leg discs (their size, shape, segmentation and position with respect to the margin of their segment); and the presence and state of development of the antennal discs, the gonopodal discs and the mouth parts. Measurements were taken of the total body length and width and the dimensions of various segments, also the length and width of one randomly selected left or right leg disc of each of the three pairs.

All of the measurements were made with a filar micrometer except in the case of total body length, for which an ocular micrometer was used.

For study of the internal morphology of *burchelli* larvae the specimens were dehydrated and imbedded in paraffin using the normal butyl alcohol method (LEE, 1937). Sections were cut at six micra and stained with either Heidenhain's iron alum haematoxylin or Harris' standard haematoxylin counterstained with eosin (GALIGHER, 1934). Whole mounts of the larvae, and of dissected organs, were prepared using Lynch's precipitated borax-carmine technique (GALIGHER, 1934).

RESULTS

EXTERNAL MORPHOLOGY

General inspection of the polymorphic larval range.—It is apparent from the results of this study that the larvae in the sample of any one day are not synchronized linearly, and that they must differ either in the time at which their respective larval developments were initiated, in the rate of their development, or in both of these. This impression is soon borne out by the results of general body measurements as of length in relation to specific measurements of body parts such as leg discs (table 1).

First, an inspection of the brood sample collected at any one time reveals a wide range in body length with indications of individual differences in detailed morphology possibly bearing a different relationship to overall body size in the respective parts of the range. That this must be the case becomes evident when individual differences in the degree of development of detailed larval structures such as the leg discs, mouth parts, cuticular hairs and the gonopodal discs are taken into account. The general picture indicated is one in which, at any one cross-section in time, a smooth gradation is found from specimens of maximal to those of minimal body length, with differences in the time of appearance, size, and degree of development of structural details relative to differences in overall size.

Furthermore, when specimens from samples collected at successive different times are compared, it is apparent that overall size cannot be a reliable clue to developmental stage, unless the relationship between body size and the condition of the details of structures is taken into account.

The largest larvae or potential workers major.—The largest larval specimens, apparently the potential workers major, evidently develop from the first eggs to hatch and thus obtain a precocious growth advantage over the smaller members which hatch from their eggs in the late statary