidae, and the Hispinae, Mr. A. Samuelson has documented the Alticinae, or flea beetles, and Mr. J. Sedlacek is at present working on the Lycidae. One particular group, the genus *Gymnopholus* of the Curculionidae or weevils, has proved of extraordinary interest, and the following general account is designed to show why.

Gymnopholus, a genus of large weevils endemic to New Guinea, has to date about 60 known species. Size ranges from about three quarters of an inch to one and one half inches, and all species occur in the medium to high altitudes, from about 800 to 3000 metres. They are slow moving insects with fused elytra, so that the only method of locomotion is by walking. They

are sexually dimorphic. The type of the genus is *G. weiskei* Heller, a medium altitude species slightly larger than an inch in length and a polished black. It is quite a common insect in certain areas. Some other members of *Gymnopholus* s.s. are more brightly coloured, black with brick red spots on the elytra or iridescent greenish scales in places.

However, Gressitt erected the subgenus *Symbiopholus* to incorporate certain higher altitude species, including some of extra-ordinary interest in that they show a symbiotic relationship with an amazing array of cryptogamic plants such as lichens, algae, etc. which grow on their backs. Even more amazing, certain other small animals, mites, nematodes and rotifers have been found within this "garden". These species show a special modification of the dorsal surfaces, of depressions and grooves between the rugae, to encourage the establishment, growth and protection of these plants. It appears also that the weevil excretes a secretion to encourage this plant growth.

So far about 15 families of plants have been associated with this epizoic symbiosis. They include lichens (2 families), liverwarts, algae (5 families) and fungi. I have collected specimens covered with lichens, with lichen 'fronds' up to half an inch in length. Within this garden a new oribatid mite, a very small black species representing a new family, has been found living in the fungal growths. Also nematodes and rotifers have been found.

The beetles live on woody plants of various genera in high altitude moss forests where humidity is high and temperatures fairly moderate. They can walk considerable distances at times. Experiments we carried out to attempt to determine how long they lived involved marking of specimens (of *G. (S.) lichenifer* Gressitt) with bright paints and releasing them, and then keeping frequent tabs on movements. Some specimens walked several hundred yards in a matter of weeks, a considerable distance. Age has yet to be determined, though it has been estimated by some botanists that up to five years would be necessary to allow for the plant growths on some individuals.

It might be interesting to point out here that certain other insects have been recorded as having a symbiotic relationship with plants, though only one other genus *Pantorhytes*, has an association with animals as well. The desert locust of India, *Schistocerca gregaria* Forsk has been recorded with algal growth on wings; some beetles in New Guinea have, at times, a spectacular growth of algae and lichens - various higher altitude species within the genus *Pantorhytes* (which includes the low altitude and great pests of cocoa, *P. szentivanyi* Marshall and *P. platus* Oberthur); a new species of Colydiid beetle *Dryptops phytophorus* Samuelson; and various genera of the Papuan Cryptorrhynchinae.

For further reading the following are recommended.

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| Gressitt, J. L. | Epizoic Symbiosis: The papuan Weevil Genus <i>Gymnopholus</i> (Leptopiinae) Symbiotic with Cryptogamic Plants, Oribatid Mites, Rotifers and Nematodes. |
| Aoki, Jun-Ichi. | Pacific Insects 8 (1):221-280, May 10, 1966. An Oribatid mite, <i>Symbioribates papuensis</i> representing a new family, from cryptogamic plants growing on backs of Papuan weevils (Acari : Cryptostigmata). <i>ibid</i> , 281-289. |

- Samuelson, G. A. A new Papuan Colydiid beetle with epicuticular growth of cryptogamic plants (Coleoptera: Colydiidae). *ibid*, 290-293
- Gressitt, J. L. Cryptogamic plants growing on various weevils and on a colydiid beetle in New Guinea. *ibid* 294-297.
- The weevil genus Pantorhytes (Coleoptera) involving Cocoa pests and epizoic symbiosis with cryptogamic plants and microfauna. *do*, 8(4): 915-965, Dec. 20, 1966.
- and Sedlacek, J. Papuan weevil genus, Gymnopholus: supplement and further studies in epizoic symbiosis. *do*, 9(3): 481-500. 20 August, 1967.

ERRATUM:

In the December, 1969 issue; "Pot Pourri", describing forest of Kapiti Island, a line was omitted. Passage should read: "... The old forest (the fire) destroyed contained many large rata trees which began their lives perched on other trees. The new generation of rata trees (are) mostly terrestrial ..."

RECORD OF A MIGRATION OF THE CHEQUERED SWALLOWTAIL

(Papilio demoleus sthenelus Macleay (Lepidoptera: Papilionidae)

By C. N. Smithers and I. B. McArtney

(Australian Museum, Sydney and C/- Post Office, Mt. Isa)

There do not appear to be any detailed references in the literature to Papilio demoleus sthenelus Macleay as a migrant.

Alexander (1917) mentions it as accompanying "enormous numbers of the butterfly Danaida chrysippus petilia" in south-west Australia in the summer of 1914-15. This is referred to as "migration" but there are no details of direction nor areas.

Barrett and Burns (1951) refer to it as being rare in southern Victoria and South Australia "and seen during only certain seasons when it then appears sporadically and usually flying fast in one direction". Details are not given.

On the 13th May, 1969, hundreds of specimens were observed by one of us (I. B. McA.) flying against a headwind in a south easterly direction on and across the Stuart Highway over a length of fifteen miles between Elliott and Renner Springs, Northern Territory.

This observation appears to be first in which direction and time of year have been recorded and establishes beyond doubt that the species is a migrant at certain times of the year.

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- Alexander, W. B., 1917. White winged black terns in Western Australia: a remarkable visitation. *Emu* 17: 95-100.
- Barrett, C., and Burns, A. N. 1951. Butterflies of Australia and New Guinea. Melbourne. i-x, 187 pp., 14 figs., 18 pls. (cf. p. 25)