

works on the North American flora, elaborately describe the different orders, genera and species of plants. I was, therefore, glad to find the information desired in a French work published in Quebec, Abbé Provancher's "*Petite Faune Entomologique*," just then completed to the end of the order Hymenoptera, which comprises the bees, wasps, ants, ichneumon-flies, saw-flies, etc. After some little labour, I succeeded in ascertaining in that too modestly named Fauna, both the generic and specific names of my insect,—*Megachile melanophæa*, i.e. the black-brown Leaf-cutter.

The name of the genus having thus been obtained, it was easy to gather more information in works treating of Hymenoptera, especially in those describing the labours of the parent bees on behalf of their offspring. Thus I found that the habits of the Leaf-cutters were observed and described by the French naturalist Reaumur, as early as the beginning of the last century. Mr. E. Baynes Reed, in the Second Annual Report of the Entomological Society of Ontario (p. 24), and Mr. W. H. Harrington in the XVIth, (p. 53), have given the principal facts of their history, how they cleverly cut circular pieces of leaves with their mandibles, and use these pieces in the construction of the cells of their nests.

*Megachile centuncularis*, L., which is spread all over the continent of Europe and also occurs commonly in Canada, chooses for its nest either an old post or decaying tree or the soft mortar of an old wall, or again burrows in the ground (Smith, Brit. Museum Cat. I. p. 174). The powerful mandibles are of course the instruments used to dig the gallery in which the cells are then placed end to end from the bottom up to its mouth. The bees also sometimes take advantage of cavities which they find suitable for their purpose, such as a nail hole, or the deserted tunnels of wood-borers. I have seen repeatedly come in and out of such holes the active little *M. optiva*, which is easily recognized by its red ventral brush, and *Gnathocera cephalica*, Prov., a bee very closely allied to the Leaf-cutters, but which at last stopped the aperture with mud, and probably like other bees builds its cells of that substance. I was not able in the latter case to ascertain what was the material of the nest itself, as it was in a post of a public bridge. But I opened, after its completion, the nest of *M. optiva*, which was in a board of a shed and found it to be composed of several rows of cells packed up side by side, the cavity being too wide for a single row. The insect seemed, however, to have always made as many cells as possible in one line, according, no doubt, to its habit of doing so in the straight galleries which it digs itself. The cells were formed with morsels of leaves and flowers of scarlet runners. The aperture itself, which was just large enough to admit the insect, was stopped up with about twelve round pieces laid on each other, each slightly larger than the hole, but forced in so as to fit perfectly, the last one outside being a red one. The nest contained about twenty cells which I was very careful to secure and preserve in the hope of procuring the perfect insects, and if possible, by some happy chance, to obtain in the number a male, that sex of this species still being unknown to science. My hopes, however, were doomed to disappointment. After the return of spring, weeks succeeded weeks, but the cells still remained closed; and finally, instead of the bees, there issued from them through tiny holes, scores and scores of a Chalcidite, *Semiotellus cupreus*, Prov. These small parasites had not spared a single one of the larvae for which the mother *Megachile* had on the preceding summer provided with so much solicitude and industry.

On a subsequent occasion, I found the broken stem of a sun-flower in the hollowed pith of which some Leaf-cutter had built half a dozen cells with morsels of rose leaves. These pieces were much looser than those in the nest of *M. optiva*, and made the cells appear much larger, so that I expected to see much larger bees come out of them. They proved, however, to be of a rather smaller species, *M. brevis*, Say (Fig. 18), of which I have found the males very abundant, but have never been fortunate enough to secure a female. From this nest I obtained only males, two of them, and—four parasites, again Chalcidites, but much larger than in the preceding case, so that each had required a whole *Megachile* larva for its subsistence. These parasites were two males and two females of the pretty wasp-like *Leucospis affinis*, Say; other species of the same genus have also been found in Europe infesting *Megachile* nests.

A most peculiar Mr. E. Baynes Reed rolled-up leaves of 28). I have seen cutting pea leaves, same insect had re pieces that were w of an ash-leaved close by.

The males of *Megachile* have the oddly dilated and hairs; some have be grooved in front for pouch. In *M. fi* extends only to the joint; but in *M. scr* above the second, even projects over and third. Of what can be to these i to conjecture. I fou particles of vegetabl to have been nippec helps the female in vegetable matter fo closing the cells of the *Dasygaster* (s which I have exam crust composed of p that I could perceiv gether from flowers of evening primrose

It is a most in composite head of f corolla after anothe against its ventral pollen only, it may sweeping the stam manner in which th cell and mixed with once a *Gnathocera* deposit pollen or m once more, head fir

After I had or optera, and seeing l plants, I could not the possibility, muc with them. There observed at all, so i immense field of di on about him on al (the latter ten yard captured specimens when submitted for on Hymenoptera, h