



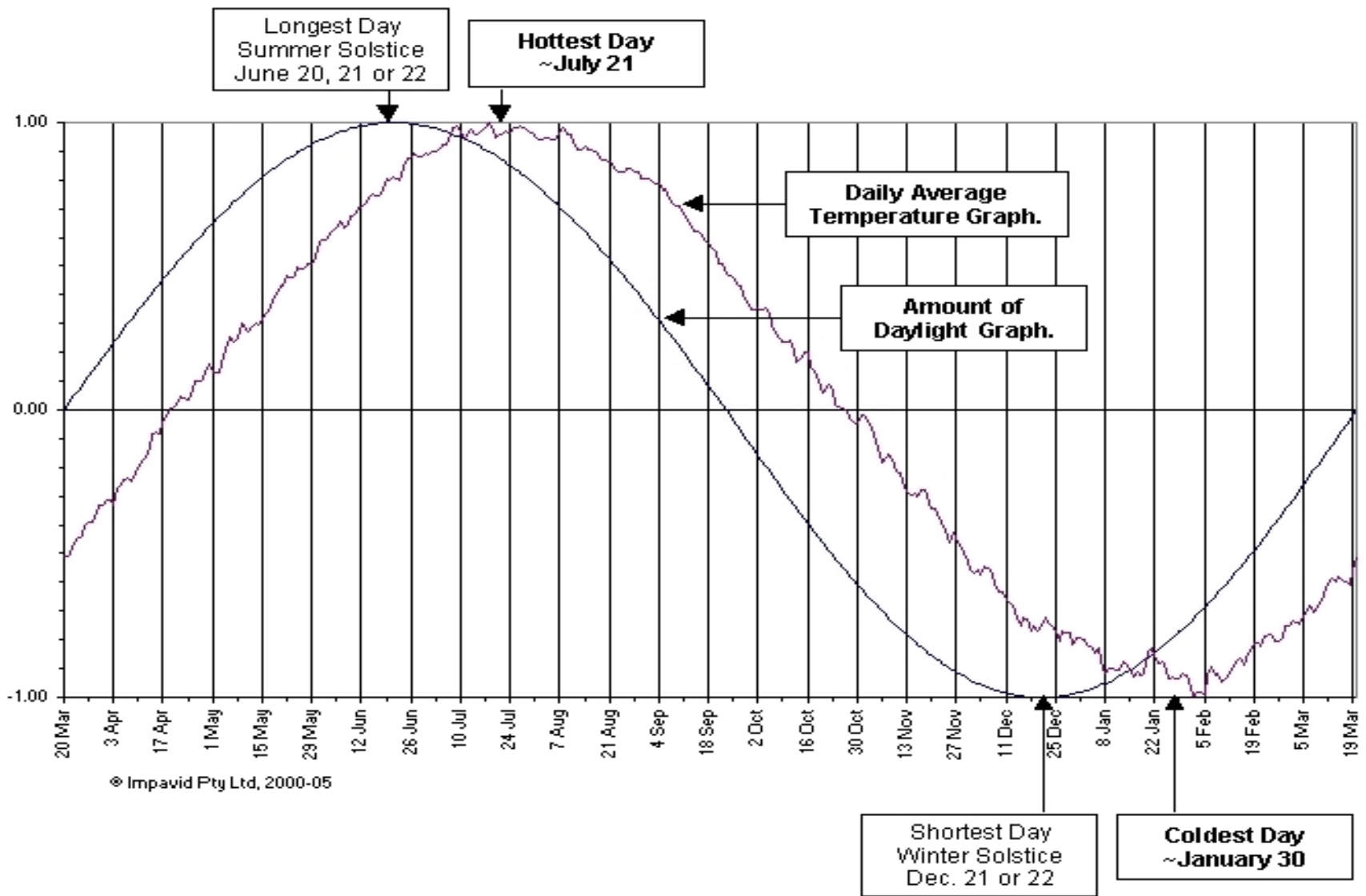
Biochemistry of Autumn Tree Phenology

What factors affect Autumn phenology (color change and senescence)?

- Amount of sunlight
- Temperature
- Storms (wind and rain)



Sunlight/Temperature Decline

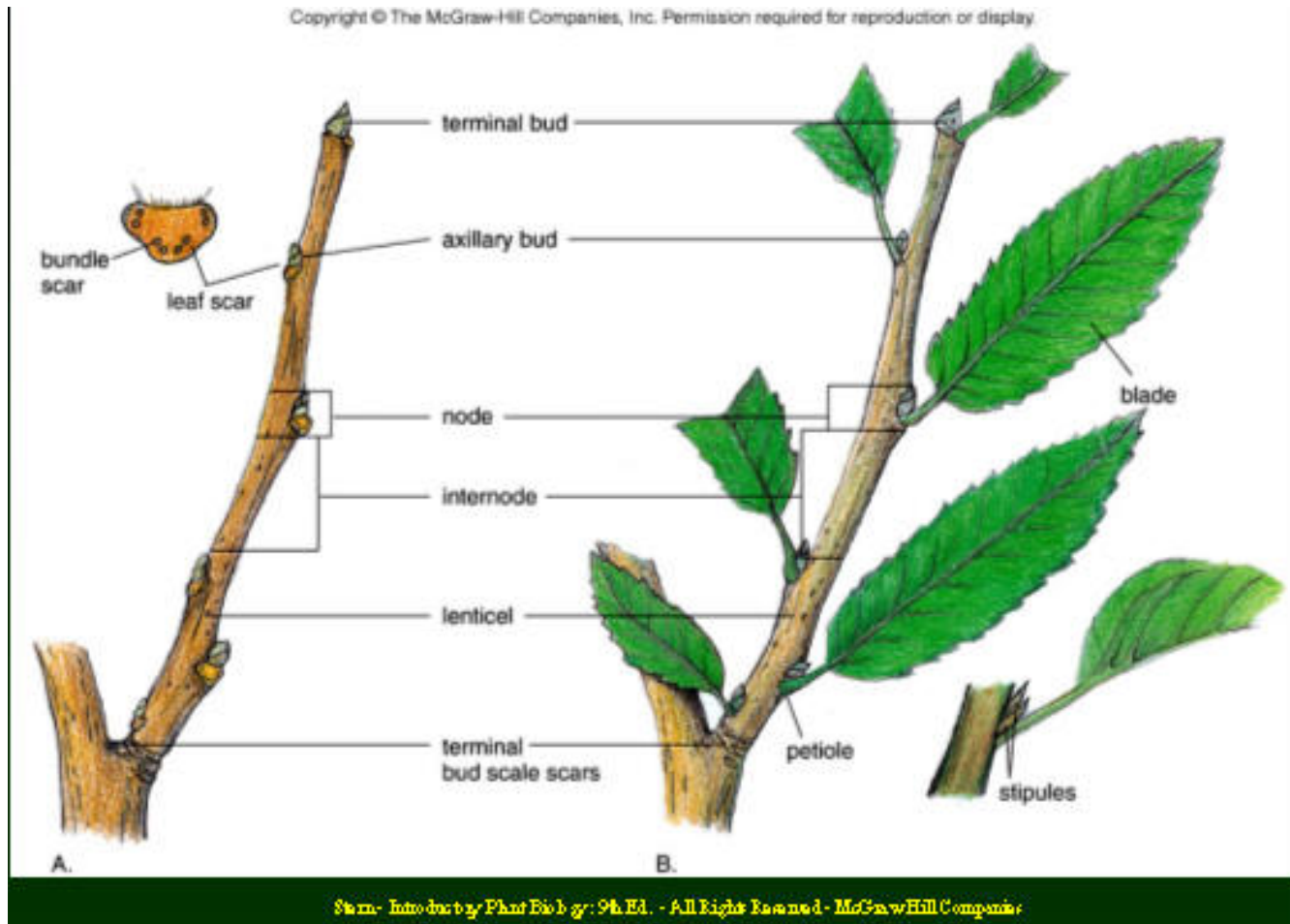


Leaf Scars

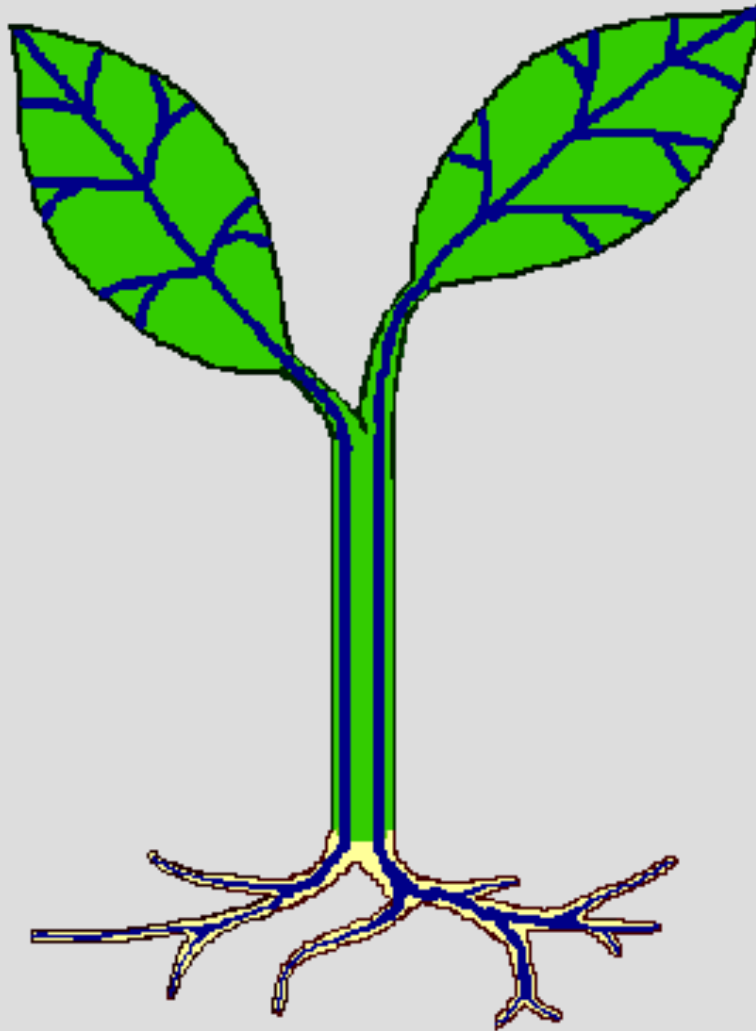
- Made when leaf falls off
- Connection from root to leaf is broken



Branch Terminology



Adaptation to Land

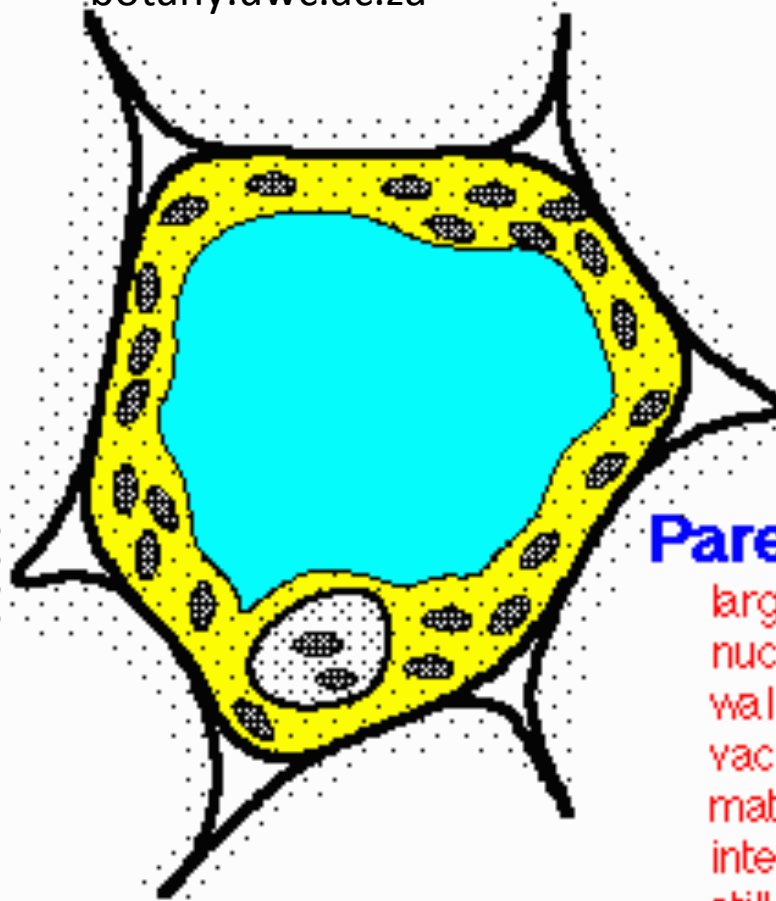


Vascular tissue apparently evolved as an adaptation to life on land. It consists of a series of elements that form tubes, represented by blue lines, throughout the plant. It is made up of two different kinds of tissue. One, **xylem**, carries water and nutrients that enter the plant in the roots up through the stem and out to all parts of the leaves. The other kind of tissue, **phloem**, runs parallel to xylem and carries sugars produced in the leaves, dissolved in fluid, to all parts of the plant. Note that the pattern of veins we observe in leaves is actually vascular tissue branching through the leaves.

Leaf Fall

- Nutrients and water are removed from the cell during dormancy.
- Two types of cells exist at the petiole: 1) Soft Parenchyma cells (on the leaf side) and 2) waxy Suberized cells (on tree side).
- Eventually, the vascular bundles (veins) break and the leaf falls, leaving a scar and a bud (next years growth).

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Parenchyma

larger volume
nucleus same size
wall thin (primary only)
vacuole developed
mature organelles
intercellular space
still isodiametric
basic biochemistry
"filler" cells

Bibliography

<http://www.ncnatural.com/wildflwr/fall/science.html>

url for Video on color change:
Question: What pigment is created
during the fall?



<http://www.nbclearn.com/portal/site/learn/chemistry-now/chemistry-of-changing-leaves>







