

vicinity of a *Cicindela* locality always proves productive, and that large numbers will congregate from all parts to seek their winter homes in such places. The hole, however, should be dug a month or more before the hibernating season commences.

In digging, the beetles loosen the earth with their mandibles, and use one leg at a time when kicking the earth back. For the first three to eight inches the hole is dug at an angle, after which it usually goes down in an almost perpendicular direction, though it often happens that when starting after an interval of rest the beetles will take a slightly different direction, so that the hole is never straight, but turns first one way and then another. For the first six to fifteen inches the earth is thrown out, but after this depth is reached the hole is gradually filled in moderately tightly. From four to ten inches being left unfilled at the bottom to enable the beetle to work its way out.

The hole is nearly always wide enough at all points to allow the beetle to turn round, and is always so at the bottom. When the hole is completed, the beetle turns round and faces the top, ready for digging its way out the next spring, when it emerges in practically as perfect condition as when it went in.

A few species, and these closely related, probably dig below the usual frost line, but many do not, as I have dug out several kinds that were in the solid frozen ground and were quite motionless, and which took fully half an hour to become even moderately active in a warm place. All the hibernating forms become sluggish, and eventually torpid as the earth gets cold and frozen.

There are, no doubt, many belonging to this group that never leave their winter homes, especially those kinds that inhabit localities close to water. In fact, it is by no means an uncommon occurrence to find dead specimens of the previous year when digging out live ones. Hundreds were found hibernating in 1906 only five feet above low-water mark in the banks of the Assiniboine River, which the rise of the water in the spring would almost surely totally destroy.

The second of our groups contains strictly summer species, which do not pass the winter in the imago stage, but only as larvæ, possibly as pupæ or ova. There are, however, in the United States some species that are probably intermediate between the two groups, which either pass the winter in very shallow holes or under stones, fallen trees, etc., but these, though difficult to distinguish from the summer species, strictly belong to our first group.