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POPULAR AND PRACTICAL ENTOMOLOGY.

COLLECTING WASPS AND BEES.*

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By general consent the Hymenoptera are considered to be the highest order of insects, that is, the most specialized, adaptable and highly organized in the adult state; and the stinging Hymenoptera, consisting of the ants, wasps and bees are the highest section. Yet, although these insects are conspicuous, abundant and easily preserved, this is one of the neglected orders. It is true there are some "critical" groups, especially among the bees, but in many genera the species can be separated easily. During the past four years, the writer has been working at the wasps and bees of the National Collection of Canada, during time that he could spare from his apicultural duties; first, examining and separating into species the material found in the collection and, second, losing no opportunity to collect specimens, both in the Ottawa district and during his annual tour of the provinces. Sufficient material has now been accumulated, chiefly by collecting, to start making keys to the species in hand, and several genera have already been thus dealt with.

Beginners often find it hard to separate the males from the females. The best distinguishing character is to be found in the antennæ, which are thirteen-jointed in the males (only twelve-jointed in some species of the wasp genus *Crabro*) and twelve-jointed in the females; the first joint (scape) is very long, the second joint is very short, and in the bee-genus *Nomada* scarcely discernible. Further, in the males the abdomen normally has seven segments exposed, but in the females only six. However, in some genera one or two of the apical segments are covered in both sexes. The chitinous genitalia of the male are replaced in the female by the sting.

*Part of this paper was read at a meeting of the Quebec Branch of the Entomological Society of Ontario, at Montreal on Nov. 16, 1916.