The length of the developmental period varies considerably. In some nymphs an instar may extend over four weeks, while in others it may last up to eight weeks or longer. Adult insects appear between October and May, but most penultimate instar nymphs mature between the end of December and the end of January.

TABLE IV.—NUMBER AND DURATION OF INSTARS IN *PACHYRHAMMA FASCIFER*.

Instar	Number of Days Males	Month	Number of Days Females	Month
1	24–30	Sept.-Oct.	24–30	Sept.-Oct.
2	28–32	Oct.-Nov.	27–32	Oct.-Nov.
3	44–50	Nov.-Jan.	44–52	Nov.-Jan.
4	21–44	Dec.-Jan.	46–50	Dec.-Feb.
5	26–28	Jan.-Feb.	64–70	Feb.-Apr.
6	63–65	Feb.-Apr.	200–220	Apr.-Nov.
7	190–200	Apr.-Oct.	55–65	Nov.-Jan.
8	28–30	Oct.-Nov.	170–190	Jan.-July
9	45–55	Nov.-Jan.		
10	170–190	Jan.-July		

From Table IV it can be seen that the period of greatest growth extends between October and April. From then till the following October there is no growth, the nymphs remaining in the same instar over the winter months, the males in the seventh instar and the females in the sixth. Between April and June eggs are laid, and shortly afterwards the adults die. In September the first instar nymphs hatch out. Thus two generations are nearly always present in a population.

In *P. waitomoensis* there is much less variability in the length of an instar, so that the wetas fall into more sharply separated groups than in *P. fascifer*. The final ecdysis is almost entirely confined to January and part of February, but in *P. fascifer* it may extend from October to May. In *P. fascifer* it is common to find several different instars in the population at any one time; but with *P. waitomoensis* it is very rare for more than two instars in each generation to be present. Between April and October, there is no fluctuation in the number of instars. Although a representative series of *P. waitomoensis* have not been collected, the size range observed inside the caves seems to agree very closely with that in *P. fascifer*, so it is assumed that the number of instars is probably of the same order. As *P. waitomoensis* is a larger insect than *P. fascifer*, and as Hubbell (1936) considers that the number of pre-adult instars is related to the size of the adult insect, there may be an extra instar present in its life cycle.

As the rate of growth from instar to instar varied slightly from nymph to nymph, the figures used in Text-figs. 2 and 3 were those which, after examination of numerous nymphs, appeared most representative of each instar. In some cases a variation of one or two millimetres was recorded on either side of the figures selected for each instar. These figures were again used in assessing the percentage increase growth rate in Tables V and VI. The figures in the first instar column and in the third instar column with the ovipositor, refer to the initial length of the segment in millimetres. From these results the greatest amount of growth occurs at the second and eighth ecdyses in males, and in the second and sixth ecdyses in females. The appendage undergoing the greatest increase in growth at each ecdysis is the