

Observations on *Xylocopa* and *Lithurgus* (Hymenoptera).

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On December 22, Mr. Muir and I were at Waialua and observed the males of *Lithurgus albofimbriatus* swarming around the exit holes of *Xylocopa varipuncta* in part of an old tree-trunk, which had been utilized as a fence-post. It was quite evident that the males were waiting for the emergence of females. At the time no *Xylocopa* were noticed in the immediate neighborhood. Five days later, December 27, I again visited the place for the special purpose of cutting away a portion of the fence-post for further study and examination. The swarming of *Lithurgus* males, previously noticed, had entirely ceased. In a wait of one hour only two solitary specimens on the wing were seen in the immediate neighborhood (one male and one female), but *Xylocopa* were flying around the post, entering and emerging from their burrows in numbers.

Bringing the cut sections to Honolulu and bagging them for better observation, emergence of both *Lithurgus* and *Xylocopa* began on the day following in large numbers, so that at the expiration of seven days nineteen males and twenty-three females of *Lithurgus* and twenty-two males and twenty-seven females of *Xylocopa* had emerged from two sections of post, measuring in all $2\frac{1}{2}$ feet by 8 inches in diameter. (Note.—A large proportion of the *Lithurgus* and some of the *Xylocopa* were found to be attacked by large swarms of Acari. These had massed themselves in swarms to the propodeum and anterior segments of the abdomen.)

Upon opening the sections for further observation, the channels of both *Lithurgus* and *Xylocopa* were plainly seen, together with many old cocoons of the former and others containing pupae. The larvae of *Lithurgus* were not observed, nor were the pupae of *Xylocopa* seen. It is safe to say that quite a few more *Lithurgus* would have emerged had the splitting of the sections of the post been further postponed. There

remained in the channels two males and one female, and one partly grown larva of *Xylocopa*.

In addition to the above Aculeates, the sections of post contained large swarms of *Pheidole megacephala*, which had taken possession of the old channels of the *Lithurgus*. It was observed by Muir and Timberlake at the time the sections were split that *Lithurgus* apparently filled up the most of its old channels by the frass taken from those newly constructed, this frass even tightly packing up the interior of the old cocoons.

From beneath the bark and in some of the channels were swarms of the Tenebrionid beetle (*Alphitobius piceus*); also one example of *Oxydema fusiforme*, also a number of small Roaches, one Centipede, and the larva of an Elaterid beetle.