

MISCELLANEOUS NOTES ON APHROPHORA PARALLELA,
SAY.

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This Spittle insect of the Pine was abundant on two trees on the campus at Blacksburg, Virginia, last summer, and an attempt was made to observe its oviposition and to work out its complete life-history.

Owing to lack of time this was not successful, but the following notes may be of some interest :

The Protective Secretion.—The material under which the nymphs live consists of a clear albuminous liquid, exuded by the insect, mixed intimately with bubbles of air introduced by the nymph after secretion ; it is tasteless, or slightly salty.

The mass is situated on either side of the twig, immediately back of the new growth as a rule. In 80 cases observed 76 were thus placed, the remaining four were several inches below the new growth. Only a single mass of secretion was usually found on a twig. As the insects increase in size and grow older, they become somewhat erratic and settle almost anywhere ; in the pupal stage they move in towards the trunk of the tree. The number of nymphs in a mass varies, generally there is only one, but as many as six or seven have been found. Those containing but a single nymph are easily distinguished from those including several by their relative size. A recently secreted mass is characterized by the imperfect state of its emulsion, the bubbles being large and the fluid consequently more or less clear ; in an old mass, the nymphs having been settled for some time, the bubbles are minute and the fluid is opaque.

Habits of the Nymph.—The nymphs move about at will, and wherever they settle cover themselves with the protective fluid, but as a rule they seldom move unless disturbed. As an experiment a nymph was removed from its position at 3.35 p.m. on May 13th, it crawled four inches down the twig and then back, occupying twenty minutes ; then it wandered about for nearly three-quarters of an hour, apparently sucking at times ; at 4.33 p.m. it climbed up about one-third of the length of a leaf and inserted its beak, the setæ only entering ; at 4.45 secretion had begun, and a shiny, colourless fluid was exuded from the anal opening and distributed along the body by the legs, this also served to mix the air with it. At 5 the insect had a cushion of air-bubbles under it, and five minutes later it moved on with part of the cushion towards the end of the twig. For nearly half an hour it wandered about, sucking at intervals,