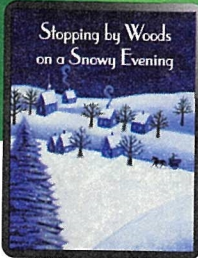
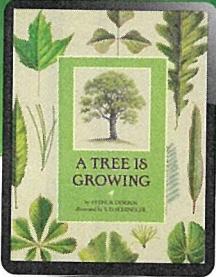


Vocabulary in Context



Q LANGUAGE DETECTIVE

Talk About the Writer's Words

Work with a partner. Take turns asking and answering questions about the photos. Use the blue Vocabulary words in your questions and answers.

1 pollen

This bee carries **pollen** from flower to flower, which helps seeds grow.



2 store

A baobab tree can **store**, or keep, lots of water in its trunk.



3 clumps

The flowers on some trees grow in **clumps**, or bunches.



4 passages

A leaf has small **passages**, or tubes, that allow water to spread all over.



- ▶ Study each **Context Card**.
- ▶ Make up a new context sentence using two Vocabulary words.

5 absorb

A plant's roots **absorb** water. They soak it up.

**6 throughout**

Sap passes **throughout** a tree. It travels to every part.

**7 coverings**

Different kinds of trees have different **coverings**, or outer layers.

**8 spines**

Many kinds of cacti are covered in sharp **spines**.

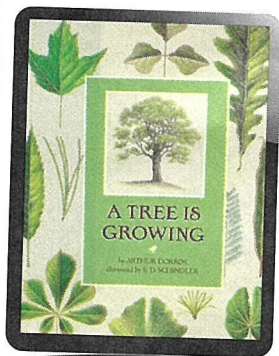
**9 tropical**

Some plants grow in warm, damp, **tropical** climates near the equator.

**10 dissolve**

If you add salt to water, it will **dissolve**, or mix, with the water.





Read and Comprehend

✓ TARGET SKILL

Text and Graphic Features As you read *A Tree Is Growing*, look for features that will help you understand the information. **Text features** such as labels, captions, and sidebars will give you more details about the main text. **Graphic features**, including pictures and diagrams, will show you what the text describes. Use a chart like the one below to list the features you find and their purposes.

Text or Graphic Feature	Page	Purpose

✓ TARGET STRATEGY

Question As you read, ask yourself **questions** to make sure that you understand the information. Look for evidence in the words, sidebars, pictures, labels, and diagrams.

PREVIEW THE TOPIC

Trees

Trees are a great natural resource. Apart from their beauty, trees provide shade and food. Trees protect people from windstorms and floods. People use the wood from trees to build houses and to keep their homes warm, as well as to make useful things such as furniture, paper, and pencils. As a resource, trees are especially valuable because they are renewable. This means that new trees can be planted to replace the trees that people use.

In *A Tree Is Growing*, you will read about the science of how trees grow. You may find some fascinating facts!



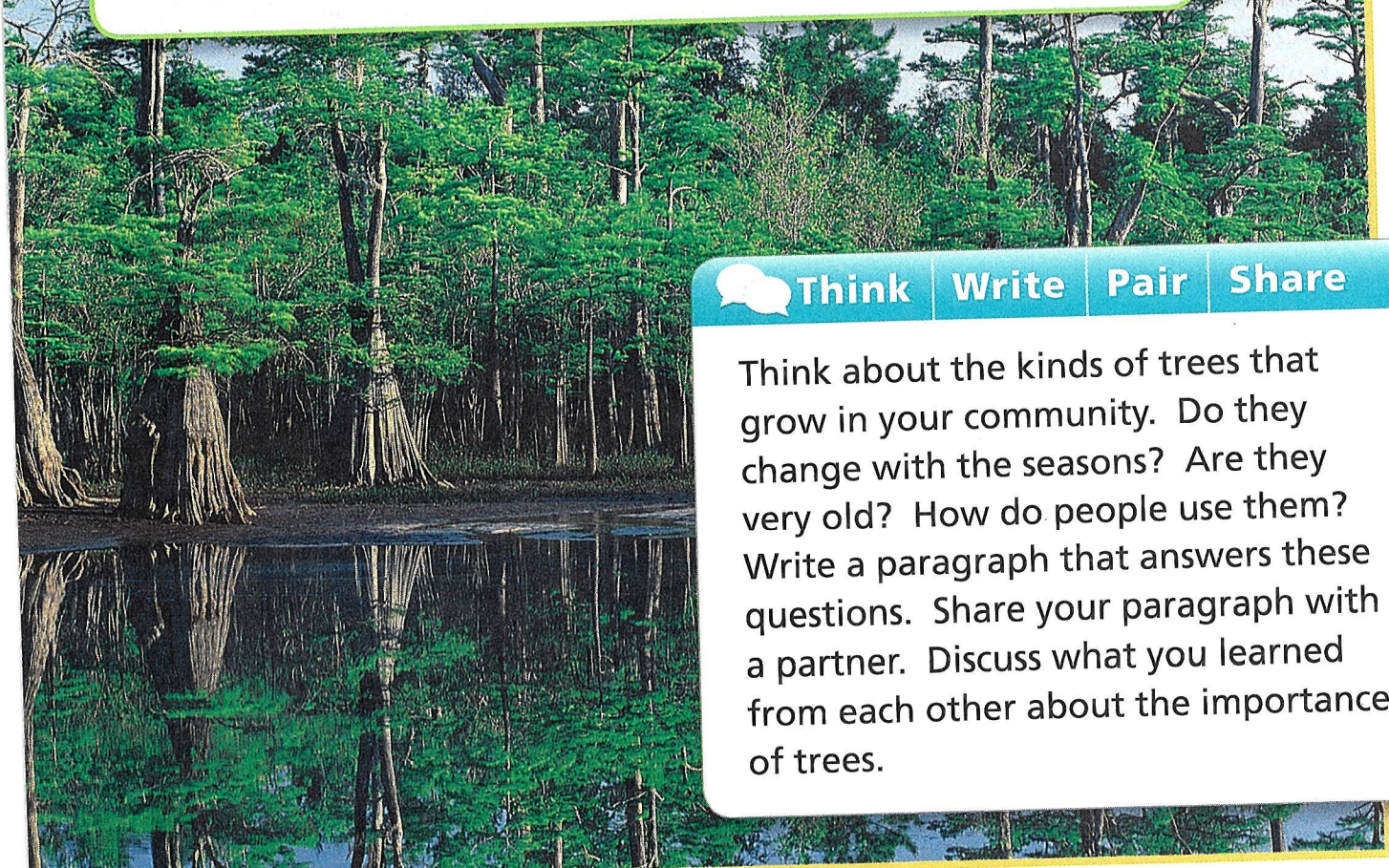
Think

Write

Pair

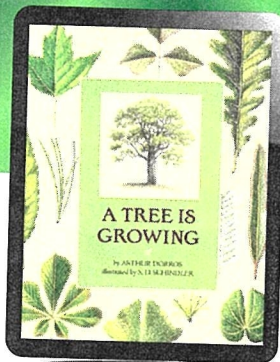
Share

Think about the kinds of trees that grow in your community. Do they change with the seasons? Are they very old? How do people use them? Write a paragraph that answers these questions. Share your paragraph with a partner. Discuss what you learned from each other about the importance of trees.



Lesson 18

ANCHOR TEXT



✓ GENRE

Informational text gives information about a topic. As you read, look for:

- ▶ photographs and captions
- ▶ graphics, such as diagrams, that help explain the topic
- ▶ text structure, or the ways the ideas and information are organized

MEET THE AUTHOR

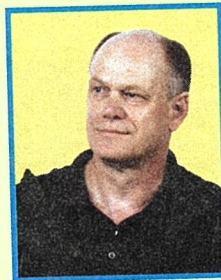
Arthur Dorros



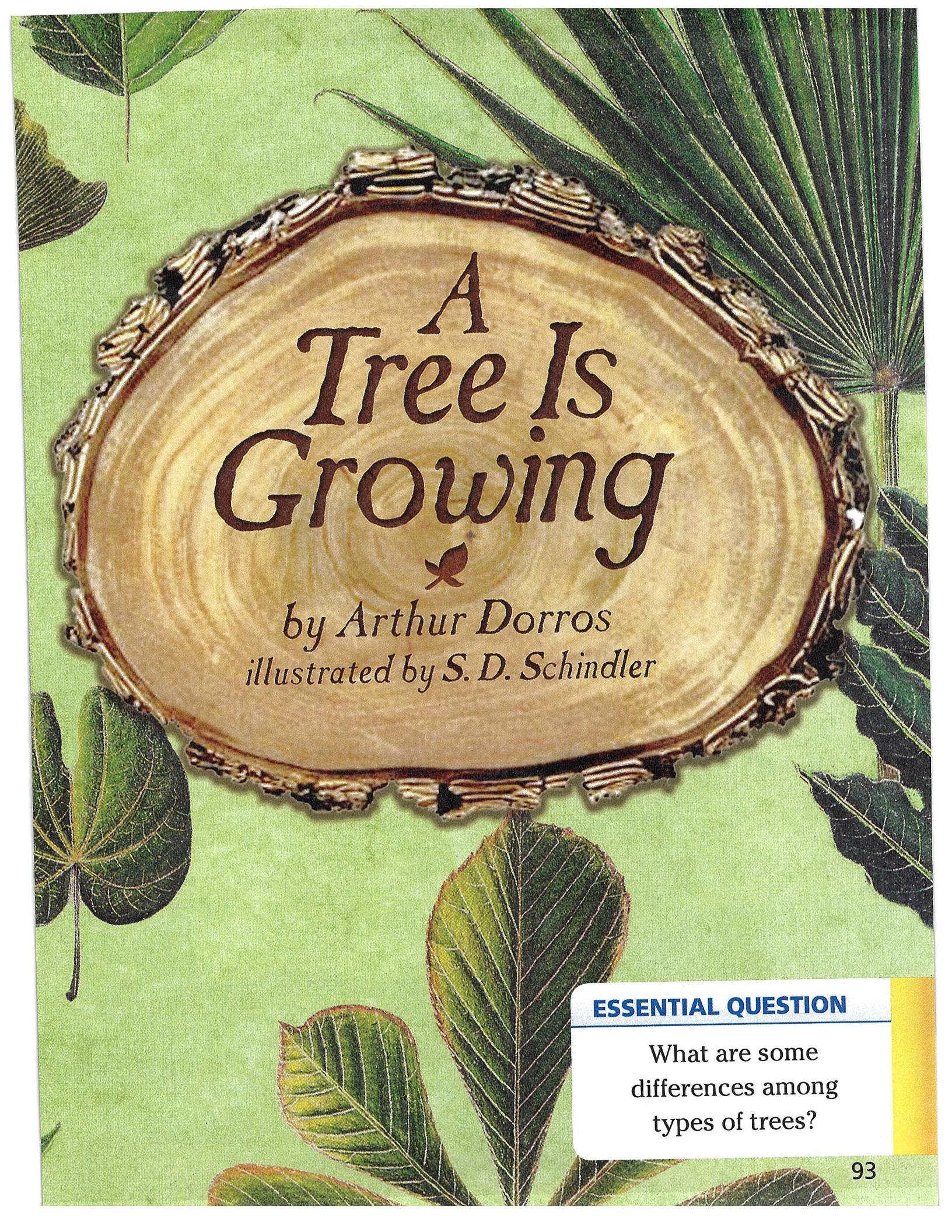
Arthur Dorros loves trees. When he was five, he planted a maple seedling. The tree grew taller than a two-story house! The author believes that everyone has stories to tell. He encourages children all over the country to write.

MEET THE ILLUSTRATOR

S. D. Schindler



When S. D. Schindler was just four years old, he won a red wagon in a coloring contest. S. D. Schindler loves nature as much as he loves art. He used plants and animals from the woods near his home as models for the illustrations in *A Tree Is Growing*.

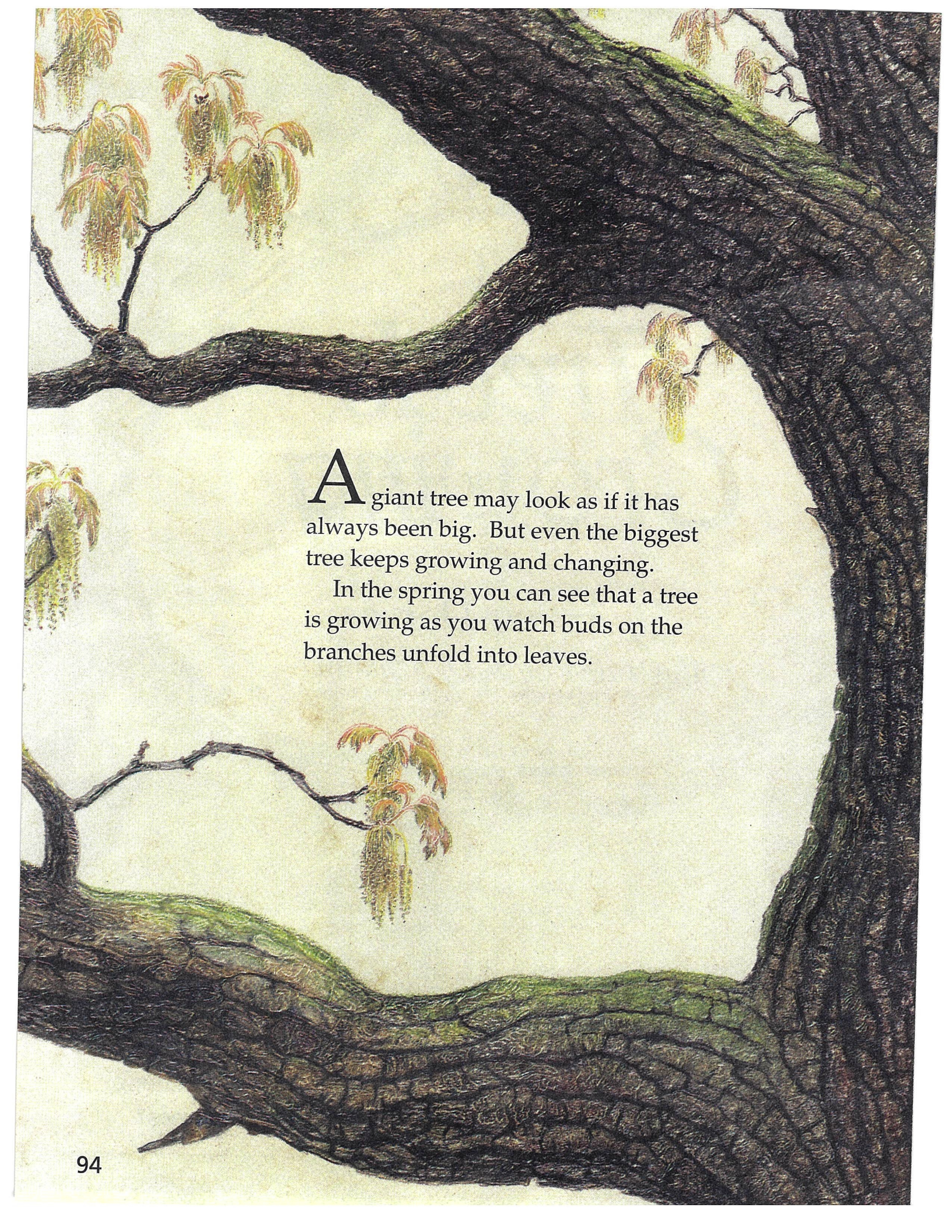


A Tree Is Growing

by Arthur Dorros
illustrated by S. D. Schindler


ESSENTIAL QUESTION

What are some differences among types of trees?



A giant tree may look as if it has always been big. But even the biggest tree keeps growing and changing.

In the spring you can see that a tree is growing as you watch buds on the branches unfold into leaves.

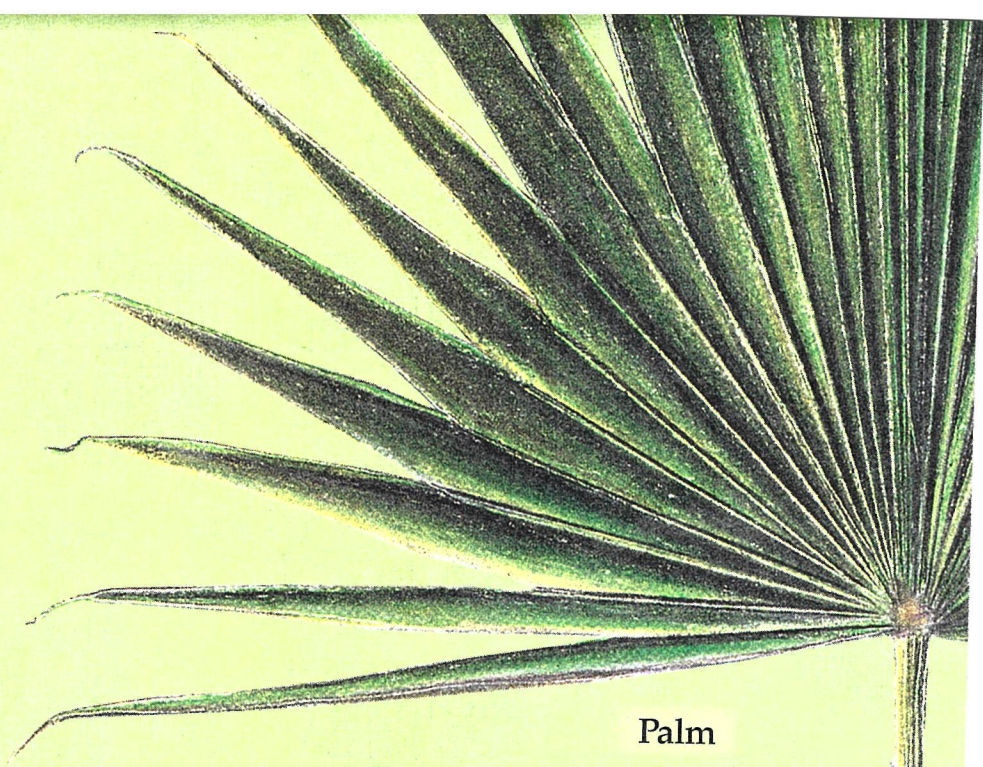


*Bristlecone pines
are the oldest
known living trees
on earth. Some
have been growing
for five thousand
years—since before
the pyramids in
Egypt were built.*





White oak



Palm



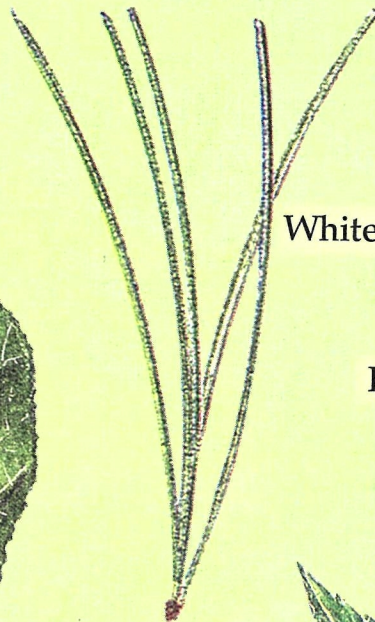
Ginkgo

Leaves can be skinny needles or big heart shapes. Whatever shape or size a leaf is, it makes food for the tree.

A kind of sugar is made in the leaves. Trees use the sugar as food.



Empress tree

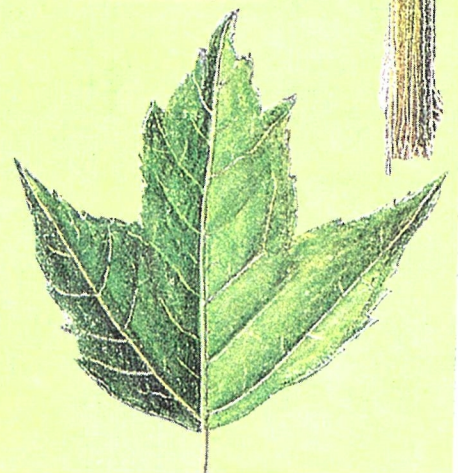


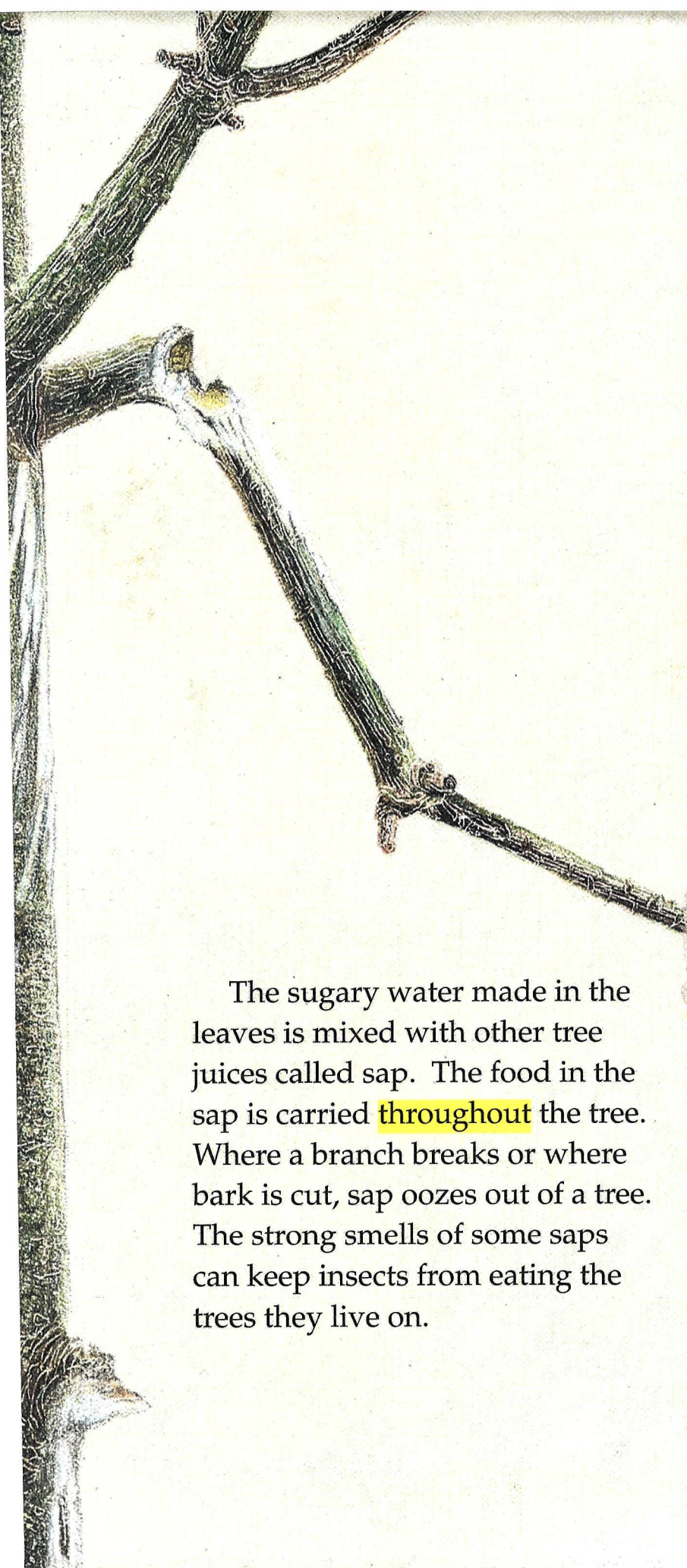
White pine

Breadfruit tree



Red maple





The sugary water made in the leaves is mixed with other tree juices called sap. The food in the sap is carried **throughout** the tree. Where a branch breaks or where bark is cut, sap oozes out of a tree. The strong smells of some saps can keep insects from eating the trees they live on.



*If you rub a
sassafras leaf,
the sap smells spicy.*



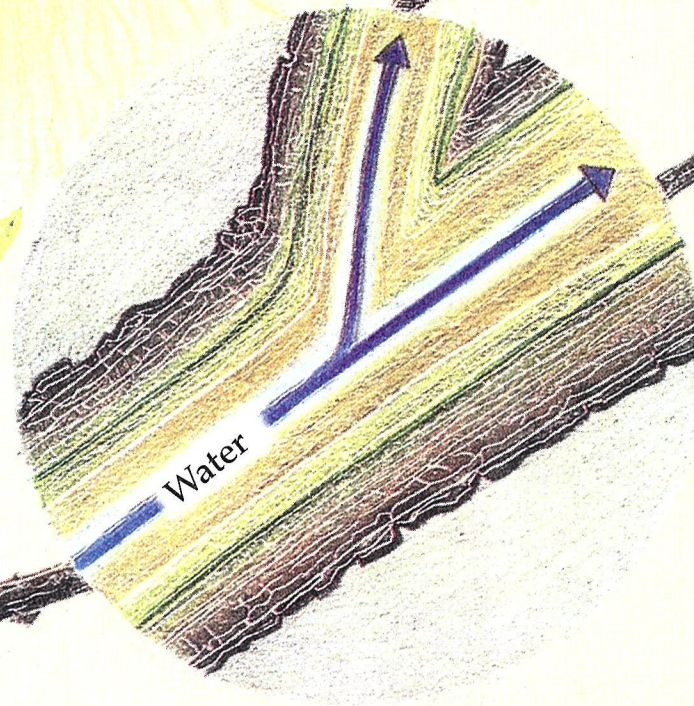
*Maple syrup is the
boiled sap of sugar
maple trees.*



Baobab trees **store** water in the trunks. When a baobab tree trunk is swollen with water, it is round and fat. In dry weather, the tree gets water from the trunk. Then the trunk gets thinner.



Moth
caterpillar



A tree needs sunlight, air, soil, and water to grow.
Water travels through **passages** in the trunk and branches up to the leaves. The water moves up the trunk as if it is being sucked through a straw.
Sugary sap made in the leaves travels down other passages in the trunk, taking food to different parts of the tree.



*A few kinds of trees
drop roots from
branches into the
soil to gather water.
Banyan tree roots
grow into columns all
around the tree.*



*Growing roots are
strong. A root can
lift a sidewalk or
split a rock as it
grows. By splitting
the rock, it helps
make soil.*



White oak

Earthworms

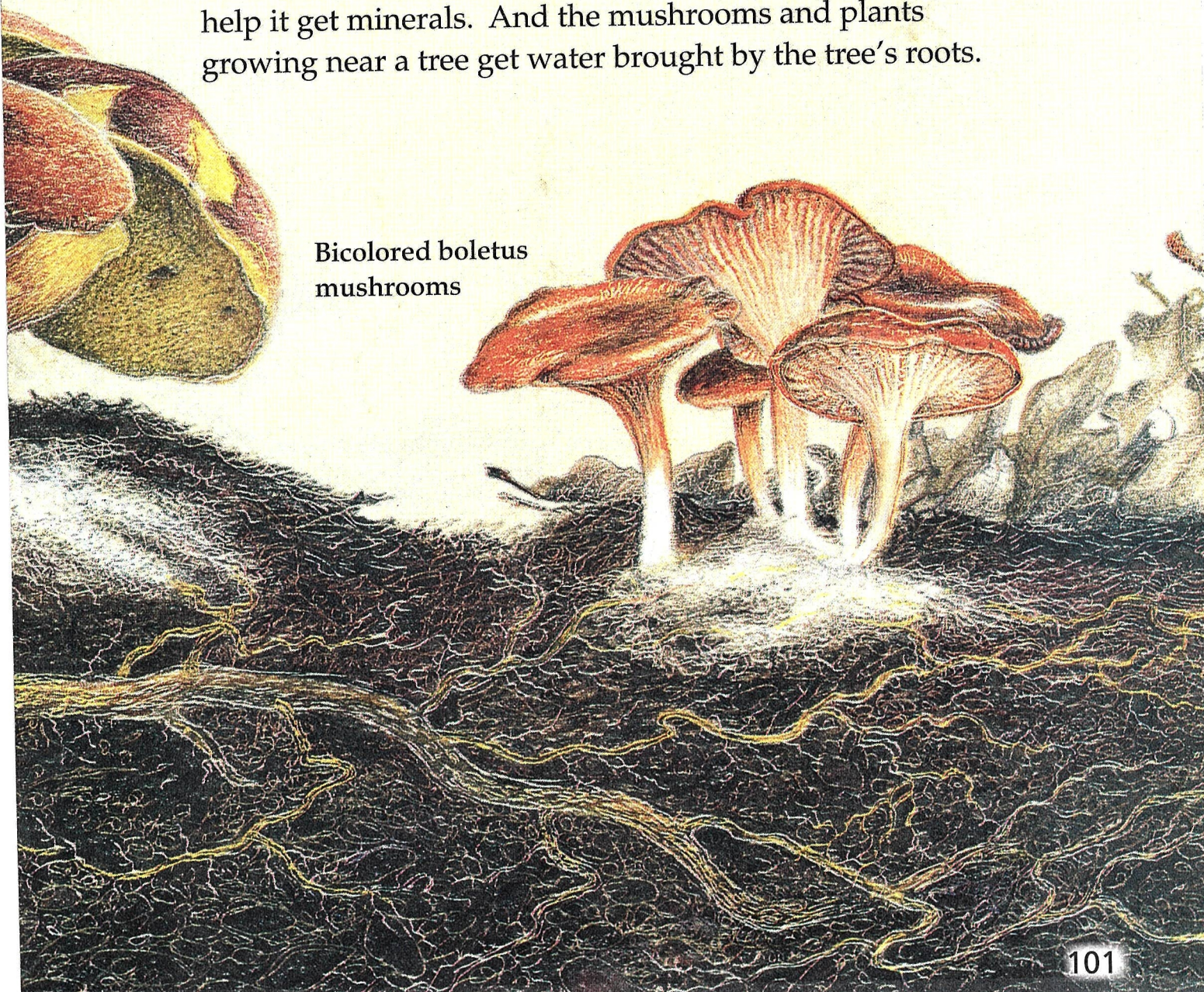
Beetle grub

The roots of a tree grow into the ground and hold the tree in place. Roots are like pipelines. They **absorb** water and carry it into the tree.

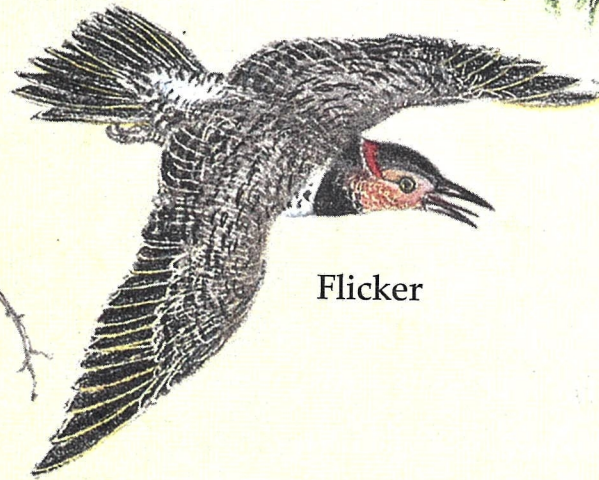
A tree's roots spread out far underground. They usually grow out a little farther than the tree's branches.

Trees need minerals to grow. Minerals are tiny particles that are found in the soil. Salt is one kind of mineral. Like salt, other minerals **dissolve** in water. They are mixed in with the water that roots absorb and are carried throughout the tree.

Mushrooms growing among the roots of a tree can help it get minerals. And the mushrooms and plants growing near a tree get water brought by the tree's roots.

A detailed illustration of a forest floor. In the foreground, several bicolored boletus mushrooms with reddish-brown caps and gills, and thick, pale stems, are growing from a dark, rich soil. A network of light-colored tree roots is visible, spreading across the ground and around the mushrooms. To the left, a large, smooth, reddish-brown rock is partially visible. The background shows more of the forest floor and some distant trees.

Bicolored boletus
mushrooms



Flicker

Bark is the skin of a tree. The outer layer of bark protects the tree. When an oak tree is young, the bark is as smooth as a baby's skin. As the tree grows older, the bark becomes rough and cracked.

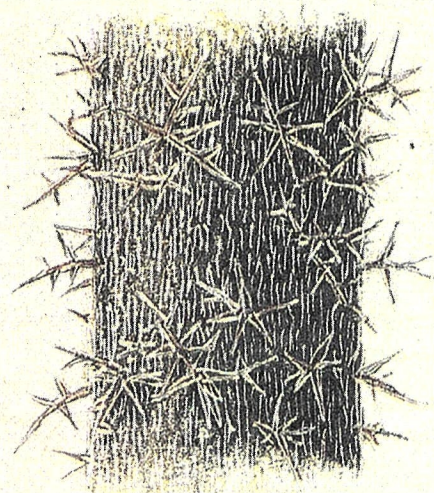
Polyphemus
moth



*Looking at the bark
of a tree can help
you know what
kind of tree it is.*

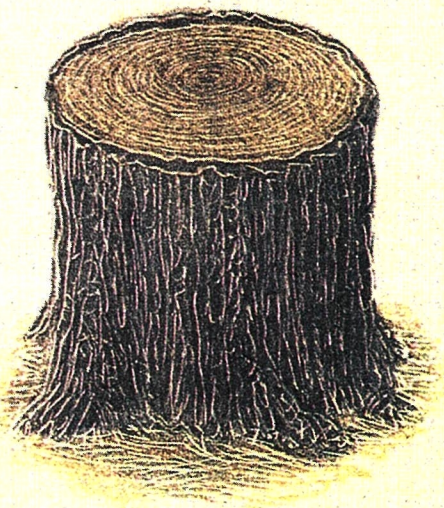


*The cork used for
bulletin boards is
the peeled-off
outer bark of a
cork oak tree.*

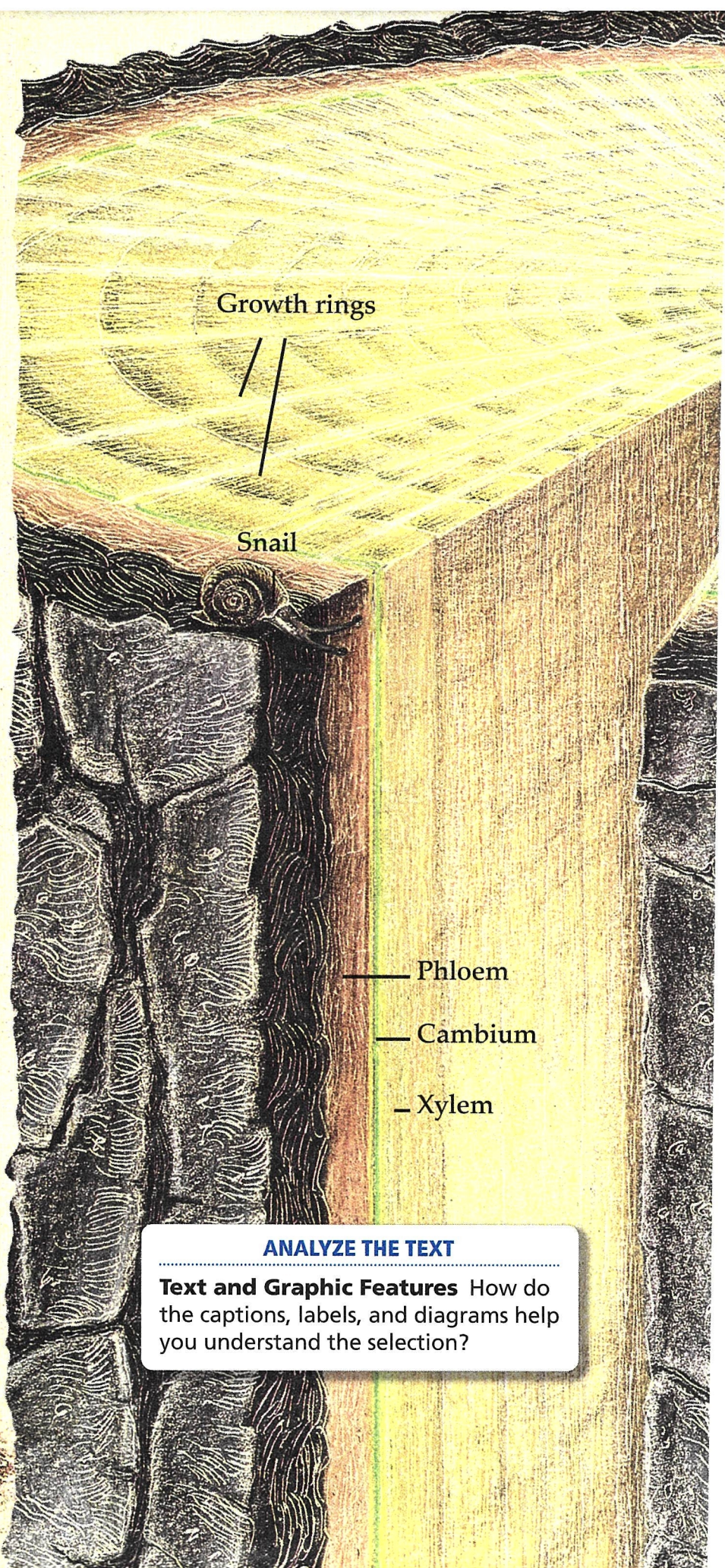
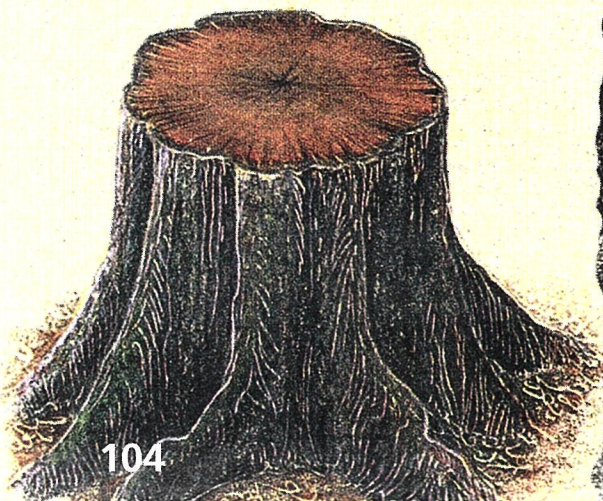


*Honey locust bark
has **spines** to help
protect the tree.*

In cool climates, cambium only grows in spring and summer. Count growth rings to see how old a tree was when it died. An old fir tree can have over a thousand rings, one for each year it lived.



*In **tropical** rain forest trees, the cambium grows all year and there are no rings. It is hard to tell the ages of those trees.*



Growth rings

Snail

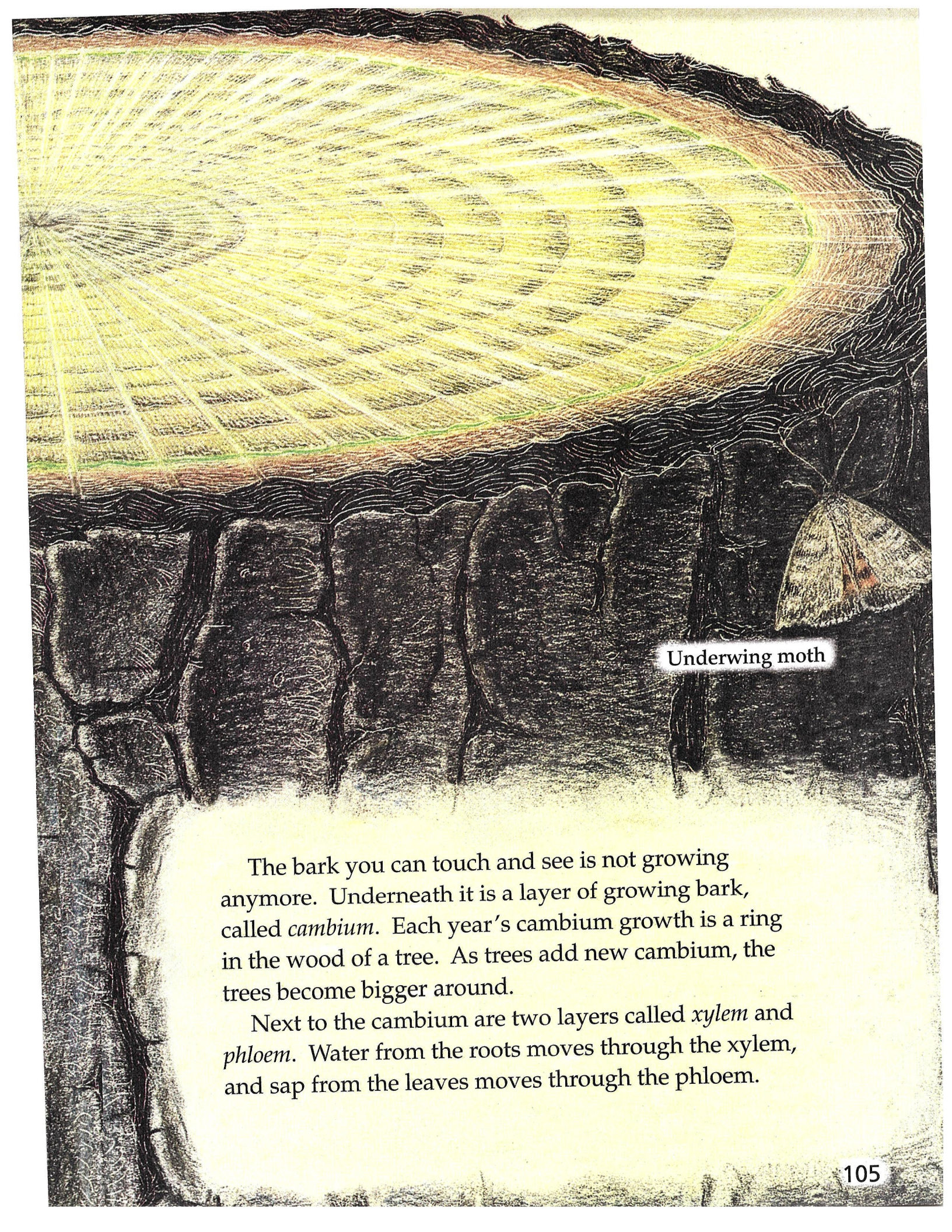
Phloem

Cambium

Xylem

ANALYZE THE TEXT

Text and Graphic Features How do the captions, labels, and diagrams help you understand the selection?



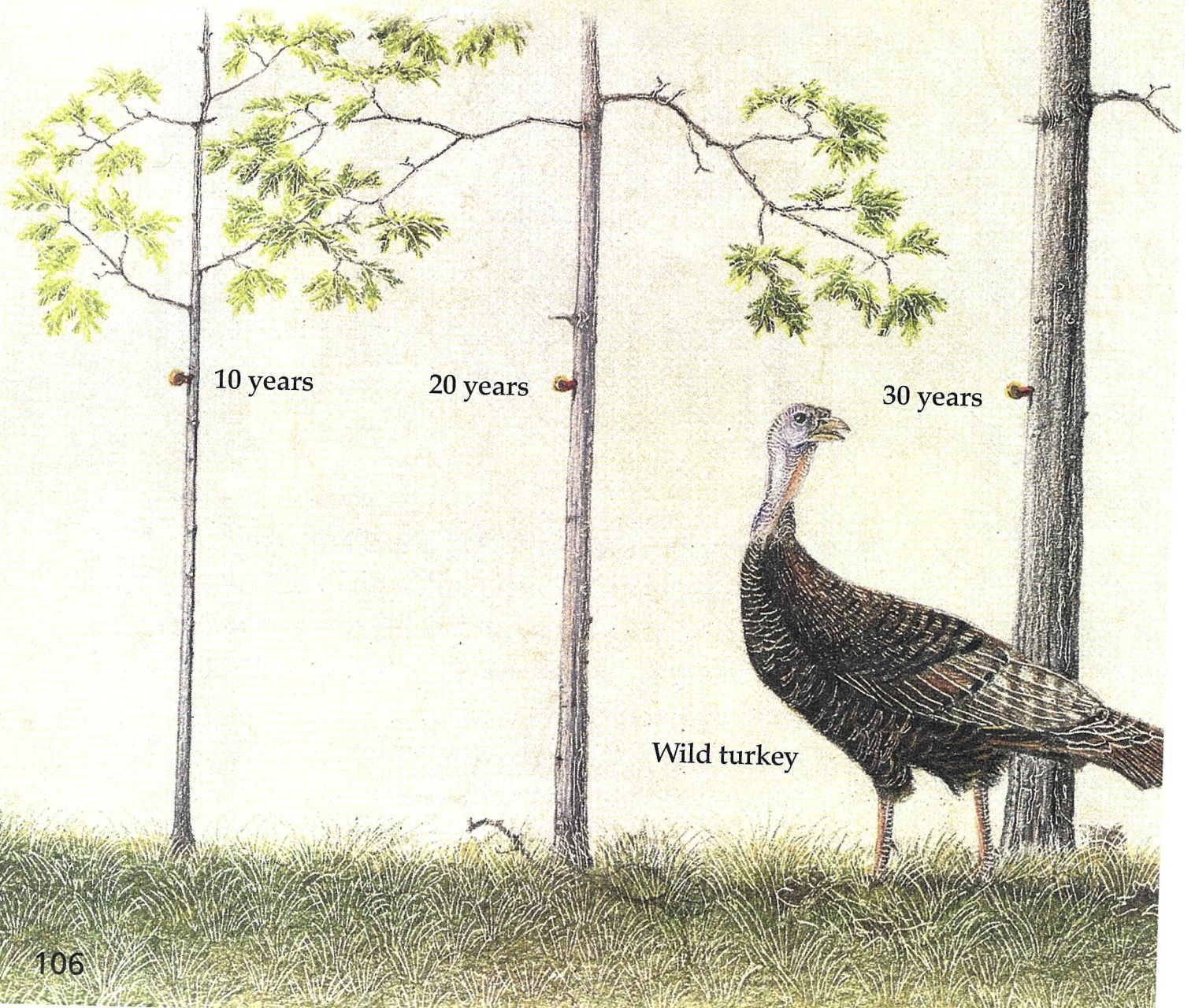
Underwing moth

The bark you can touch and see is not growing anymore. Underneath it is a layer of growing bark, called *cambium*. Each year's cambium growth is a ring in the wood of a tree. As trees add new cambium, the trees become bigger around.

Next to the cambium are two layers called *xylem* and *phloem*. Water from the roots moves through the xylem, and sap from the leaves moves through the phloem.

Trees grow bigger around, and they grow taller. As a tree grows, lower branches may fall off, making the trunk look longer. But the branches do not move upward on the trunk. A tree grows taller only at the top, as the tips of the top branches grow upward.

If you find a mark on a tree trunk today, that mark would stay at the same height for as long as the tree lives.



*Sequoias are some of
the tallest trees in the
world—over three
hundred feet tall.*

50 years 200 years