

to complete the life cycle, and in some of the larger species two or even three years may be consumed.

The complete life history of a small species, *Nemoura gallicularia* Wu, has recently been published.* This species passes through 22 developmental instars and completes a generation in one year. It is entirely herbivorous, feeding upon dead vegetable matter. Heretofore stoneflies have usually been considered as carnivorous, but the examination of stomach contents of a number of nymphs indicate that *Pteronarcys*, *Nemoura* and others feed upon vegetable matter only, while *Perla*, *Acroneuria*, etc., prey upon animal forms as well as feeding upon vegetable material.

Most stoneflies do not feed in the adult stage, but some species have well developed mouthparts and one species *Taeniopteryx pacifica* Banks—(*Taeniopteryx analis* Banks) has been recorded as injuring the buds of fruit trees on the Pacific Coast.

COLLECTING AND PRESERVING.

Specimens for study are best preserved in alcohol (70 to 80 per cent strength). They may be pinned and spread and dried and kept in boxes, as are most other insects, and the general collector of insects will probably prefer to keep them so; but their colors fade quickly and they shrivel like prunes in drying, and they form a very unattractive part of a pinned collection of insects. Our method is to preserve fresh material at once in alcohol in homeopathic vials, hanging the vials to a handy wire rack by a small hanger attached to the neck of each vial: the vials thus hang vertically, and good corks, having no alcohol in contact with them, last a long time. We mount detached wings for study outspread upon a glass slide under a cover glass that is held by a strip of gummed paper over each end, binding slide and cover glass together. All the wing figures of this volume were made from such mounts. We mount the wings dry, not in balsam, which having the same refraction as the weaker veins, render some of them invisible.

For the study of the genitalia we snip off the abdomen, boil it for a few minutes in caustic potash until the flesh has been removed and only chitin remains and then keep this boiled portion in the vial with the unboiled part of the specimen. We do not mount it in balsam because it

*Wu, C. F. Morphology, Anatomy and Ethology of *Nemoura*—Bulletin 23, Entomological Series No. 3, Bulletin of the Lloyd Library, 1922.