10-1-1903

The Nesting of a Carpenter Bee

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Birds & Nature, Oct. 1903.

queen changed the leaves into shining gold and the trunk and branches into beryl. But poor tree! Its value was no sooner known than it was visited day and night by men who stripped it of its wonderful leaves and when the elves once more danced in the meadow, they found only the naked trunk to greet them.

Indignant at this treatment again the fairy-queen touched it with her wand and the beryl trunk was changed to a green stem from which sprung clusters of golden flowers. Now it became the fairies' cherished plant and on moonlight nights if you are worthy of a sight of the "wee folks" they may be seen dancing merrily in its shadow.

Along the water's edge the brilliant red gleam of the cardinal flower attracts us.

"As if some wounded eagle's breast
Slow throbbing o'er the plain,
Had left it airy path impressed
In drops of scarlet rain."

So richly attired is this flower that it has received a name which likens it to the magnificently attired dignitaries of the Roman church.

Growing along the roadside in moist, shadowy places we find the deep-tinted, bronze-leaved gentian, whose

"—Sweet and quiet eye
Looks through its fringes to the sky,
Blue, blue as if that sky let fall
A flower from its cerulean wall."

"Heaven's own blue," Bryant paints it.

And now the pale, yellow, fragrant blossoms of the witch-hazel cause throbs of delight as we gather and admire it from the hill-side. It blossoms when its leaves have fallen and its nuts ripened. The pleasure experienced at the spring-like apparition of this leafless yellow-flowered shrub in the autumn woods, arises from the thought it suggests that in the midst of death we have a foretaste of life—a prophecy of the great yearly resurrection which even in autumn, the dying time, we may anticipate. The Indians long ago discovered the value of the bark of the witch-hazel for medicinal purposes, and it is now utilized in many well-known extracts.

The erect, slender weed that you see about the highways, with low rosettes of woolly leaves and yellow blossoms on their long spikes is the mullein. The colonists brought it from Europe, although in England it is known as the "American velvet plant." The Romans dipped the long, dried stalk in suet and used it as a funeral torch. The Greeks utilized the leaves for lamp-wicks. "Mullein-tea" is greatly esteemed by the country people for pulmonary complaints of men and beasts.

Each autumn Mother Nature dons this regal mantle of purple and scarlet and gold, then "rests and sings like Ruth among her garnered sheaves, her lap being full of goodly things."

EMILY F. BASS.

THE NESTING OF A CARPENTER BEE.

(*Clisodon terminalis.*)

About the middle of August when the flowers are at their best in our mountain canyon (Beulah, New Mexico), and the wild bees and butterflies have a daily surfeit of nectar, this clever little carpenter goes to work to make a storehouse and to provide for the young of the next generation. Many bees and wasps make their nests by cutting out burrows in trees and bushes, but few work as quickly and skillfully as Clisodon terminalis.

Last summer I watched with much interest a number of these bees at work making their homes in an old pine tree that had fallen by the roadside. One bee had just begun her labors, and had hardly cut through the bark when I first saw her, her strong mandibles worked like tiny saws on the wood, and the sawdust looked a miniature storm as it was scattered by her quickly moving legs.

A bee near was much farther along

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with her work, and was very busy inside a burrow about four inches deep. For some time she kept up a great humming and buzzing, but at last the work inside was finished to her satisfaction, and she flew away for pollen and nectar. While she was so busy on the inside she was lining the small bulb-like cell at the bottom of her burrow, into which she now put her stores.

The burrow must be excavated according to a pattern approved by many ancestors of the bee, and should a knot or decayed place be encountered which would in any way interfere with this plan, the little builder, after much fretting and investigating, will begin another burrow. The cell is made by lining the burrow with sawdust, mixed with the secretion from glands near the mouth, making a delicate, but impermeable coating.

The Clisodon terminalis does not have baskets on its legs as does the honey bees and bumble bees, but the whole outer surface of the posterior legs is covered with stout white hairs, forming brushes in which much pollen can be carried.

I could not discover how many loads of pollen and nectar were necessary for each cell, but it must have been a considerable number, for when I opened a cell I found it more than half full of a pasty mass with a strong and disagreeable odor.

When sufficient food has been provided the bee lays a small white egg in the midst of the sticky mass, and then there is more humming and buzzing while a cover is made. The cover is of the same material as the cell-lining, but several times as thick, for upon it another cell must rest—in some cases three or four, though the burrow always slants so that the whole of the weight of the upper cells will not rest upon the lowest one.

The egg soon hatches into a small white grub and all the provisions are used by it as it grows larger until it just fits snugly into the small bulb so artistically formed by the mother. Now it rests quietly until the summer sun makes possible the various processes necessary in changing a grub into a bee. Then the young bee, with its strong jaws, cuts through into the next cell and if all has gone well, it is then free to crawl into the bright world, but if the growth of the bee in any of the cells above it has been retarded or stopped, it is said that the young bee waits, even dying in its small prison house so strong is its instinct against harming one of its own kind.

We hear much of the unerring instinct of animals, and a creature with such skill and agility as Clisodon terminalis might be supposed to possess such instinct in a high degree, yet I found in the half dozen burrows that I studied several cells that had been provisioned and sealed, but which contained no egg!

The genus to which this bee belongs has been separated from Anthophora on account of its three-toothed mandibles, the Anthophora having mandibles with two teeth. It is interesting to see how this difference in structure corresponds with so marked a difference in habit, for the Anthophoras nest in the earth and do not need as complex tools as a bee that must cut several inches through hard wood.

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