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The

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NORTH QUEENSLAND NATURALISTS' CLUB

Meets at Girls' and Infants' School, Abbott Street, Cairns, usually on second Monday in each month, at 8 p.m.

Next Meeting—Monday, 20th April, 1936.

Lecture by Mr. E. Williams, "The Role of Yeast in Industry," illustrated by microscopes and episcope.

The March Meeting.

A most interesting address was given by Mr. R. Archbold, leader of the American Scientific Expedition to the Fly River, New Guinea, who arrived by amphibian aeroplane on his way thither. He spoke of his experiences of collecting in Madagascar and in New Guinea, likewise pointing out the advantages of the assistance of the amphibian in passing up the Fly River.

The Hon. Secretary will be grateful for any spare copy of this journal, Vol. III, No. 35, August, 1935.

Exhibits.

Mr. B. O. Balfe—Several different species of live tortoises.

Mr. L. D. Sykes (Melbourne).—Victorian and North Queensland spiders, labelled with short descriptive notes. Glass-topped boxes improvised from cigarette tins for sending specimens by post.

Mr. R. Pawsey—Photograph of Spear Fish (*Xiphias gladius*), caught at North Palm Island.

Walter Brake—Caterpillars (unidentified feeding on leaves of *Quisqualis*).

Dr. H. Flecker—Specimen of *Xylosma ovatum* in pot together with

flowers, pressed. Other herbarium specimens.

HYPOLIMNAS MISIPPUS.

In our next issue will appear the Life History of *Hypolimnas misippus* (not previously published) by Mr. R. Hunter.

BOOK REVIEW.

9. OUR INSECTS. 212 pp., 100 photographic plates, incl. 2 in colour. Printed by H. Pole and Co., Brisbane. Compiled by the Syllabus Notes Committee of the South Coast Inspectoral District, Brisbane. This is a magnificent handbook with fine illustrations on each alternate page. The various groups of insects are named with both the vernacular and zoological terms, together with terse descriptions. Intended for use in schools, its aim is to teach pupils to observe for themselves and thus to foster a love for natural objects such as insects. It is only by such means that a permanent appreciation, interest and love for the beautiful living things about them can be secured. The Educational authorities in Brisbane acting under the stimulus of Mr. W. F. Bevington, District Inspector of Schools, is heartily to be congratulated on its fine effort.

FURTHER NOTES ON ORCHID POLLINATION

By KENNETH MACPHERSON, Proserpine, and the REV. H. M. R. RUPP, Woy Woy, N.S.W.

In this journal for April, 1935, we gave the results of personal observations in connection with the pollination of *Cymbidium iridifolium*. The native bee described as the agent of fertilization in the case of this orchid has been identified by Mr. Tarlton Rayment as *Trigona Kockingsi* (Ck'll).

Since then one of us (K.M.) has closely watched the process of pollination in the case of the well-known Rock Lily Orchid (*Dendrobium speciosum* Sm.) The observations recorded below were taken at Proserpine in North Queensland, and it remains to be seen how far the strange facts here published tally

with those observed by other naturalists in different areas. *D. speciosum* has an extensive range along the coastal belt of the whole of Eastern Australia, from the far north of Queensland to the county of Croajingolong, in Victoria. Fitzgerald expressed the opinion that not more than one flower in a thousand of *D. speciosum* sets a capsule in New South Wales. (Quoted by Darwin, "Fertilization of Orchids," p. 281).

In the course of the Proserpine observations, the bee named above in connection with *Cymbidium iridifolium*, together with an allied species (*T. symei*, Raym.), was found to visit the flowers of the Rock Orchid freely, but it was definitely established that these bees refuse to act as the agents of fertilization! This is the more remarkable in that *T. Kockingsi* at least displays no such unwillingness in the case of *Cymbidium iridifolium*.

On August 26, 1935, a careful watch was kept on the *Dendrob* flowers. The labellum of *D. speciosum* is loosely articulate on the foot of the column. A number of the little bees named above were observed to visit the flowers. In no instance were any pollen-masses seen adhering to their backs at this stage. As soon as they entered the flowers, the bees appeared to realise that their visit was fruitless, for they immediately endeavoured to escape. As in the case of *Cymbidium*, however, the labellum at once imprisoned them against the column. Their struggles were considerable, but they were set free by breaking the anther-sac, and pollen-masses immediately adhered to their backs. When they emerged they seemed to be in considerable distress, and unable to fly. They

spent some time in cleaning themselves, and it was observed that they deliberately got rid of the pollen-masses before they finally flew away, not to return. The observer formed the opinion that the initial inability to fly was caused by the sticky secretion of the stigmatic plate.

The *Dendrob* flowers were still kept under close observation. Three days later, two individuals of a larger species of bee (*Euryglossa subsericea*, Chis.) were noticed hovering about, and both entered flowers. Like the *Trigonas*, they prepared to leave again almost at once, but being larger and stronger they quickly burst the anther-sacs and emerged with pollen-masses. They made no effort to remove these, but at once proceeded to visit other flowers, where pollen was deposited by them on the stigmatic plate. One specimen was then captured for the purposes of identification. It was observed that soon after the breaking of the anther-sac, the labellum loses all traces of irritability.

A slight element of mystery remains. The visit paid by *Euryglossa* is not appreciably longer than that of the two species of *Trigona*. Yet in the former case it would appear that there must be some reward, for the bee at once proceeds to visit other flowers: while the visit has such distressing results for the smaller bees, that they refuse any further business with the Rock Orchid. What is the explanation? If the smaller bees, wherever they exist, are habitually misled to a first and only experiment on Rock Orchid flowers, the fact may conceivably have some bearing on the scanty production of capsules by *D. speciosum*.

CENSUS OF NORTH QUEENSLAND PLANTS (Continued)

(Figures after plants indicate flowering months)

Eucalyptus pallidifolia, F.v.M. Mountain White Gum. 2, 3.
Nr. Cloncurry (Blakely), Cloncurry R. (Blakely), Flinders R. (Blake-ly).
camaldulensis, Dehm. Murray Red Gum. 4 to 6, 9 to 1.

Flinders R. (Froggatt), Mitchell R. (Blakely), Forsayth (Blake-ly), Chillagoe (Blakely), Alma-den (Blakely), Croydon (Blake-ly), Cairns (Blakely), Ch. Towers (Blakely)
var. acuminata, Maiden. Yar-row. 10, 11.

Etheridge R. (Blakely), Nr. Georgetown (Blakely), Stannary Hills (Blakely).
exserta, F.v.M. Bendo. 11 to 2. Gilbert R. (F.v.M.), Flinders Gp. (Rich. and Hed.).
umbellata (Gaertn.) Domin. Forest Red Gum. 1 to 12. Endeavour R. (Blakely), Range Rd. (Flecker), Gadgarra (Kajewski), Atherton (Blakely), Herberton (Blakely), Palm I. (Herbert), Pt. Denison (Fitzalan).
platyphylla, F.v.M. Wongola, 8 to 11. Is. of G. of Carp. (R.Br.), Endeavour R. (Hill), Stannary Hills (Blakely), Atherton (Blakely), Townsville (Blakely), Burdekin (F.v.M.), Pt. Denison (Blakely).
alba, Reinw. Timor White Gum. 5. Macarthur R. (F.M.B.), Palm I. (Herbert).
resinifera, Sm. Red Mahogany. 11 to 9. Palmer R. (Roth), Daintree R. (Fitzalan), Rockingham B. (Dall.), Head of Cape R. (Bowman).
pellita, F.v.M. Large Fruited Red Mahogany. 5 to 12. Macalister Ra. (Blakely), Kuranda (Blakely), Range Rd. (Kajewski), Rockingham B. (Dall).
phoenicea, F.v.M. Ngaingar. 1 to 5. G. of Carp. (Blakely).
clavigera, Cunn. Apple Gum. 10, 11. Is. of G. of Carp. (R.Br.), Stannary Hills (Blakely).
var. diffusa, Blakely and Jacobs, Carbeen Gum. 10, 11. Normanton (Blakely), Chillagoe (Blakely), Alma-den (Blakely), Stannary Hills (Blakely).
var. Gilbertensis, Maiden and Blakely. Gilbert River Bloodwood.
Gilbert R. (Blakely).
Eucalyptus tessellaris, F.v.M. Carbeen, 1 to 12. Is. of G. of Carp. (R.Br.), Chillagoe (Blakely), Flinders R. (Blakely), Palmer R. (Roth), C. York (Swain), Palm I. (Herbert), Pt. Denison (Fitzalan).

setosa, Schau. Rough-leaved Bloodwood, 5, 6. Is. of G. of Carp. (R.Br.), Sweers I. (Henne), Normanton (Blakely), Croydon (Blakely), Georgetown (Blakely).
peltata, Benth. Rusty Jacket, 5, 6, 12. Gilbert R. (F.M.B.), Lynd R. (F.M.B.), Einasleigh (Blakely), Alma-den (Blakely), Newcastle Ra. (Blakely), Cape R. (Blake-ly), Ch. Towers (F.M.B.), Ravenswood; Burdekin R. (F.M.B.).
latifolia, F.M.B. Round-leaved Bloodwood, 12 to 4. Is. of G. of Carp. (F.M.B.).
gummifera (Gaertn.) Hochr. Bloodwood, 11 to 5. Mt. Mulligan (Flecker), C. York (F.M.B.), Cooktown (Roth), Cairns (Blakely), Atherton (Blakely), Russell R. (Blakely), Severin (Swain), Palm I. (Herbert), Townsville (Blakely).
terminalis, F.v.M., Kulcha. 2 to 6. Mornington I. (Macgregor), G. of Carp. (Blakely), Mitchell R. (Blakely), Walsh R. (Blakely), Croydon (Blakely), Georgetown (Blakely), Gilbert R. (Palmer), Carpentaria Dns. (Crosbie), Alma-den (Blakely), Cloncurry (Palmer), Palm I. (Herbert), Townsville (Blakely), Proserpine (MacPherson).
dichromophloia, F.v.M. Red-barked Bloodwood. 4, 5. Is. of G. of Carp. (R.Br.)
citriodora, Hook. Lemon-scented Spotted Gum. 6, 7. Stannary Hills (Blakely), Irvinebank (Blakely), Mt. Garnet (Blakely), Herberton (F.M.B.), Atherton (Swain), Ravenshoe (Swain), Pt. Denison (F.M.B.).
tetradonta, F.v.M. Darwin Stringybark, 1, 7, 8. Normanton (Blakely), Norman R. (Blakely), Little R. (Blake-ly), Gilbert R. (Blakely), Mitchell R. (Blakely), Walsh R. (Blakely), Stewart R. (Blakely), Coen R. (Blakely), Batavia R. (Roth).
Torelliana, F.v.M. Cadagai. 5 to 2.

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ADDENDA

- Vol. 1, No. 11, p. 6. *Melhanian incana*. Add loc. Cloncurry (Macdonald) and mo. 7.
- P. 7—Before (*Elaeocarpus longipetiolatus*) add (E.) *obovatus*, G. Don. Woolah. 10.
Brandy Pt. (MacPherson).
- Euphorbia Mitchelliana*. Add loc. Mt. Mulligan (Flecker) and mo. 4.
- P. 8. *Bridelia tomentosa*. Ditto. *Cleistanthus semiopacus*. Add locs. Intake (Flecker), Campbell's Cr. (Flecker) and mos. 8, 10.
- Before *Phyllanthus elachophyllus* add (P.) *thesioides*, Benth., 4. Mt. Mulligan (Flecker).
- P. *simplex*. Add loc. Parramatta Swamp (Flecker) and mos. 11 to 1.
- Glochidion Harveyanum*. Add loc. Cairns (Flecker) and mo. 10.
- No. 12, p. 5. *Petalostigma quadriloculare*. Add (F.M.B.) after locs. Pt. Denison and Edgecombe B. Add loc. Malaan Rd., Ravenshoe Dist. (Flecker).
- P. 6. *Mallotus polyadenus*. Add loc. Cairns (Flecker) and mo. 10.
- M. *repandus*. Add loc. Intake (Flecker) and mo. 8.
- P. 7. *Homalanthus populifolius*. Add loc. Intake (Flecker).
- P. 8. *Ficus infectoria*. For White Fig read Mooleeah.
- F. *magnifolia*. Add loc. Behana Cr. (Flecker) and mo. 8.
- Vol. 2, p. 2. F. *crassipes*. Add loc. Malaan Rd., Ravenshoe Dist. (Flecker) and mo. 9.
- P. 8. *Arytera distylis*. Ditto.
- P. 10. Before (*Dodonaea*) *stenophylla* add (D.) *filifolia*, Hook. 10.
Pentland (Priest).
- Buchanania Muelleri*. Add loc. Edmonton (Bates) and mo. 9.
- P. 12. Before *Calandrinia* add (P.) *bicolor*, F.v.M. 4.
Mt. Mulligan (Flecker).
- Before *Drymaria* add *Stellaria*, L. *media*, L. Chickweed. Europe. 9. Malanda (Flecker).
- P. 14. *Amarantus spinosus*. Add loc. Fisher's Cr. (Priest) and mos. 6, 8, 10 to 1.
- A. *viridis*. Add loc. Cloncurry (Macdonald) and mo. 11.

- P. 16. *Alternanthera nodiflora*. Add loc. Parramatta Swamp (Flecker) and mo. 11.
- P. 18. End of list, add (P.) *elatus*, R.Br. 8.
Mareeba (Flecker).
- P. 22. Before (*Rumex*) *halophilus*, add (R.) *Brownii*, Campd. 9. Malanda (Flecker).
- Pimelea haematostachya*. Add loc. Hughenden (Priest) and mo. 4.
- P. 24. Before (*Jacksonia*) *odontoclada* add (J.) *ramosissima*, Benth. 10.
Betw. Torrens Cr. and Pentland (Priest).
- Vol. 3, p. 7. Bottom of page. Add (*Indigofera*) *Anil*, L. W. Indies. 10.
Mulgrave R., Aloomba (Flecker)
- P. 19. *Millettia pilipes*. Add loc. Russell R. (Miss Hooper) and mo. 9.
- P. 23. *Zornia diphylla* v. *filiformis*. Add loc. Cairns (Flecker) and mo. 11.
- Desmodium polycarpum*. Add loc. Strathdickie N. (MacPherson) and mo. 4.
- Before *reniforme* add (D.) *trichocaulon*, DC. 3.
Strathdickie N. (MacPherson).
Muel'eri, Benth. 4.
Mt. Mulligan (Flecker).
- P. 43. *Derris trifoliata*. Delete loc. *Proserpine* (Macpherson) and mo. 11 and add loc. Parramatta Swamp (Manski).
- Pongamia glabra*. Add loc. Myrtle Cr., Gregory (MacPherson) and mo. 11.
- P. 48. *Acacia mangium*, v. *holosericea*. Add loc. *Proserpine* R., Foxdale (Macpherson) and mo. 6.
- Vol. 4, p. 3. *Pithecolobium grandiflorum*. Add loc. Green I. (Cummings), Brown B. (Flecker) and mo. 8.
- P. 7. Before (*Jussiaea*) *suffruticosa* add (J.) *repens*, L. 10.
Mulgrave R., Aloomba (Flecker)
- Aristolochia pubera*. Add loc. Mt. Mulligan (Flecker) and mo. 4.
- P. 12. Before *Myriophyllum verrucosum* add (M.) *variaefolium*, Hook. 7.
Barron R., Mareeba (Flecker).