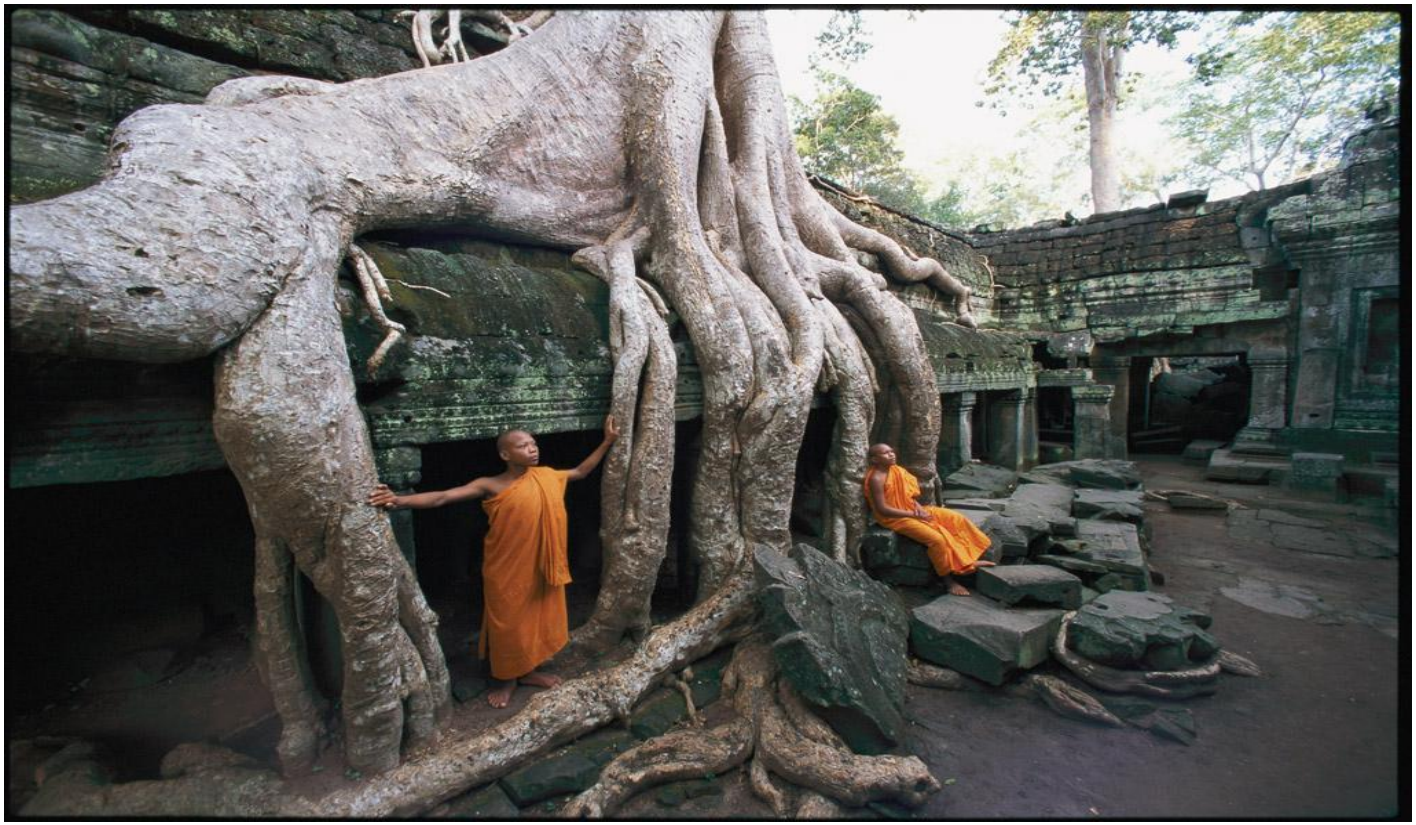
21.3 Roots and Stems

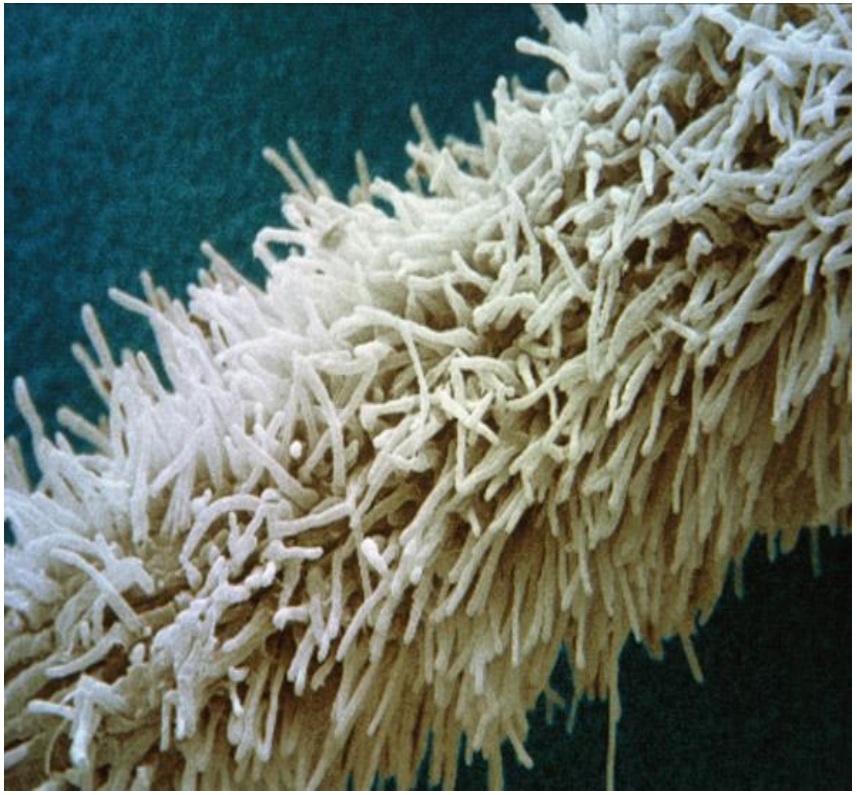
KEY CONCEPT

Roots and stems form the support system of vascular plants.



21.3 Roots and Stems

- **Roots anchor plants and absorb mineral nutrients from soil.**
  - Roots provide many functions.
    - support the plant
    - absorb, transport, and store nutrients
    - root hairs help absorption



21.3 Roots and Stems

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  - root cap covers the tip

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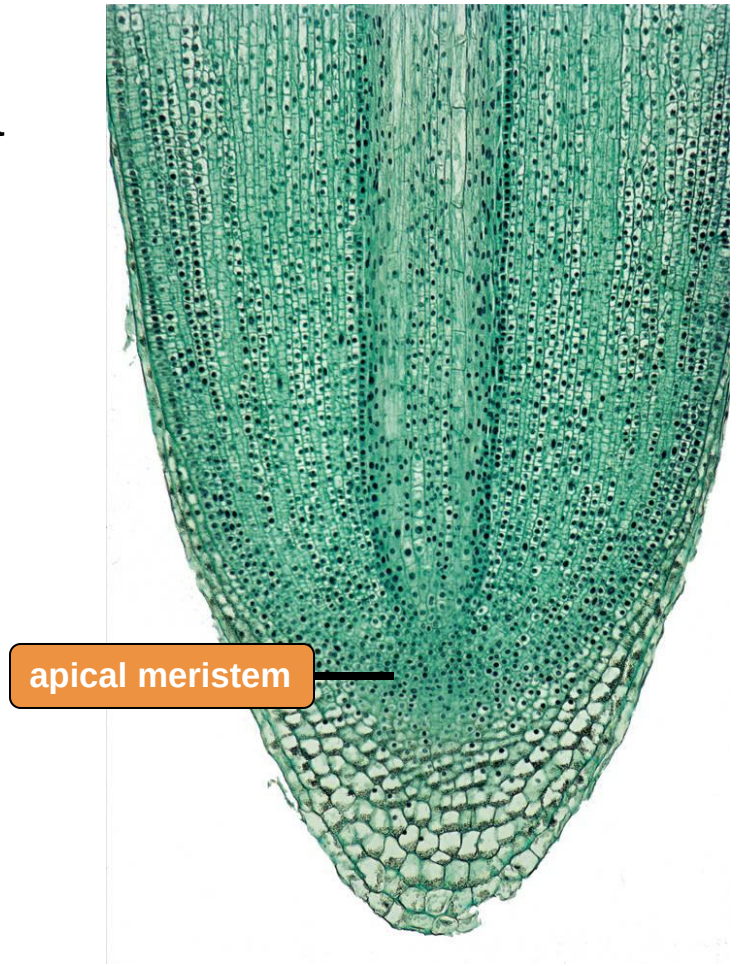
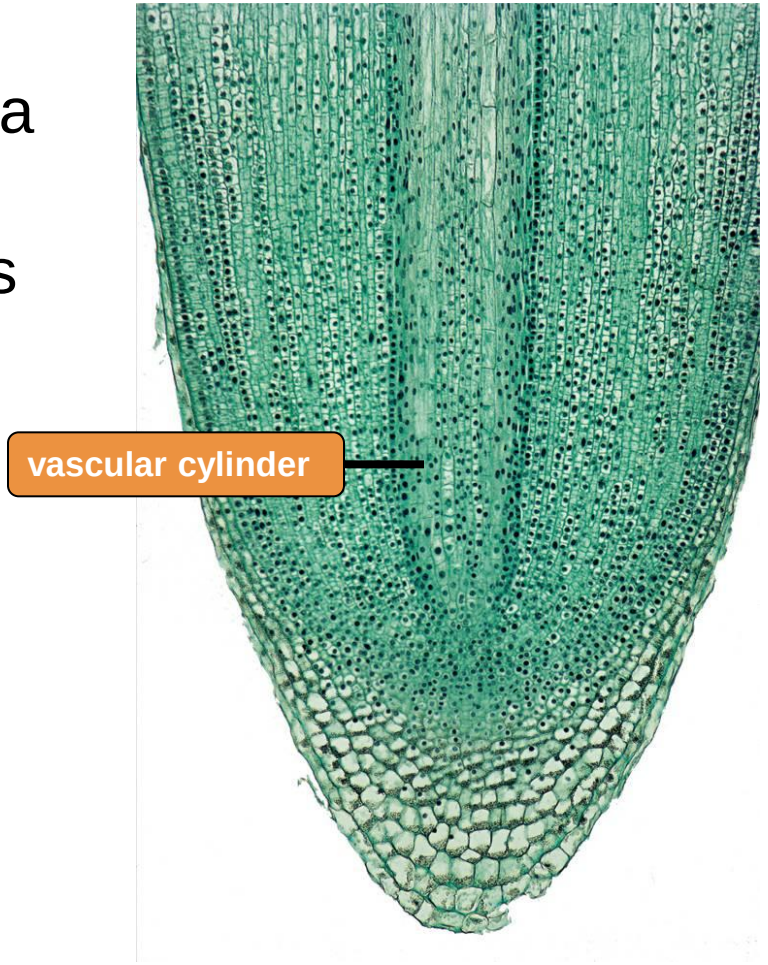


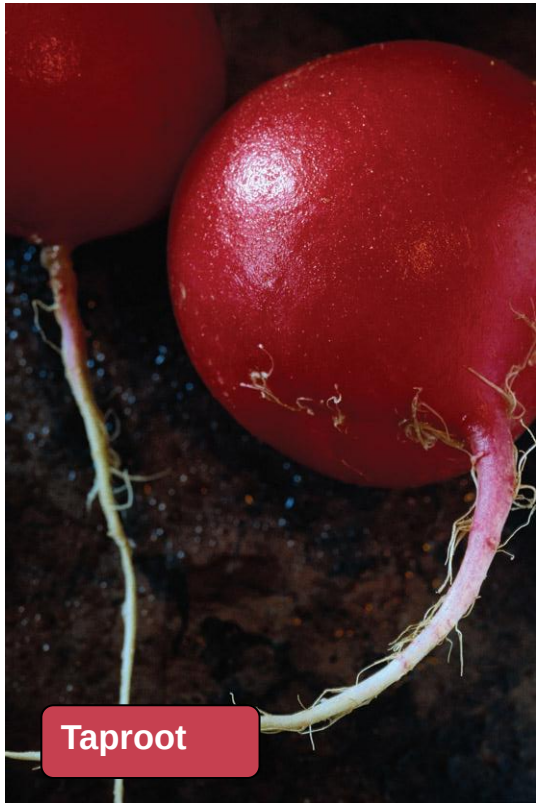
21.3 Roots and Stems

- There are several parts of a root.
  - root cap covers the tip
  - apical meristem is an area of growth
  - vascular cylinder contains xylem and phloem



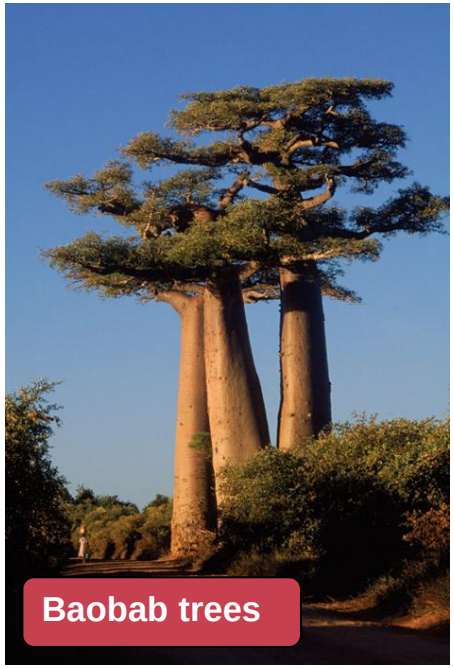
21.3 Roots and Stems

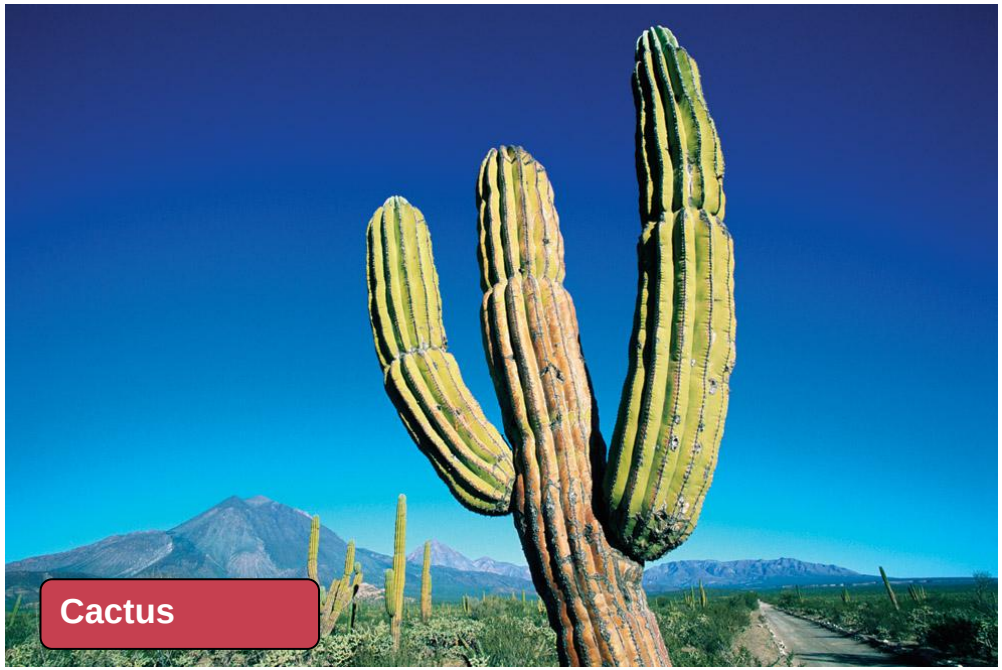
- There are two main types of roots.
  - Fibrous root systems have fine branches.
  - Taproot systems have one main root.



21.3 Roots and Stems

- **Stems support plants, transport materials, and provide storage.**
  - Stems have many functions.
    - support leaves and flowers
    - house most of the vascular system
    - store water


Baobab trees


Cactus

21.3 Roots and Stems

- **Stems support plants, transport materials, and provide storage.**
  - Stems have many functions.
    - support leaves and flowers
    - house most of the vascular system
    - store water
    - grow underground for storage


Ginger rhizomes


Potato tubers

21.3 Roots and Stems

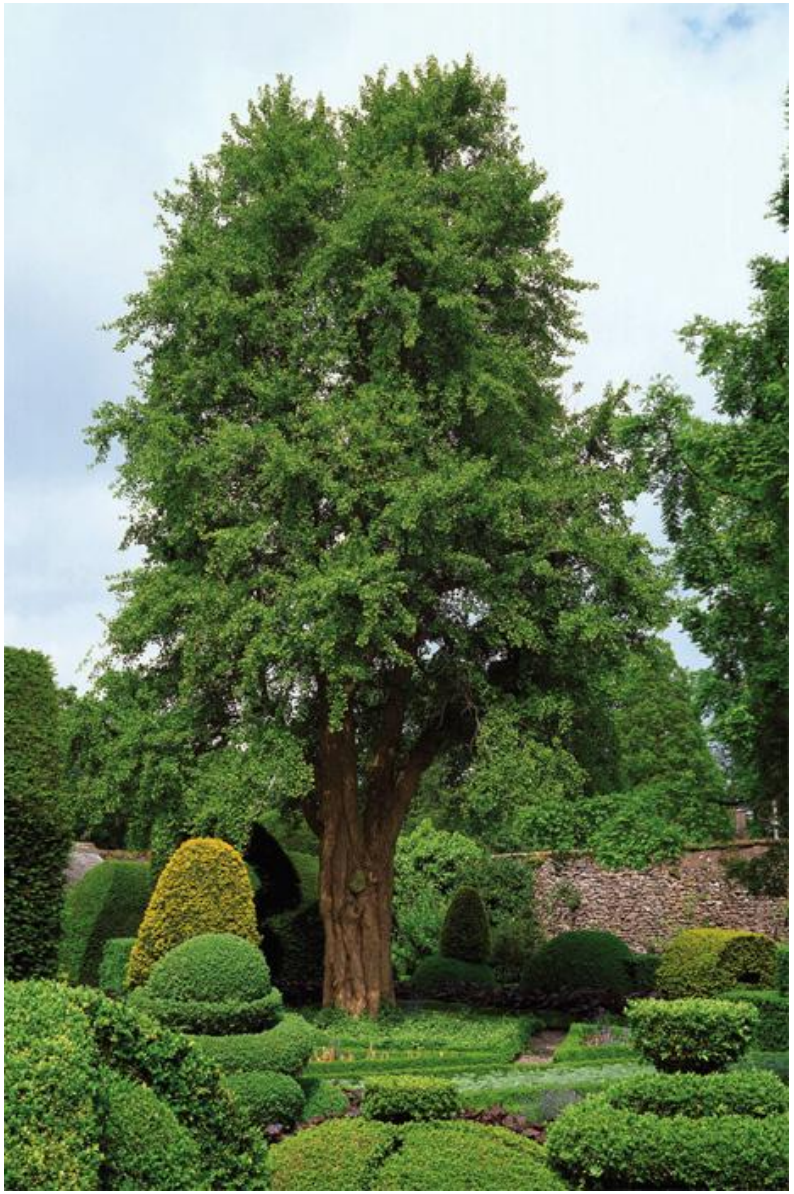
- **Stems support plants, transport materials, and provide storage.**
  - Stems have many functions.
    - support leaves and flowers
    - house most of the vascular system
    - store water
    - grow underground for storage
    - form new plants

21.3 Roots and Stems

- Some stems are herbaceous and conduct photosynthesis.

21.3 Roots and Stems

- Some stems can be woody, and form protective bark.

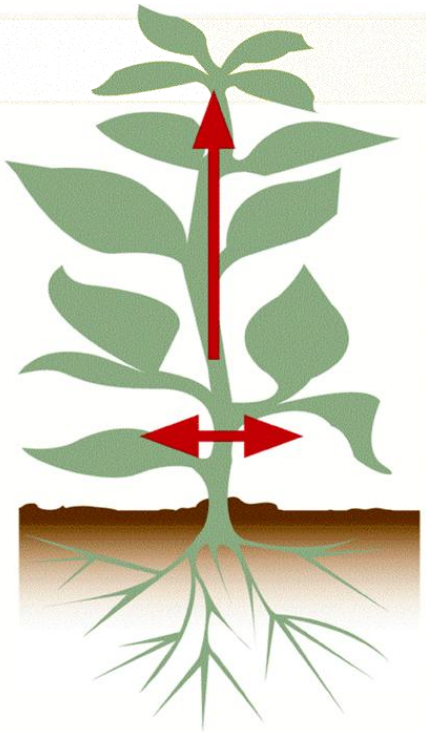


21.3 Roots and Stems

- Primary growth increases a plant's length.
- Secondary growth increases a plant's width.

Primary growth lengthens roots and stems.

Secondary growth widens roots and stems.



21.3 Roots and Stems

- Tree rings help determine the age of a tree.