

BOTANY
NATURE RAMBLINGS
by Frank Thome



Colonizers of Barren Lands

► WIND-BEATEN, sun-baked rocks in the driest deserts, bare bones of granite sticking out of mountainsides, glacier-dropped boulders on Arctic islands, volcanic lavas with their fires all spent, even tombstones in old churchyards—these would hardly seem promising places to go botanizing. Yet all of them will yield at least a thin harvest, if you know how to hunt for it.

You must not expect roses and orchids, of course, or even cacti and yuccas at the outset. Indeed, unless some botanist has

shown you what to look for, you'll take these exiguous gardens of the rocks for part of the rocks themselves, or at best for chance splashes of paint. For these first-fruits of the dead stone are mere films of life—and of life that can “play dead”, at need, for long periods of droughty time.

These first colonists of earth's barest places are the lichens. A lichen is not a plant, in the sense that a fern or a violet is a plant; it is really a colony of plants—and of two diverse kinds of plants at that. Under the microscope, the structure of a lichen is seen to consist of a close network of fungus threads, enclosing numbers of lowly one-celled green plants known as algae.

Fungi, being unable to manufacture their own food, have to depend on the carbohydrates and proteins prepared by the algal cells. It is assumed that the algae get some benefit from the arrangement, in the way of protection, and perhaps from the wick-like water-holding action of the fungi. Such a mutually advantageous arrangement in

nature is called *symbiosis*, which is a Greek phrase meaning “living together”. To a perhaps somewhat jaundiced eye, it looks as if the algae in a lichen complex were getting the worse of the bargain; their role appears to be like that of the helots in ancient Sparta, or of the “natives” in a nineteenth-century European colony in the tropics. However, even in a slave state there are a few small advantages to the slaves, unless their exploiters are greedy to the point of self-destructiveness.

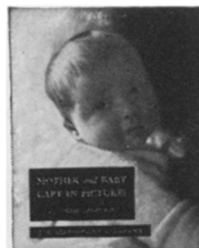
There are three general classes of algae: crustose, which are the paint-splash-like kinds, impossible to collect except by chiseling loose chips of the rock; foliose or leaflike, which form loose, leathery or papery scales, easily picked up; and fruticose or twiggy, of which the best-known examples are the so-called reindeer moss of northern lands and the beard-moss that drapes tree boughs wherever the climate is damp and cool.

Science News Letter, June 7, 1947

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