average adult life span of *P. waitomoensis* is five or six months and the maximum span nine months.

Observations have shown that the period from egg-laying to hatching extends over six to seven months; the duration of time spent in nymphal instars covers from 15 to 16 months; and the length of time as adults varies from five or six to nine or ten months. Thus the complete life cycle from oviposition to death takes a little over two years, or nearly two years from hatching to death.

Pallidoplectron turneri does not have a seasonal life cycle, but continues to breed and mature throughout the whole year, so that all instars can always be seen in the cave. This has so far made the assessment of length of nymphal and adult life very difficult.

Sex Ratio of Adults

From 17th May to 29th November, 1955, a record was kept of the total adult *Pachyrhamma waitomoensis* population seen in Aranui Cave. Over this period 63 marked individuals were observed, 36 (57%) being males and 27 (43%) females. In January, 1956, the observed population consisted of 93 (61%) females and 60 (39%) males. These were based on single sightings, since individuals were not marked. These observations indicate that the sex ratio is unequal, more females being present in the population than males. Owing to the egg-laying habits of the females from April to July, and their constant frequenting of inaccessible cracks and crannies in the limestone, it is to be expected that the proportion of males visible during that period might slightly exceed that of females.

Similar observations on *Pallidoplectron turneri* in the Grotto of Waitomo Cave could not be made because of the Waitomo Stream flooding the cave during the greater part of this period.

Courtship

Courtship follows the same pattern as that most often observed among the Orthoptera. It consists of the two insects facing each other and fencing with their antennae.

Mating Behaviour

Observations were made to ascertain:

(1) If Rhaphidophoridae have a marked diurnal rhythm.
(2) If mating times could be related to a particular time of day.

As Rhaphidophorids are nocturnal in their habits, it was expected that mating would take place at night only. However, results showed that mating could not be related to any particular time, and that there was no diurnal rhythm. No matter when the caves were visited, one or two pairs were always seen, nor did there tend to be any increase in the number of mating pairs at a particular time of day.

With *Pallidoplectron turneri,* in the constant conditions met with in the Grotto of Waitomo Cave, the mating period extends over the whole year, six or more mating pairs usually being observed. There was no evidence of an increase in this number during certain months of the year, although from November to January the numbers did drop sometimes to one or two pairs.

Pachyrhamma waitomoensis does not penetrate as far into the caves as *P. turneri,* and so is more subject to the effects of seasonal periodicity. Adults occurred in Aranui Cave from January to November, 1955. In January, 1956, a constant check was kept on the number of *P. waitomoensis* reaching maturity. Very few adults were observed at the beginning of the month; but they increased in number during the latter half of the month. Mating was recorded on 18th,