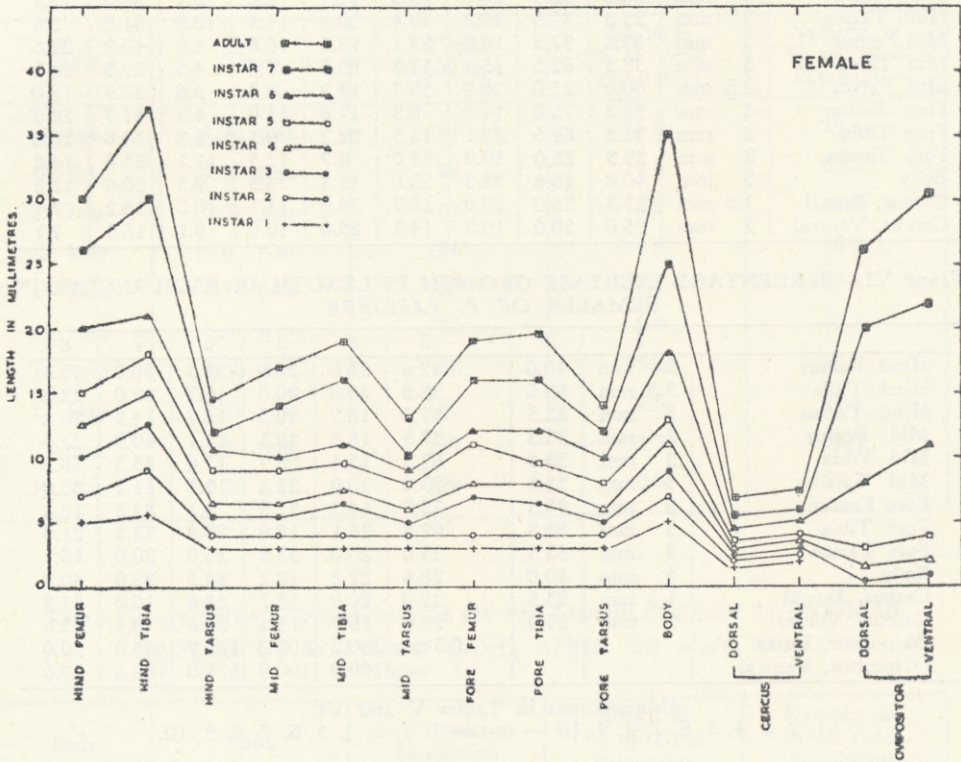


ovipositor. Not appearing until the third instar, by the time the eighth and final instar is reached the ovipositor is subequal in length with the body, having doubled or trebled its length in all but the final ecdysis.



TEXT-FIG. 3.—Growth rate and number of instars in female *Pachyrhamma fascifer*.

The rate of growth in the antennae was not included in the graphs or tables because of the tendency of these appendages to break, thus preventing accuracy of measurement. Several cases of regeneration in the length of the antennae have been recorded. The average increase in length in the final ecdysis is about 20 mm, or 19%. In one male the antennae, which were broken, measured 70 mm in the penultimate instar, but in the adult insect they measured 126 mm, showing an increase in length of 56 mm, or 80%.

It was shown by Dyar (1890) that the head capsule of Lepidopterous larvae grows in geometrical progression, increasing in width at each ecdysis by a ratio, usually about 1.4, which is constant for a given species. This rule applies to many parts of the body, so that when the number of the instar is plotted against the logarithm of some measurement on the insect, a straight line is generally obtained. Although it is now known that the progression is rarely regular, it is usually sufficiently nearly so to discover whether an instar has been overlooked. In *Pachyrhamma fascifer* the logarithm of the linear measurements of the hind femora in both males and females were plotted against the number of instars. Calculated values following Dyar's Law were obtained from fitted regression lines and are given in Table VII.

From Table VII it can be seen that the approximation of the observed to the calculated measurements is sufficiently close to remove the possibility of an instar