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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."

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FLECKER HERBARIUM: Members are advised that all letters relating to the future of our Herbarium were duly considered in General Meeting. After thorough discussion it was decided unanimously that the Herbarium should be given into the care of the Queensland Forestry Research Station at Atherton. Each sheet may still be identified by the Flecker Herbarium stamp. Thus the extensive collections made by Dr. Flecker and others, and restored and added to in recent years by Dr. Brass and others, have become a large and valued part of the comprehensive Herbarium of North Queensland flora being established at this Research Station.

IN MEMORIUM

Leonard John Brass, born 29 May 1900 in Toowoomba, Queensland; died 29 August 1971 in Cairns. Official botanist on the Archbold expeditions to New Guinea in 1933, 1936-37, 1938-39, 1953, 1956-57, and 1959; to the Archbold Cape York Expedition in 1948. He organized and led the Cape York Expedition and three of the four post-war Archbold expeditions to New Guinea. He also made two expeditions to Africa in the late 1940's; these trips were sponsored by pharmaceutical firms. In America he was awarded the degree of Doctor of Science by Florida State University in 1962, an honor richly deserved. He was elected to Honorary Membership in The Explorers Club in 1956.

"Len", as he was known to his associates (and as the "nambawan masta," or "big taubada" to all his New Guinea friends), was a protege of the famous Queensland Herbarium (Brisbane) botanist, C. T. White. Among his peers Len was considered the finest field botanist and collector in the history of Australian botany. His tens of thousands of beautifully prepared and fully documented specimens are admired and cherished in all of the important herbaria of the world. Plant taxonomists will be working on his collections for generations to come. New species and genera of plants, too numerous to mention here, continue to be described by specialists in many families.

But Len was more than a collector. He will be remembered not only for his burning ambition to return to the field regularly, but also for the meticulous organization and planning that went into each expedition. One went "bush" to collect and to observe, and his rigorous routine went on seven days a week, month after month. It was my great good fortune to accompany Len on three major expeditions. I owe whatever professional competence I have in the field to the kind but hard schooling that Len meted out. His expedition "Summaries" are chock-full of valuable information, and are exquisite models of their kind.

Behind his well-guarded reserve was a warm and understanding gentleman.

Eminently fair but firm in all his dealings with the New Guinea peoples, Len had no patience with the kind of administrator who molly-coddled men just emerging from the Stone Age or with missionaries who substituted an empty philosophy for a culture conditioned by centuries of survival competition. He was ever intolerant of slipshod work and thinking, or of actions that detracted from the team effort and spirit so vital to the success of long expeditions. On the rare occasions when Len allowed himself more than one peg of only slightly diluted North Queensland O.P. rum, he would reminisce for hours with his mates about his years on the cattle stations of the Gulf country, his early botanical work in the Solomon Islands and in the scrubs and mountains of the lower Peninsula, and the exciting pre-war explorations of the Fly River basin and the saw-tooth mountains of Papua and Netherlands New Guinea.

Len had a particular fondness for the practically uninhabited Cape York Peninsula. He began planning the 1948 Archbold Cape York Expedition as soon as World War Two ended. This trip resulted in collections which were of major importance to the biological understanding of the role of the Peninsula as a land bridge between Queensland and New Guinea for the dispersal of both flora and fauna during prehistoric epochs. Len and I made lifelong friendships on this trip - an important reason for Len's decision to live in Cairns after his retirement. The post of Honorary Curator of the Flecker Herbarium gave Len rich satisfaction.

The one great cross of Len's life was the tragic death by cancer of his lovely wife, Marie, whom he met and married in America. Marie joined the Cape York Expedition at Shipton's Flat during September 1948. She lived at the Archbold Biological Station in Florida, where Len was Curator until his retirement in 1966. Marie died in 1954.

I cannot close this personal recollection without paying homage to the wonderfully kind and generous friends Len cherished in North Queensland. These good people made his last few years so warm and full. Only one word can describe them - they were his "cobbers"!

Hobart M. Van Deusen

THE QUEENSLAND MAMMAL COLLECTION OF H.C. RAVEN, 1921-1922

In 1921, Henry Cushier Raven, Field Representative of the American Museum of Natural History, began collecting mammals in the eastern states of Australia. During the period 14 July 1921 to 27 January 1923, Raven collected and received as gifts from his many Australian friends 1197 specimens. This professionally prepared and meticulously documented collection, which is housed at the American Museum, is one of the important cornerstones upon which taxonomic studies of Australian mammals have been based. However, this collection is almost unknown to mammalogists in Australia, except possibly through the scientific papers of Dr. George H. H. Tate, who published on some of this material in the 1940's and early 1950's.

Only Queensland collections are discussed in this article, and more particularly those from the northeastern part of the state. Raven also collected in New South Wales and Tasmania. A much more comprehensive review of the complete collection is planned. This will bring all identifications in line with present day taxonomic practice and provide information on the amount and kind of material available for study. North Queensland naturalists will be especially interested in the collection made between the dates of 30

October 1921 and 5 June 1922 at various localities south and west of Cairns. Raven then departed for Brisbane, where he was given a live echidna by the Queensland Museum. He next went to Mundubbera in southeastern Queensland where he collected for several weeks on the property of Lochaber Station. This was his final collecting camp in Queensland.

We do not know whether Raven kept a diary; no such record of his expedition has been found to date. His field catalogue and the specimen labels are the only sources of information available to us at present. A list of his Queensland collecting localities, dates, species and specimen totals is given below. A question mark following the species total indicates that the exact number is not known since the identification of specimens has not been completed. Taxonomic problems are not discussed in this article.

Locality	Date	No. Species	No. Specimens
Babinda Creek	30 Oct. 1921— 14 Nov. 1921	87	59
Dinner Creek (9 miles S.S.E. of Ravenshoe)	20 Nov. 1921— early Jan. 1922	167	166
Chillagoe Caves	5 & 6 Jan. 1922	3	35
Ravenshoe	10 Jan. 1922	1	1
Snubby Creek (6 miles S.W. of Ravenshoe)	11 Jan. 1922— 15 Feb. 1922	177	97
Ravenshoe	22 Feb. 1922— 25 Mar. 1922 (not continuously)	10	23
Locality name? (12 miles S.W. of Ravenshoe)	13 Mar. 1922	1	1
Kaban	2 Apr. 1922— 4 May 1922	67	25
Ravenshoe	April and May (1 or more days) 1922	5	5
Vine Creek, R'hoë Evelyn (about 8 miles N. of Tumoulin Railway Station)	10 May 1922— 5 June 1922	167	139
Herberton	May (date?) 1922	1	1
Brisbane	29 June 1922	1	1
Mundubbera	2 July 1922— 28 July 1922	157	119
Locality?	No Date	1	2
Total specimens			676

The Queensland collection includes approximately 24 species of marsupials, 6 rodents, 6 bats, platypus and echidna (monotremes). The planned construction of an Australian Hall at the American Museum was the primary reason for Raven's expedition. A representative collection of mammals, with emphasis on monotremes and marsupials, was required both for exhibit and study. This may explain, in part, the low number of bat and rodent species in the collection. Most unfortunately plans for this Hall were abandoned, the victim of the financial crisis of 1929 and the economic depression of the 1930's.

We have no description of Raven's camp at Babinda Creek, but in the remarks column of his field catalogue, next to several RATTUS entries, we read "caught in a field of sugar cane." Raven may have lived in a cane cutter's shack. He sampled both the rats and bandicoots of the cane fields and rodents

(Melomys, Uromys) of the rain forest on the lower slopes of Mt. Bartle Frere. In 1948 George Tate and I camped in the cane fields near Junction Creek, just east of Mt. Bellenden Ker, and trapped rodents and bandicoots. Raven characterized Dinner Creek in one of his notes as follows, "for several miles in every direction from this camp there is naught else than virgin tropical forest with more or less dense undergrowth." Snubby Creek is described as an area of "rocky hills." Kaban was the collecting site of wallaroos, rock wallabies, grey kangaroos, and pretty-faced wallabies, so I judge that this is an area of open savannah forest with scattered rocky outcrops. The mammals collected in the vicinity of Ravenshoe indicate that Raven sampled both scrub (rain forest) and savannah habitats; red-legged pademelons from the former, brush-tailed possums from the latter. His collection from Evelyn indicates big scrub for the most part, however, brushtails were taken regularly and one (*Sminthopsis*) was trapped. An *Acrobates* is listed from Herberton; this was probably a gift since he noted that the specimen "has been preserved in spirits for some time." When I visited Ravenshoe in 1948 Mrs. M. B. Palmer sold me four pigmy possums that her cat had caught and which were then preserved in "Metho."

Members of the North Queensland Naturalists Club could be of considerable help in this study of the Raven collection by sending me habitat descriptions of the above listed collecting localities, particularly Kaban, Evelyn, Ravenshoe and Snubby Creek. Such help would be gratefully acknowledged in my paper. Is there anyone in the Club who remembers "Harry" Raven, and possibly aided in his collecting on the Tableland?

RAVEN, H. C.

1924 *Glimpses of mammalian life in Australia and Tasmania. Natural History, vol. 24, pp. 16-28.*

TATE, G. H. H.

1952 *Mammals of Cape York Peninsula, with notes on the occurrence of rain forest in Queensland. Bull. Amer. Mus. Nat. Hist., vol. 98, pp. 563-616.*

*Hobart M. Van Deusen
Archbold Collections
American Museum of Natural History.*

*Note: Copies of the American Museum "Novitates" paper by Hobart M. Van Deusen on *Chalinolobus*, the hoary wattled bat of Queensland, can now be obtained from the author.*

THE LITTLE WHIMBREL IN THE ATHERTON DISTRICT

The Little Whimbrel *Numenius minutus* is migratory from northern Asia where it breeds during the Arctic summer and winters mainly in northern Australia, where huge flocks of many thousands have been reported from time to time. This smaller member of the Curlew family is a fairly regular visitor to the Atherton Tableland during the wet summer months from late November to early March. It visits pasture fields and appears to have a strong preference for lucerne areas, especially those invaded by destructive insects such as the smaller beetles *Chrysemelidae*.

On December 26 1964, a visit was made to a lucerne field adjoining Marks Lane approximately three miles north-east of Atherton. The owner, Mr. Gordon Willets, had informed me that large numbers of Curlew-like birds were frequent-

ing his lucerne field and appeared to be feeding on some species of insect. A search of the field was made by moving slowly through the eighteen inch high lucerne. Three birds were flushed and were recognised as Little Whimbrels, *Numenius minutus*. Soon after, from a range of about twenty five feet, a good view was obtained of two birds feeding on the small leaf-feeding Beetle *Chrysomelidae*. Moving through the twenty acre field many birds were seen and flushed. As the birds rose in flight they uttered strong and musical alarm calls somewhat like "keer-quick" repeated several times. As the birds were flushed they gradually built into a large flock which circled the field gradually rising to a considerable height. Again they circled the field coming lower each time and calling, the notes this time sounding like "ti, ti, ti," again quite musical. Soon all the birds landed and were lost to view. A count taken while the birds were in the air totalled eighty six individuals. Although the birds were wary they were not unduly so, and allowed a close approach and the observer at times had excellent views of the birds resting and feeding. Probably the main feature was the long slim neck and head which was often raised above the herbage to keep an eye on the observer. Like previous sightings the birds showed considerable buffy colour, the crown having a dark brown stripe and the eyebrows were prominent. The tail was short and barred, the bill curved downwards and had a pinkish base. The dark primaries were conspicuous when the birds were about to land. The weather during the week the birds were present in the lucerne field was hot and arid and the ground surface dry.

On February 8 1967, fifty four of this species were seen on the writer's property, and on February 18, 1968, over one hundred birds were in the same field of lucerne. On both occasions small beetles were the major source of food.

On January 21 1969, in company of Dr. F. Leotscher of Kentucky U.S.A., a visit was made to Bonars crossing about five miles north-east of Atherton. On the wet bitumen road half a mile from Tinaroo dam five Little Whimbrels and three Oriental Dotterels *Charadrius asiaticus veredus* were feeding on the small dark beetles which had been washed on to the road by heavy monsoonal rains. Dr. Leotscher was quite thrilled as both species were new for him and he studied them closely. Especially, the Little Whimbrels gained his attention as they are closely related to the Eskimo Curlew *Numenius borealis* of North America, now very rare due to hunting pressure while on migration and when wintering on the pampas of South America.

From these brief notes it will be seen that the Little Whimbrel appears to be a regular visitor to the Atherton Tableland during the wet summer months and in such feeding habitats as lucerne fields and tall pastures it could easily be overlooked.

James A. Bravery, Atherton.

THE CONSERVATION OF MANGROVES IN NORTH QUEENSLAND

E. C. F. BIRD
(University of Melbourne)

Most people think of mangrove swamps as uninteresting and unproductive places; as nothing more than waste land awaiting reclamation for some useful purpose. Until recently the only people who might have dissented from this view would be those biologists who recognised mangroves as having scientific interest, especially the physiological adaptations of mangrove plants to the intertidal

environment. It has also been observed that the mangrove community as a whole is ecologically rich, sustaining associated populations of mud-burrowing fauna, including crabs and prawns, together with oysters and barnacles that adhere to the roots and trunks of mangrove trees, birds, including cormorants, herons and ibises, that live amid the foliage, the notorious biting insects, and the occasional crocodile.

But in recent years, research in various parts of the world has shown that mangrove communities are more important than was previously thought. On the one hand they act as land-building and shore-protecting agents; their root structures (the vertical breathing-tubes, or pneumatophores, of *Avicennia* and the prop-roots of *Rhizophora*) serve to trap and stabilise muddy sediment that would otherwise remain drifting to and fro in suspension, thus building up new depositional land and the same time protecting the shore from ordinary wave erosion. This has become most obvious when the clearance or destruction of a mangrove fringe has resulted in the erosion of land that had formerly been built up, leading in turn to the shallowing of bays and estuaries and the siltation of navigable channels, with increased expenditure on draining and maintaining port approaches.

On the other hand, mangrove swamps have been shown to function as 'ecological engines' which concentrate, process and transmit the nutrients that go to sustain the biological communities - especially fisheries - in coastal waters. This is why estuarine fisheries are usually so productive. In Moreton Bay the Head of Fisheries in Queensland's Department of Harbour and Marine has assessed the income received from exploitation of fishery resources nourished from the bordering mangrove swamps and calculated that the mangroves, far from being useless, are actually yielding a net return of about \$300 per acre per year. Similarly, the mangrove swamps of North Queensland must be contributing nutrients to coastal waters and helping to stabilise the shoreline.

Conservationists are now beginning to urge that we recognise the value of mangrove swamps, that we stop thinking of them as 'land ripe for reclamation', and that we see that they are cleared or destroyed only where there are really good reasons for doing so. There is no point in obliterating a mangrove swamp to build an Angler's Paradise of real estate if this is going to impoverish the fishery. When reclamation of part of the mangrove swamp is unavoidable, the work should be done carefully, with the aim of minimising disturbance to adjacent mangrove areas. In local terms, this means that further reclamation for dock and harbour construction at Cairns should be planned and carried out with great care, in order to conserve the mangrove fringes of Trinity Inlet and Admiralty Island. If they were lost, vast quantities of mud would be released into Trinity Inlet and the maintenance of Cairns Harbour would inevitably become more difficult and costly than it is now. Moreover, the dark green mangrove fringe is a scenic asset, and it is still possible to catch fish in Trinity Inlet: unfortunately, there is not yet a Nature Reserve hereabouts, though Admiralty Island would be an excellent place for one, with many of the features that attract visitors to the Everglades National Park in Florida.

Dumping of garbage and earth fill from the landward side is also a threat to mangrove swamps. Few projects could be less wise, in the present state of the sugar industry, than the destruction of part of a valuable fish-sustaining mangrove swamp in order to reclaim land to extend the sugar acreage!

The problems of mangrove conservation must be looked at on an Australia-wide scale. Mangroves occur right round mainland Australia, but are very sparse and scattered on the southern and western coasts of the continent. In Victoria there is only one mangrove species (*Avicennia marina*), forming a scrubby fringe on the shores of estuarine areas, such as Westernport Bay; but even here the mangroves are important as agents of land building, shore protection, and ecological

stability. On the east coast the number of mangrove species increases from one on the South Coast of New South Wales to nine in the Brisbane area, and more than twenty in North Queensland. (see Macnae, Australian J. Botany, 1966). The widely-held belief that there are vast areas of inaccessible, undisturbed, natural mangrove swamp in northernmost Australia is, unfortunately, a myth. The shores of the Gulf of Carpentaria, of Arnhemland, of Van Diemen Gulf, and of the north-west are predominantly sandy and rocky, and where mangroves do occur they are often no more than a narrow fringe, backed by salt plains and wet marshland. Only locally (as in the Darwin area) are the mangrove swamps on as large a scale as those of North Queensland. The most extensive, most luxuriant, and most varied mangrove swamps in Australia are found on the humid tropical sector of the North Queensland coast, between Townsville and Cooktown. The finest samples are found on Hinchinbrook Island, and alongside the Hinchinbrook Channel: on the shores of Rockingham Bay: near the mouth of the Tully River: around Mourilyan Creek and Nind Creek near Innisfail: at Mutcheron Inlet: in Cairns Bay and Trinity Inlet: at the Mowbray River mouth: close to Port Douglas, and alongside the lower Daintree River. Typically there are distinct zones, often *Avicennia* on the seaward fringe, followed by *Rhizophora*, then mixed mangrove communities with *Bruguiera*, and *Ceriops* species, with swamp paper-bark forest, and sometimes a transition to rain forest, at the landward margin. Farther to north and south the dry season lengthens and annual rainfall totals diminish; correspondingly, mangroves become less extensive, less varied, and less luxuriant, and enclaves of salt marsh and saline flat develop. Small enclaves of this kind are even present on Admiralty Island, and amid the mangrove swamps south of Trinity Inlet, indicating the locally drier conditions in the 'rain-shadow' of the Malbon Thompson Range.

There are many ecological problems to be solved in the North Queensland mangrove swamps. No doubt there is much local information on which detailed studies could be based. My own interest is primarily in the geomorphology of the coast, but I had many useful discussions with Dr. L. J. Brass, who knew a good deal about local mangrove swamps; the last such discussion took place one evening in August, when I visited him in the Cairns hospital, carrying a bouquet of plants collected that day from Admiralty Island. Though obviously very sick, his interest in mangroves (including his experience of Florida mangroves) was just as evident as on earlier occasions: he identified most of the plants for me, and commented that it would be valuable for visitors such as I if the Herbarium could provide a reference collection of these coastal species. Unfortunately, Dr. Brass has since died, and North Queensland has lost one of its foremost mangrove enthusiasts.

Obviously we should have Reserves protecting the best and most interesting of the North Queensland mangrove communities. Back in 1966, Dr. L. J. Webb published a study of habitat types in the wet tropical lowlands of North Queensland (Proc. Roy. Soc. Q'land, 1966). He recommended the establishment of 20 National Parks and Scientific Reserves in the coastal sector between Ingham and Cape Tribulation, three of which (Hinchinbrook Channel area, mouth of Russell River, and south of Daintree river mouth) included substantial mangrove areas. It may well be that further ecological studies would lead to recognition of additional mangrove swamp samples worthy of conservation in Reserves: those of Admiralty Island and Trinity Inlet, the mouth of the Mowbray, and close to Port Douglas deserve particular attention.

As well as preparing the way for the establishment of Reserves containing mangrove communities, we have to publicise the importance of mangrove conservation. The recently published Viewpoint on Mangroves put out by the Australian Conservation Foundation will be useful here. Both aims fall within the declared objectives of the North Queensland Naturalists Club.