I wish to thank the Director of the British Museum (Nat. Hist.) and Mr. T. G. Howarth of the Department of Entomology for allowing me to examine specimens in the Museum collection. The photographs were taken by Mr. B. Stewart.

REFERENCE

COMMON, I. F. B. (1964).—"Australian Butterflies". (Jacaranda Press: Brisbane).

COPROPHAGOUS WEEVILS (COLEOPTERA: CURCULIONIDAE)

By J. L. H. WASSELL

"Silver Plains", via Coen, North Queensland

[*Manuscript received February* 17, 1966]

Weevils may be associated with plants in various ways but coprophagy, or dung-feeding, does not appear to have been noted previously in the family Curculionidae, though it is well known in other families of beetles. The association of weevils with the dung of plant-feeding marsupials is here recorded.

The following observations were made in 1963 at Silver Plains Station, Port Stewart, on the east coast of Cape York Peninsula, Queensland. I am indebted to Mr. R. T. Thompson, British Museum (Natural History), for naming the beetles and to Mr. G. B. Monteith for arranging their identification. The specimens have been presented to the Department of Entomology, University of Queensland.

The species concerned are *Tentegia ingrata* Faust and *Tentegia bisignata* (Pascoe) (Cryptorrhynchinae). Mr. Thompson states that *T. bisignata* has been recorded from seven localities in eastern Queensland, and that both species were collected at Ravenshoe by Dr. E. B. Britton in 1962.

Tentegia ingrata

The adult of this species collects and caches dung pellets of wallabies and kangaroos (Macropodidae).

On open, hard or lightly grassed land the weevil moves the pellet by grasping it and rolling or pulling it. Where there is light cover of sand or dust (as in most instances there is) the beetle appears to lie with the legs and side of one elytron touching the ground, while the other legs are fully extended upwards and around the pellet. By pulling with the uppermost legs, it succeeds in lifting the pellet and transferring it to its other side, rolling over on its back while it makes the move.

Pellets are cached in holes and excavations *under logs*. Minimum diameter for logs seems to be four inches; a smaller diameter may not give protection from heat and/or accidental disturbance by vertebrates. Stones, pieces of fallen bark, pieces of broken termite mounds, dried pats of cattle dung and clods of earth have been turned over and the ground searched for pellets but I have never found them under any cover but logs.

Pellets are brought from, for a weevil, a prodigious distance. One I saw working was six feet from the nearest log, and that log did not have a hole under it. It is always a fresh surprise when I come upon one of these weevils moving a pellet of dung—the first sight has always been that of an irregularly shaped dark object waving erratically in the air. These beetles must be very strong and capable of prolonged vigorous action.

I have not been able to discover how the weevil finds and takes possession of holes. Many holes examined that had no pellets in them, were inhabited by spiders, ants, other beetles, or geckos. Pellets are found jammed singly into small holes, including the holes of large ants (ants are sometimes present as well), or in fours to sevens rolled into old and partly fallen-in holes of freshwater crabs (*Paratelphusa* sp.), or up to fifteen or twenty packed neatly into the excavations made by the large funnel-web spiders (Mygalomorphae). Many crab and spider holes are not under logs and have their openings in bare or grass-covered ground; these are never used by the weevils.

The eggs are probably laid after the pellet or pellets have been cached. On several occasions I have found an adult with the pellets though, at the time, none of the pellets had an emergence hole. No more than one adult was found with the pellets in one hole or cavity, except where one cavity with 20 pellets had three adults, and one cavity with 15 pellets had a single adult and a pair in cop.

Only one larva is found in each pellet. The larva consumes it from the inside, in a way similar to termites in wood, and the hardened peripheral layer of the pellet is not broken until the adult emerges. Larvae are helpless if pellets are broken open; they appear to need the support of their own burrow to permit them to continue to feed. The pupa has a very supple abdomen which it can move vigorously.

The breeding season probably embraces the whole of the dry season. During the "wet" a lot of the country where I find the pellets is very wet, even to having half to one inch of water covering it for long periods.

When collecting on August 27, 1963, I took from under logs, single adults with no pellets, adults with pellets, pellets with very young larvae, pellets with well-developed larvae, pellets with adults emerged from the pupal cases but not from the pellet (adults emerge lighter in colour, and harden and darken inside the pellet), pellets with adults recently emerged (they leave a trail of powdered pellet dust on the ground), and finally, a pair of adults in cop.

Tentegia bisignata

One adult emerged on August 8, 1963 from a pellet of possum (Phalangeridae) dung found on July 25 under a log in conditions similar to those described for *T. ingrata.* Two possum dung pellets were found in the hole but one was negative. Another specimen was taken from under a log with two small pellets, both entire; this dung could not be identified but was assumed to be from another vegetarian.

PROCEEDINGS OF THE ENTOMOLOGICAL SOCIETY OF QUEENSLAND 1965

Officers and Council

President: MR. H. STANDFAST, Queensland Institute of Medical Research, Brisbane.
Vice-Presidents: DR. R. H. WHARTON, C.S.I.R.O., Yeerongpilly, Brisbane.
MR. W. HASELER, Department of Lands, Brisbane.
Secretary: MISS L. A. POWELL, University of Queensland, Brisbane.
Treasurer: MR. J. H. BARRETT, Department of Primary Industries, Brisbane.
Other Members of Council:
DR. A. W. S. MAY, Department of Primary Industries, Brisbane.
DR. B. R. CHAMP, Department of Primary Industries, Brisbane.
DR. E. J. REYE, University of Queensland, Brisbane.
DR. G. H. S. HOOPER, University of Queensland, Brisbane.

Proceedings

February 22 **Dr. E. H. Slifer** on "Fine Structure of Insect Olfactory Organs".
March 8 ANNUAL MEETING. **Mr. W. Haseler** gave his Presidential Address "A Survey of the Biological Control of Weeds in Queensland".
March 22 **Dr. P. Mattingly** on "The *Anopheles gambiae* Problem in Africa, illustrating the Significance of the Micro-taxonomy for Epidemiology and Control in Various Parts of Africa".
April 12 **Mr. H. Standfast** on "Laboratory Studies of Mosquito Behaviour".
Mr. G. Monteith on "Amblypygi from Cape York Peninsula".
Mr. B. Cantrell, for Mr. J. G. Brooks, presented specimens of rare families of Coleoptera.
Dr. E. Reye presented a note on a technique for tracking down the breeding area of the Biting Midge.
May 17 **Mr. A. Dyce** on "Mating Behaviour and Hovering of Some Seashore Tabanids".
Mr. W. A. Smith, for Messrs. G. Saunders and R. Elder, on "A Note on the Collection of a Phasmid belonging to the genus *Phyllium* at Gadgarra near Atherton".
June 15 **Miss L. Powell** exhibited a *Pyrophorus* sp. (Elateridae).
Mr. C. R. Hembrow exhibited aberrant *Hypolimnas bolina nerina.*
Mr. J. Barrett exhibited specimens of a giant coccid *Monophlebus* and a citrus leaf miner *Phyllocnistis citrella* Stt.
Dr. E. J. Reye exhibited slides of a mangrove destruction programme for control of Biting Midges.
July 12 **Dr. B. Main** on "Natural History of Trap Door Spiders".
July 27 Special Meeting to discuss the proposed Australian Entomological Society.
September 13 **Dr. W. J. Bemrick** on "Some Potential Vectors of Canine Dirofilariasis in Minnesota".
October 11 **Dr. D. Moorhouse** and **Dr. R. Tatchell** on "Attachment and Feeding of Ticks".
November 8 **Dr. G. Bush** on "Allochronic Speciation in North American Tephritidae".
December 21 **Prof. O. W. Richards** on "Wingless Diptera".
Dr. A. Brimblecombe, for Mr. D. Ironside, on "Life History of the Macadamia Flower Caterpillar (*Homoeosoma vagella* Zell.)".