How are they used?

Besides being fascinating in their own right, lichens serve other functions in nature. They provide homes for a number of insects. Lichens are a part of the diet for animals such as caribou, mountain goats and deer. More than 50 species of birds use lichens in their nests.

People have learned to use lichens in a number of ways also. Some lichens are edible, others are used in making antibiotics, and many can be used in making dyes that range in color from warm brown to brilliant violet. Rocks with lichen growth are popular choices for rock gardens.

Because lichens are extremely sensitive to air pollution, their absence can be used as a measure of how much an area is polluted. When there are too many harmful substances in the air, lichens die.

Want to know more about lichens?

If you're curious about lichens and want to learn more, a good place to start is with the American Bryological and Lichenological Society. The Web address is http://www.unomaha.edu/~abls/resources.html

You can find information about upcoming forays, meetings, and articles focused on studying and identifying lichens.

The Society also sponsors a lichen exchange where participants can acquire lichens from different geographic regions.

For more information visit these Web sites.

ISU Plant Pathology
http://www.ag.iastate.edu/departments/plantpath/PlantPath.html

ISU Extension publications
http://www.extension.iastate.edu/pubs

ISU Horticulture
http://www.extension.hort.iastate.edu

For more information on selection, planting, cultural practices, and environmental quality, contact your Iowa State University Extension county office. If you want to learn more about horticulture through training and volunteer work, ask your ISU Extension office for information about the ISU Extension Master Gardener program.

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File: Horticulture and Landscape Architecture

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RG 703 September 2002

REIMAN GARDENS
IOWA STATE UNIVERSITY

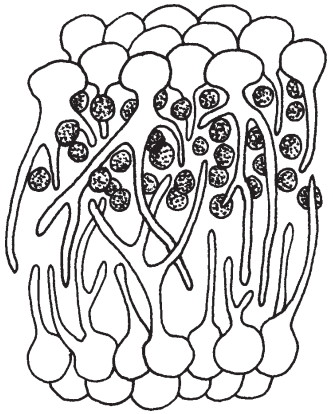
Lichens

IOWA STATE UNIVERSITY
University Extension

What are they?

The appearance of gray-green patches on the trunk or branches of a tree sometimes provokes concern. Should the growths be removed? Is the tree in trouble?

These interesting and unusual growths are known as lichens. They are intriguing because they are made of two completely different organisms. Most of the lichen is composed of a fungus. But living among the tightly packed threads of the fungus are cells of an alga. These two organisms live together and form the lichen structure. The lichen does not resemble either the fungus or the alga growing alone.



Two organisms that exist together, each providing some benefit to the other, are called symbionts. The job of the alga is to provide food. As a green plant, it's able to use sunlight to make food for the fungus as well as itself. The fungus holds up its end of the arrangement by obtaining water and minerals for itself and the alga and by protecting the algal cells.

Where are they?

Lichens are common on trees because the bark provides a nice place to gather sunlight and grow. They do not feed on the tree or harm it in any way. Lichens sometimes grow profusely on dead branches or trees, raising suspicion that they cause disease. The reason they grow so well on these leafless branches is because they are fully exposed to the sunlight.

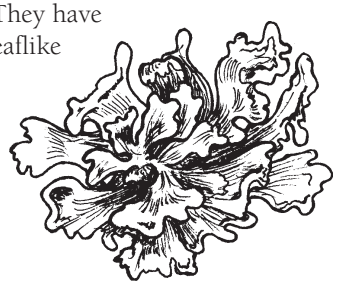
Lichens will grow on almost any stable and sunny surface. Besides tree trunks, other common lichen habitats include rocks, tombstones, soil and on the tundra. Lichens are tough organisms, able to survive hot or cold temperatures and able to survive with little moisture. They often grow in spots that are too harsh for most other organisms.

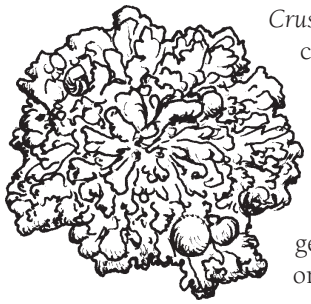
Lichens grow very slowly, usually just a fraction of an inch per year. The lichens commonly found on trees tend to be circular and are scattered on the bark. Each lichen body is usually several inches or less in diameter, but as they grow together, large areas of a tree trunk can be covered. Lichens reproduce by packaging clusters of algal cells in fungal threads. These structures break off and can be blown by wind, moved by water, or transported on insects or animals. If they end up in a suitable spot, new lichens are formed.

What types are there?

Not all lichens are the same. In fact, scientists have identified as many as 20,000 different kinds of lichens. The color and growth habit are used to identify and classify lichens.

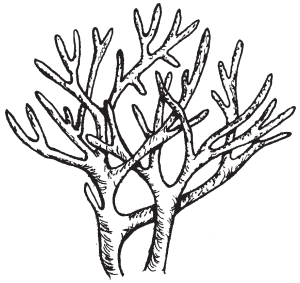
Foliose lichens—gray-green and commonly found on trees. They have slightly raised, leaflike lobes. When moistened, they become somewhat rubbery and can be removed.





Crustose lichens—colorful and commonly found tightly clutching rocks or tombstones. Some are an attention-getting bright orange or yellow.

Squamulose lichens—less common form made of flattened, pebble-like units.



Fructicose lichens—another less common form that consist of branching tubes.