

Yet this is really no great wonder. Every boy and girl must know that within human creatures parasites sometimes exist, often for long periods without causing human deaths. Only when these parasites attack some vital organs does death occur. In the case of the ichneumon grubs and the caterpillar, the grubs do not attack the vital organs immediately. With some species of ichneumon the grubs never do reach the host's vital parts. But let us consider that the caterpillar under discussion is not so fortunate, and is parasitized by grubs which will eat on to its vital parts.

Then this is the miracle, that not until the wasp-grubs are full-fed and full-grown as grubs, not until they have reached the stage when they are ready to pupate, not until then do they break down the life-forces of the caterpillar and bring about its death.

The caterpillar is now little more than skin, a mere shell. Within that shell the ichneumon grubs spin their cocoons, and in due time emerge as the fairy-like creatures that we see dancing on the wind, and sometimes over flowers. And to complete our story with a happy ending we should know that henceforth the ichneumons will find refreshment at the fountains of the flowers; the wasps inherit no bloodthirsty taste from the grubs; they live upon nectar and honey.

Not so terrible.

Discussing other species of ichneumon-wasps, we would vary the tale a little. The grubs might emerge from the caterpillar before it died, and pupate away from it; or the caterpillar might spin itself into a cocoon, and the grubs pupate within the cocoon. In neither case would the caterpillar ever become moth or butterfly.

And it is not all so terrible as it might seem, because there are always too many caterpillars about. When we see the vegetables in man's gardens shredded and torn by the pests of the garden; when we see the cereal crops in the fields wilting and falling, because the outworms are busy; when we see the leaves of a grand old forest tree pock-marked and broken and browned, then we should be thankful that insect-killers such as the ichneumons exist, and we should realize that their deadly deeds are nobly done.

WESTERN AUSTRALIAN TREES.

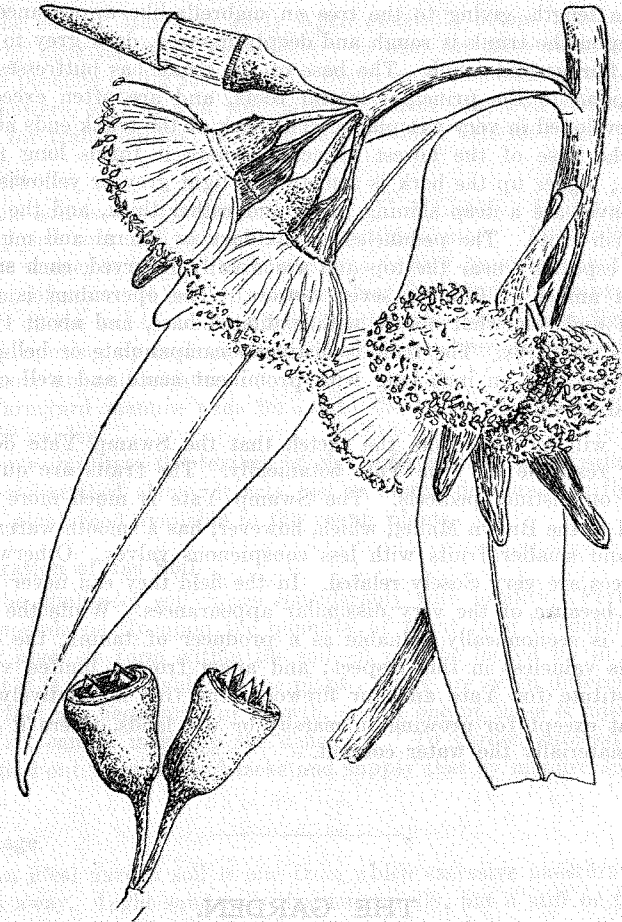
No. XII.—THE SWAMP YATE.

(By C. A. GARDNER, Government Botanist.)

The Swamp Yate is a familiar tree in the lower districts of the South-West, that is, to the South of Wagin. The tree is known as a Yate because of its clean branches and flaky trunk, and more especially because of the long ribbons of bark which hang from a point where the two types of bark meet. This ribbony character, therefore, is the feature which distinguishes the Yate and Swamp Yate amongst

south-western trees, although this feature is by no means confined to these trees. On the Goldfields it is a common feature of the Mirret and other trees.

The Swamp Yate, as its name applies, is a species growing in swamps and depressions, especially if the soil there is of a loamy character. Ideal situations are those where there is a shallow clay depression which is filled with water in the winter months; or even



THE SWAMP YATE.
(*Eucalyptus occidentalis*, Endl.)

lakes where the water is more permanent. Often, however, especially in the Ravensthorpe district, the tree is found growing in lighter soils on granitic rises or hills; but it is then also found along the creeks and lower-lying situations.

Another name for this tree is "Flat-topped Yate." This name is not very appropriate, for the tree is no more flat-topped than is the Salmon Gum. It is, however, more flat-topped in profile than is the case with the true Yate.

The habitat of the Swamp Yate extends from Wagin eastwards through Dumbleyung to Mount Madden; thence further east to Salmon Gums; but eastward of Dumbleyung it is not common. From this line it extends to the south coast, and westward to the jarrah forest. The trees are most numerous and best developed in the Wagin and Dumbleyung districts, especially around the Gundaring Lake.

The tree attains a height of 60 to 80 feet, with a stout trunk and erect branches which arise at an acute angle with the trunk, all about of even length, giving to the tree an umbrella-like appearance. The bark upon the trunk is rough and deeply fissured, dark grey to almost black, fibrous and tough. The base of the trunk has buttresses which correspond to the principal lateral roots, and are often exceedingly well developed in very wet places. The bark of the trunk ends abruptly near the base of the lowest branches, where it forms long ribbony collars; higher up the bark is smooth and light grey or yellowish-grey. The leaves are a deep shining green and rather thick, and the flowers yellowish-white. The peduncles are axillary or lateral and much flattened, especially near the top and are usually recurved, each supporting an umbel of four to seven flowers. The operculum is oblong-conical and somewhat obtuse with a dilated base, and about twice as long as the calyx. The fruit is distinctly campanulate or bell-shaped, and about half an inch long with prominent acute and well exerted protruding valves.

It will be seen from the sketch that the Swamp Yate does not closely resemble the true Yate botanically. The fruits are quite different on distinct pedicels. The Swamp Yate is much more closely related to the Brown Mallet, which, however, has a smooth warm brown bark and smaller fruits with less conspicuous valves. Otherwise the two trees are very closely related. In the field they can never be confused, because of the very dissimilar appearances. While the Brown Mallet is economically valuable as a producer of tannin, the Swamp Yate is valueless in this respect; and apart from a limited value as a substitute for Yate and for firewood, the tree is relatively unimportant except for growing in marshy or wet lands, where it reduces very materially the water content.