# NOTES

## SOME OBSERVATIONS ON THE MALPIGHIAN TUBULES AND OVARIOLES IN *MYRMECIA DISPAR* (CLARK) (HYMENOPTERA: FORMICIDAE)

By B. GRAY and K. P. LAMB

Department of Forests, Bulolo, T.P.N.G. and Department of Biology, University of Papua and New Guinea, Boroko, T.P.N.G. respectively.

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*Abstract*

*Myrmecia dispar* (Clark) workers have a variable number of malpighian tubules; the number counted ranged from 21 to 29. The larger workers tend to have more tubules than smaller workers. Two male specimens had 16 tubules and 3 queen specimens had 23, 23 and 26 tubules respectively. Workers collected in winter and summer had 10 well developed polytrophic ovarioles while the queens had 18 ovarioles.

Little attention has been paid to the number of malpighian tubules and ovarioles in *Myrmecia*. In this study live *Myrmecia dispar* (Clark) adults were killed in 30 per cent. alcohol and immediately dissected using a technique described by Ettershank and Brown (1964). After counting the tubules the head width of the workers was measured to determine whether there was a correlation between the number of tubules and worker size. The ovaries were removed intact after pulling the first gastral segment away from the other segments with forceps.

All specimens dissected were collected from a single colony in savannah woodland adjacent to the township of Hillston, N.S.W. The specimens were determined by Dr. R. W. Taylor, Division of Entomology, C.S.I.R.O., Canberra, by direct comparison with 6 *syntypes* of *M. dispar* from Junee and

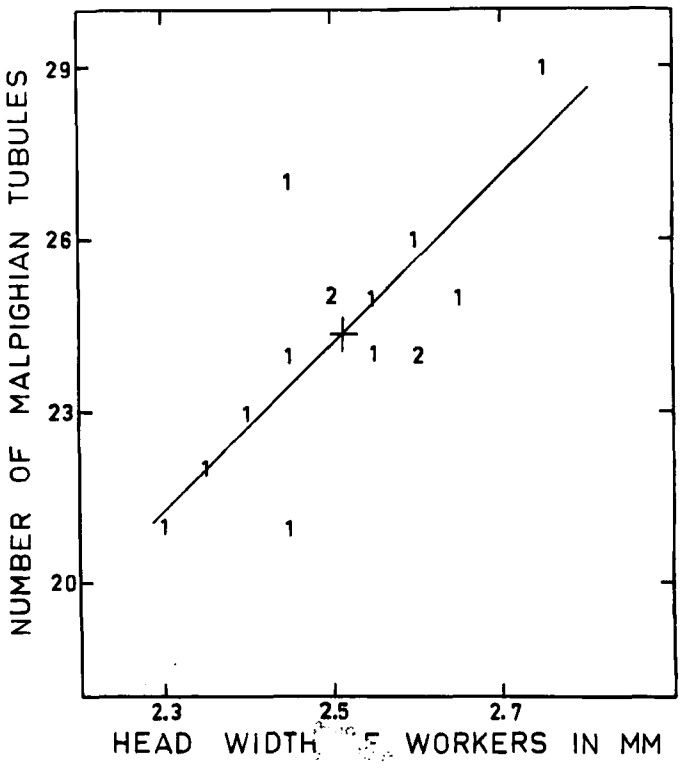


FIG. 1.—Linear regression of the number of malpighian tubules against head width of *Myrmecia dispar* (Clark) workers. y = 15.0[illegible]3.35; P<0.001; N = 15.

Cowra, N.S.W., housed in the Australian National Insect Collection, Canberra. Reference specimens from the series have been lodged in that collection.

*Malpighian tubules*

Patton (1953) classified the malpighian tubules of insects into four main types. Those of *M. dispar* belong to the first and simplest type where the tubules arise from the digestive tract at the junction of the midgut and hindgut; they are free at their distal ends and terminate blindly.

There was much variability in the number of tubules present in the workers; the number counted ranged from 21 to 29 (Fig. 1). The high correlation value ( +0.73) obtained indicated a very significant relationship, with $P<0.001$. This relationship was further clarified by the linear regression of the two parameters (Fig. 1).

Two male specimens had 16 tubules each and 3 queen specimens had 23, 23 and 26 specimens respectively.

*Ovarioles*

Workers and queens from winter and summer colonies were found to have well developed ovaries. Ten ovarioles were counted in each of the 15 workers dissected and 18 ovarioles in each of the 4 queens. The ovarioles in both castes were polytrophic with nutritive cells alternating with the oocytes. Eggs from the workers and queens were very similar in shape and size; they were usually ellipsoid and varied from 0.7 to 1.1 mm in diameter.

## REFERENCES

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# NOTES ON THE BIOLOGY OF SOME AUSTRALIAN STICK INSECTS (PHASMATODEA)

By G. O. BEDFORD

Division of Entomology, C.S.I.R.O., Canberra, A.C.T. Present address: U.N./S.P.C. Rhinoceros Beetle Project, C/- Lowlands Agricultural Experiment Station, Keravat via Rabaul, T.P.N.G.

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*Abstract*

Specimens of the Phasmatodea, *Eurycnema goliath* (Gray), *Podacanthus typhon* Gray and *Tropidoderus childrenii* (Gray), were reared in the insectary and observations on longevity and fecundity were made. Facultative thelytokous parthenogenesis may exist in the last two species.

During investigations of the eucalypt-defoliating phasmatid *Didymuria violescens* (Leach) in 1964-65, other living phasmatid material was occasionally received. This material comprised eggs of *Eurycnema goliath* (Gray), also single specimens of *Podacanthus typhon* Gray and *Tropidoderus childrenii* (Gray). In view of the rarity of these three species, the opportunity was taken to make some original biological observations on these specimens. The use of conspicuous displays as defensive reactions by these species has been described by Bedford and Chinnick (1966).

Each insect was confined separately in a wire gauze cage in an indoor insectary with a temperature range from 75° to 82°F.

## *Eurycnema goliath* (Gray)