SUGARING FOR MOTHS

The day has been hot and sultry. The sun has set behind great banks of clouds which are piling up on the northwestern horizon. Now that the light is beginning to fade, the great masses of cumulus, which are slowly gathering and rising higher toward the zenith, are lit up by pale flashes of sheet-lightning. As yet the storm is too far off to permit us to hear the boom of the thunder, but about ten or eleven o'clock to-night we shall probably experience all the splendor of a dashing thunder-shower.

Along the fringe of woodland which skirts the back pastures is a path which we long have known. Here stand long ranks of ancient beeches; sugar maples, which in fall are glorious in robes of yellow and scarlet; ash trees, the tall gray trunks of which carry skyward huge masses of light pinnated foliage; walnuts and butternuts, oaks, and tulip-poplars. On either side of the path in luxuriant profusion are saplings, sprung from the monarchs of the forest, young elm trees planted by the winds, broad-leaved papaws, round-topped hawthorns, viburnums, spreading dogwoods, and here and there in moist places clumps of willows. Where the path runs down by the creek, sycamores spread their gaunt white branches toward the sky, and drink moisture from the shallow reaches of the stream, in which duckweed, arrow-weed, and sweet pond-lilies bloom.

The woodland is the haunt of many a joyous thing, which frequents the glades and hovers over the flowers. To-night the lightning in the air, the suggestion of a coming storm which lurks in the atmosphere, will send a thrill through all the swarms, which have been hidden through the day on moss-grown trunks, or among the leaves, and they will rise, as the dusk gathers, in troops about the pathway. It is just the night upon which to take a collecting trip, resorting to the well-known method of "sugaring."

Here we have a bucket and a clean whitewash brush. We

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have put into the bucket four pounds of cheap sugar. Now we will pour in a bottle of stale beer and a little rum. We have stirred the mixture well. In our pockets are our cyanide jars. Here are the dark lanterns. Before the darkness falls, while yet there is light enough to see our way along the path, we will pass from tree to tree and apply the brush charged with the sweet semi-intoxicating mixture to the trunks of the trees.

The task is accomplished! Forty trees and ten stumps have been baptized with sugar-sweetened beer. Let us wash our sticky fingers in the brook and dry them with our handkerchiefs. Let us sit down on the grass beneath this tree and puff a good Havana. It is growing darker. The bats are circling overhead. A screech-owl is uttering a plaintive lament, perhaps mourning the absence of the moon, which to-night will not appear. The frogs are croaking in the pond. The fireflies soar upward and flash in sparkling multitudes where the grass grows rank near the water.

Now let us light our lamps and put a drop or two of chloroform into our cyanide jars, just enough to slightly dampen the paper which holds the lumps of cyanide in place. We will retrace our steps along the path and visit each moistened spot upon the tree-trunks.

Here is the last tree which we sugared. There in the light of the lantern we see the shining drops of our mixture clinging to the mosses and slowly trickling downward toward the ground. Turn the light of the lantern full upon the spot, advancing cautiously, so as not to break the dry twigs under foot or rustle the leaves. Ha! Thus far nothing but the black ants which tenant the hollows of the gnarled old tree appear to have recognized the offering which we have made. But they are regaling themselves in swarms about the spot. Look at them! Scores of them, hundreds of them are congregating about the place, and seem to be drinking with as much enjoyment as a company of Germans on a picnic in the wilds of Hoboken.

Let us stealthily approach the next tree. It is a beech. What is there? Oho! my beauty! Just above the moistened patch upon the bark is a great Catocala. The gray upper wings are spread, revealing the lower wings gloriously banded with

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black and crimson. In the yellow light of the lantern the wings appear even more brilliant than they do in sunlight. How the eyes glow like spots of fire! The moth is wary. He has just alighted; he has not yet drunk deep. Move cautiously! Keep the light of the lantern steadily upon him. Uncover your poisoning jar. Approach. Hold the jar just a little under the moth, for he will drop downward on the first rush to get away. Clap the jar over him! There! you have done it! You have him securely. He flutters for a moment, but the chloroform acts quickly and the flutterings cease. Put that jar into one pocket and take out another. Now let us go to the next tree. It is an old walnut. The trunk is rough, seamed, and full of knotted excrescences. See what a company has gathered! There are a dozen moths, large and small, busily at work tippling. Begin with those which are nearest to the ground. When I was young my grandfather taught me that in shooting wild turkeys resting in a tree, it is always best to shoot the lowest fowl first, and then the next. If you shoot the gobbler which perches highest, as he comes tumbling down through the flock, he will startle them all, and they will fly away together; but if you take those which are roosting well down among the branches, those above will simply raise their heads and stare about for a moment to find out the source of their peril, and you can bag three or four before the rest make up their minds to fly. I follow the same plan with my moths, unless, perchance, the topmost moth is some unusual rarity, worth all that suck the sweets below him.

Bravo! You have learned the lesson well. You succeeded admirably in bottling those *Taraches* which were sucking the moisture at the lower edge of the sweetened patch. There above them is a fine specimen of *Strenoloma lunilinea*. Aha! You have him. Now take that *Catocala*. It is *amasia*, a charming little species. Above him is a specimen of *cara*, one of the largest and most superb of the genus. Well done! You have him, too. Now wait a moment! Have your captives ceased their struggles in your jar? Yes; they seem to be thoroughly stunned. Transfer them to the other jar for the cyanide to do its work. Look at your lantern. Is the wick trimmed? Come on then.

Let us go to the next tree. This is an ash. The moist spot

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shows faintly upon the silvery-gray bark of the tree. Look sharply! Here below are a few Geometers daintily sipping the sweets. There is a little Eustixis pupula, with its silvery-white wings dotted with points of black. There is a specimen of Harrisimemna, the one with the coppery-brown spots on the fore wings. A good catch!

Stop! Hold still! Ha! I thought he would alight. That is Catocala coccinata—a fine moth—not overly common, and the specimen is perfect.

Well, let us try another tree. Here they are holding a general assembly. Look! See them fairly swarming about the spot. A dozen have found good places; two or three are fluttering about trying to alight. The ants have found the place as well as the moths. They are squabbling with each other. The moths do not like the ants. I do not blame them. I would not care to sit down at a banquet and have ants crawling all over the repast. There is a specimen of Catocala relicta, the hind wings white, banded with black. How beautiful simple colors are when set in sharp contrast and arranged in graceful lines! There is a specimen of Catocala neogama, which was originally described by Abbot from Georgia. It is not uncommon. There is a good Mamestra, and there Pvrophila pyramidoides. The latter is a common species; we shall find scores of them before we get through. Do not bother with those specimens of Agrotis Ypsilon; there are choicer things to be had. It is a waste of time to take them to-night. Let them drink themselves drunk, when the flying squirrels will come and catch them. Do you see that flying squirrel there peeping around the trunk of the tree? Flying squirrels eat insects. I have seen them do it at night, and they have robbed me of many a fine specimen.

Off now to the next tree!

And so we go from tree to tree. The lightning in the west grows more vivid. Hark! I hear the thunder. It is half-past nine. The storm will be here by ten. The leaves are beginning to rustle in the tree-tops. The first pulse of the tornado is beginning to be felt. Now the wind is rising. Boom! Boom! The storm is drawing nearer. We are on our second round and are coming up the path near the pasture-gate. Our

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collecting jars are full. We have taken more than a hundred specimens representing thirty species. Not a bad night's work. Hurry up! Here are the draw-bars. Are you through? Put out the light in your lantern. Come quickly after me. I know the path. Here is the back garden gate. It is beginning to rain. We shall have to run if we wish to avoid a wetting. Ah! here are the steps of the veranda. Come up!

My! what a flash and a crash that was! Look back and see how the big trees are bowing their heads as the wind reaches them, and the lightning silhouettes them against the gray veil of the rain. We may be glad we are out of the storm, with a good roof overhead. To-morrow morning the sun will rise bright and clear, and we shall have work enough to fill all the morning hours in setting the captures we have made. Good-night!

"It is interesting to contemplate a tangled bank, clothed with many plants of many kinds, with birds singing on the bushes, with various insects flitting about, and with worms crawling through the damp earth, and to reflect that these elaborately constructed forms, so different from each other, and dependent upon each other in so complex a manner, have all been produced by laws acting around us. These laws, taken in the largest sense, being Growth with Reproduction; Inheritance, which is almost implied by reproduction; Variability, from the indirect and direct action of the conditions of life, and from use and disuse; a Ratio of Increase so high as to lead to a Struggle for Life, and as a consequence to Natural Selection, entailing Divergence of Character and the Extinction of less improved forms. Thus, from the war of Nature, from famine and death, the most exalted object which we are capable of conceiving, namely, the production of the higher animals, directly follows. There is a grandeur in this view of life, with its several powers, having been originally breathed by the Creator into a few forms or into one, and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been and are being evolved."—DARWIN.