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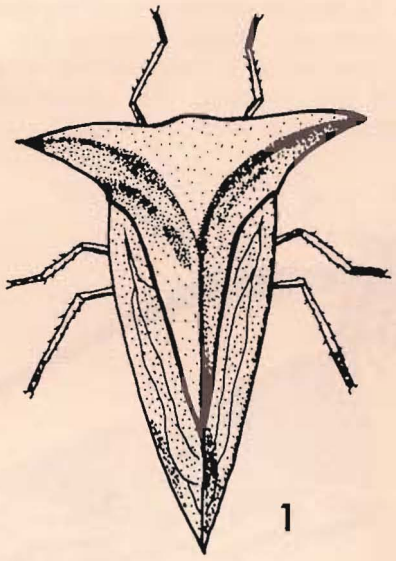
Clowns of the Insect World

Have you ever seen a twig move? If you have, you probably know that the twig was either a walkingstick or measuring worm, as these insects are masters at masquerading as twigs or sticks. But, have you ever seen the bud or a thorn of a plant move up the plant stem right before your very eyes? If you have, chances are you have seen a treehopper, an insect that belongs to one of the most bizarre, and funny looking groups of insects known.



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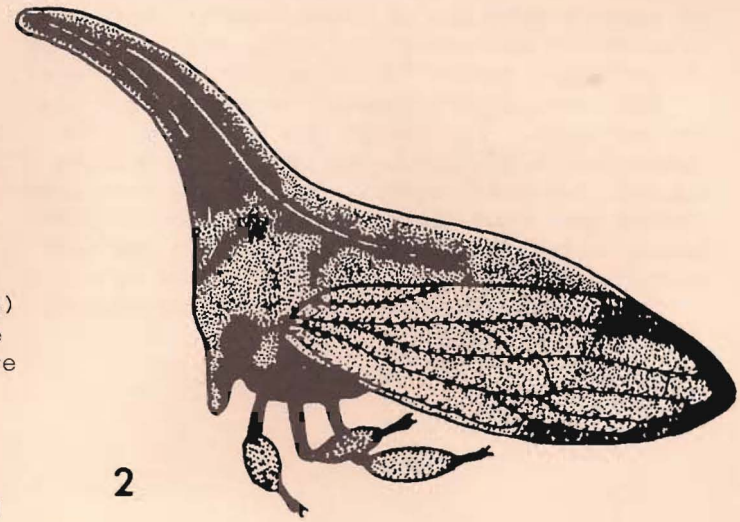
Treehoppers are often called "clowns of the insect world" because they come in such funny and weird shapes. All their peculiar shapes result from extended portions of the prothorax --the section of the thorax just behind the head. The different shapes and colors of this structure (called a "pronotum" by entomologists) are what insect taxonomists use to classify the different species. In North America alone there are about 250 species. Figures 1 and 2 show some of the most common forms, but the shapes and colors of these cannot compare with the bizarre forms of the tropics where the family reaches it's greatest diversity. Figures 3 and 4 present just two of these weird tropical forms.

Treehoppers are small insects that rarely exceed one half inch long. They are called "treehoppers" because upon approach, while at rest on a stem, they jump or hop away with a loud snap. They are most commonly found on young trees and perennial weeds where they feed. The best collecting methods include hand picking or sweeping, and beating young trees and shrubs with a net. If you shake or beat a tree and then immediately sweep under it, you will be amazed at all the treehoppers you will find.

All of these bizarre insects are sap feeders on various trees, weeds, and shrubs, but most are not of any significant economic importance except the Buffalo treehopper, *Stictocephala bubalus* (Fig. 1). The female of this species lays her eggs in slits made in a tender branch by her ovipositor. These cuts, resembling "parentheses", become infected with various kinds of fungi which in turn cause the branch to die and fall off. Many such infections, as you can suspect, can cause serious damage, at least to a young tree.

There are three different types of life cycles that treehoppers can go through depending on the species. In the first type the adult female lays her eggs on perennial weeds, like goldenrod, and the whole life cycle takes place on the weed (*Campylenchia latipes* is such an example) (Fig. 2). In the second type the



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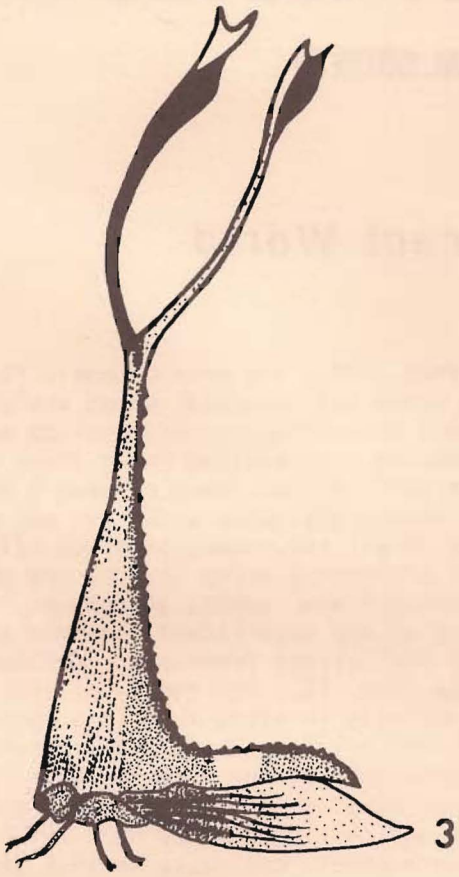
adult female lays her eggs in a tree branch. Upon hatching, the young insects or nymphs drop to the ground and feed on the weeds growing under the tree. When they become adults, they return to the tree to lay their eggs. The life

cycle of the Buffalo treehopper is like this (Fig. 1). In the third type the adult female lays her eggs in a tree branch and the whole life cycle takes place on the tree.



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When looking for treehoppers you might find one, or you might find hundreds. This is due to the different habits of different species, because some are solitary, that is they live singly as nymphs and adults, while others are gregarious as either nymphs, adults or both. Those that are gregarious as adults are frequent -ly collected in large numbers during the evening at porch lights and at black lights. Not all species are attracted to lights, but collecting is certainly easier for those species that are!

Most treehoppers have a one year life cycle in the North. Eggs which are laid during the summer hatch the following spring and ensuing adults live until autumn. Adults are thus collected best from early July to the end of October or until the first frost. Nymphs are best collected from early May to the end of June.

The nymphs, too, are interesting creatures. Smaller than the adults, they are not as bizarre because their pronota are not fully expanded. They can easily be recognized from other insect nymphs by the branched spines that occur on the tops of their abdomens.

The nymphs and sometimes the adults may be associated with ants--a type of behavior called myrmecophily, which means "ant loving". Sometimes treehoppers are found on weeds or trees with many ants surrounding them. When an ant touches a treehopper with its antennae, the hopper exudes a sweet substance similar to honeydew given off by aphids that the ant likes to eat. This type of behavior also occurs between ants and aphids. In fact, ants are said to "herd" the treehoppers and aphids for this reward. Ants are very protective of their "herd" and will not hesitate to bite a finger of a collector who tries to take the treehoppers from them. The next time you see a trail of ants leading to a plant or large numbers of ants on a plant, check to see whether any treehoppers or aphids are also nearby.

Treehoppers have few natural enemies. They do, from time to time, become ensnared in spider webs, but the spiders usually discard them because they cannot bite through the pronotum. A few get stung by predaceous wasps which in turn take them to brood cells where they become food for their larvae. Birds usually avoid them because the "horns" and "spikes" of the pronotum jab them in the throat. For these reasons, most treehoppers die of "old age".

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I'm sure that if you look closely at a weed or tree branch the next time you have a chance, you'll be surprised to find some insects you hadn't noticed before--the clowns of the insect world--the treehoppers.

Duane Flynn