

log, and the characteristic smell was very apparent. And strange to say, the insects made themselves unexpectedly manifest to another sense also. Rivalling the fairy-tale hero who could hear the grass growing, to my surprise I found I could hear the springtails leaping on the dead leaves. So many hundreds of them were jumping at the same moment, that the myriad simultaneous impacts became audible even to the coarse human sense of hearing, and sounded like the tiny rain we must suppose fell in Lilliput.

Watching any general movement of these insects is like watching the hour hand of a clock. They were evidently spreading out from this focus, but so slowly in spite of all their leaping and crawling hither and thither, that very little change could be noticed during the thirty or forty minutes that I observed them. When I returned to the spot the evening of the following day, they had as usual nearly all disappeared. On the leaves were many white patches of cast skins, and a few stragglers were still crawling over the log, but the millions of yesterday were gone.

These eruptions of *Achorutes socialis* and its congeners are due to overcrowding of the domicile, and in that respect they parallel the swarming of the bees and ants. But there the resemblance stops, for, of course, the springtails have no special organization whatever, and those found living in colonies are merely kept together by a common interest in some food supply or other favourable condition. When the place becomes too small to support them, practically the whole population leaves at the same time, each individual to seek his own private fortune, and the old home is completely abandoned. One obvious advantage of the movement, in addition to a more abundant forage, is the cross-breeding that takes place between different colonies. The increased vigour of the race which accrues no doubt more than counterbalances the large mortality among the emigrants.

The Collembola as an order have never attracted many students, and it is not likely that this article will do anything to increase the number, but "should one heart throb higher at its sway," it would be a pity not to encourage the aspirant to springtail lore, and so I will say something about collecting methods.

The Collembolist's collecting outfit is simple, inexpensive and not at all bulky, but as the insects are found in a variety of situations, several different pieces of apparatus are necessary to capture them. Among the first requisites are the small straight-sided bottles without shoulder or lip, known as shell vials. For general use in collecting and for storage purposes, round-bottomed shell vials about 50 mm. long by 10 mm. in diameter, as recommended by Dr. J. W. Folsom, are best. But for very minute specimens even smaller bottles than these are often desirable, and I usually carry a few vials 40 mm. and 25 mm. long by 6 mm. or 7 mm. in diameter. If not obtainable from stock, any dealer will have such bottles as these made to order at a small cost per gross.

In summer a small fragment of damp, rotten wood or a piece of a moist, dead leaf tamped down into the bottom of the vial will keep the specimen from dying of aridity until you get them home. In winter, when everything outdoors is dried up by the frost, my bottle are furnished with a scrap of filter paper, which can be moistened when required by dropping a granule or two of snow on to it. But one must be careful not to get the bottles too wet inside, or the insects will drown in the water film.