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Economic Importance of the Australian Ant, *Chalcoponera metallica*

While in Queensland during the southern winter of 1939, I took advantage of an opportunity to observe the daily activity at a number of nests of the Greenhead ant, *Chalcoponera metallica*. An analysis of the data obtained in regard to the feeding habits of this species would seem to indicate that, in southern Queensland at least, it is of very considerable economic value.

The Greenhead is a small species, the worker measuring only *circa* 8·5 mm. The colonies also are small, and are very simply organized, the nests taking the form usually of a number of irregular galleries excavated in the earth about grass-roots, or under a stone or log. The species is notable for the remarkably severe sting it can inflict, considering its small size. Observation shows that Chalcoponera is almost exclusively insectivorous like most of the Ponerinæ; the animals upon which it preys prove to be for the greater part agricultural pests. It is a significant fact that these latter are deliberately attacked and killed by Chalcoponera, several ants combining in the attack when the victim is large. In Table 1, set out below, are given the percentages by weight of the chief classes of food, the figures being the average for three colonies.

Table 1.

Larvæ. (Lepidoptera, Coleoptera, Diptera)	77·5%
Small Arachnids	11·2%
Microlepidoptera (adults)	6·8%
Other Insects (Termites, Diptera, Ants, Ichneumons, etc.)	4·5%

If the actual numbers of the insects preyed upon be tabulated, a rather different order of importance is seen, but larvæ still occupy the first place. Table 2 shows the average collection of a single colony during a working day of eleven hours.

Table 2.

Larvæ	125 per day
Small Arachnids	22 ,, ,,
Termites	16 ,, ,,
Dipterous flies	14 ,, ,,
Microlepidoptera	7 ,, ,,
Ichneumons	6 ,, ,,
Red Ants	5 ,, ,,

It is evident from the foregoing that plant-destroying insects, particularly larvæ of Lepidoptera and Coleoptera, form the bulk of the diet of this species. As these figures were obtained during the winter months they are likely to indicate a minimum rather than an average for the year as a whole; but calculation even from these winter figures shows that Chalcoponera must do an immense amount of good in the active destruction of grubs, whatever other damage to roots may be caused by the ants themselves. If these observations are typical, it would appear that a single colony of Chalcoponera, numbering only a few hundred individuals, will destroy more than 45,000 grubs in a year.

Wheeler has already pointed out that "the economic value of the Ponerinæ in tropical countries can hardly be over-estimated", largely on account of their destruction of termites[1]. He regards specialization in other insect food as exceptional in the group, citing in Africa *Platythyrœa arnoldi*, which feeds mainly on small beetles, and *Plectroctena mandibularis* on millipedes and beetles[1], and in America *Lobopelta elongata* on isopods[2]. *Chalcoponera metallica* must now be added as an Australian example of this exceptional specialization.

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Sulphanilamide and Glucose Antidote

The production of methæmoglobin in the blood by oxidation of hæmoglobin by sulphanilamide has been discussed by Shaffer[1], Locke and Mellon[2] and Mayer[3]. Locke and Mellon attribute the oxidizing action to the *p*-nitroso benzene sulphonamide and not to the hydroxylamine derivative. They further state that the hydroxylamine derivative is not an oxidizing agent at the *p*H of the blood, and believe that the chemotherapeutic action is due to its power of inactivating catalase (Sevag and Maiweg[4]).

In cases where there is severe oxygen-want, by the production of too much methæmoglobin and subsequent danger of damage to tissues or death, attention is directed to the fact that intravenous injection of isotonic glucose solutions immediately reduce methæmoglobin to hæmoglobin (Brooks[5]), thereby permitting the blood to carry oxygen again, and relieving the symptoms. In the case of methæmoglobin formation by sulphapyridine, the same therapy is indicated.

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