

A TALE OF TRUFFLES

BY KATHERINE CLOUGH

Surprise is the most frequent reaction to the talk of truffles in North America. They are thought of as exotic fungi growing only in parts of Europe. But they do grow in North America. Dr. Jim Trappe of the USDA Forest Service in Oregon estimates that the Pacific Coast region of the U.S.A. and Canada harbours more truffles than any comparable area on earth. Most of these truffles have never been tasted; of those that have, some have a fine flavour. The fact remains that they are hard to find.

Truffles are underground fungi, some of which have long been known for their culinary value. The black or Perigord truffle and the white Italian truffle are highly prized by gourmets and fetch astronomical prices at food markets. Both of these are referred to by taxonomists as true truffles. They are close relatives of the above ground cup fungi. The majority of underground fungi are related to the above ground gilled mushrooms and are often called false truffles. This distinction gives no clue as to the edibility or flavour of the truffle - edible species are found in both groups. To the casual observer they all look very much the same, like a small wrinkled or warty potato. Telling the species apart requires a lot of experience since the main distinguishing feature is the way the spores are produced inside the truffle. To determine this requires a microscopic examination.

Like mushrooms, truffles are ephemeral fruiting bodies which produce spores to perpetuate themselves. The dispersal of spores can only take place above ground. This is where we find the ecological value of the pungent odour of ripening truffles.

As the truffle ripens, it develops an odour which intensifies and attracts truffle flies. These flies burrow into the ground and lay their eggs in the truffle. The larvae hatch and feed on the maturing truffle. Eventually the adults emerge, carrying spores on their bodies.

Small mammals are also important agents of dispersal. They dig up truffles for food and the spores can be passed unharmed through their digestive tracts and thereby dispersed throughout the forest. Truffle spores have been found in the feces of many small mammals. Trappe recounts a story of how this fact helped to solve a mystery of mammalian biology in Oregon. Scientists were puzzled to find the remnants of flying squirrels in the digestive tracts of bobcats and coyotes. These animals do not climb well enough to catch flying squirrels and the squirrels are always seen high in the trees. However analysis of the squirrel feces revealed the presence of truffle spores. It appears that the squirrels do descend to the ground if they detect the odour of a truffle. This puts them at the mercy of these predators.

Truffles are formed almost exclusively by mycorrhizal fungi. These are the fungi that live in association with the roots of trees. Both the fungus and the tree benefit from the association. The tree receives minerals and some protection from the fungus, which in turn receives carbohydrates from the tree.