

PLANT PARTNERSHIPS.

Οὐδὲς ἑαυτῷ ζῇ. - St. PAUL.



FIG. 1825. MR. D. W. BEADLE.

THIS truth, enunciated by the great apostle is of wide application, it applies not only to man, but to all life, both animal and vegetable. Such is the interrelation of all living creatures that it is quite apparent that "no one lives to himself." From minutest infusoria to the largest animal, from the microscopic lichen to the royal oak this interdependence exists. That this fact has sometimes a very practical bearing upon the work of the horticulturist, this paper is intended to illustrate.

Careful students of plant life have ascertained that a considerable number of trees, shrubs and herbaceous plants are dependent upon the assistance of some other living plant to maintain life. Attempts to grow seedlings of beech and fir in soil from which

other plant life was strictly excluded, have always resulted in failure. For a short time they struggled on in a puny way and died. As in the fable, the lion, notwithstanding his great strength, was obliged, in order to save his life, to avail himself of the help of the feeble mouse, so the royal oak, that it may live, must accept the aid of the most feeble of plants.

Anton Kerner von Marilarun, Professor of Botany in the University of Vienna, in his Natural History of plants, states that all plants of Pyrolaceae and Vaccinaceae, wintergreen and whortelberry families; most if not all Ericaceae, Betulaceae, and Fagaceae heath, birch and beech families; a great number of the cone-bearing evergreens and some others, are dependent upon the assistance of a fungus partner for life and growth.

Readers of the Canadian Horticulturist will surely have made the acquaintance of some of the members of that extensive family of cryptogamous plants called fungi, and doubtless regard them as they do the San Jose Scale, enemies to be if possible exterminated. They will remember that fungi have no green color, neither roots, flowers, nor seeds; that their vegetative parts are usually hidden from observation, and only the organs of reproduction exposed to view. Some feed upon living plants, the parasitic; others upon decaying vegetable or animal matter, the saprophytic. Of the latter group some enter into a mutually beneficial arrangement or partnership with green-leaved plants, termed symbiosis; a word compounded from the Greek, which means living together.

In order that the process by which this partnership is formed may be clearly understood, let us recall the manner of growth of