

Proper Pruning

Basic Techniques and Tips



**2012 ECCFC
Rocky Ford, CO**

The Pro-Active Pruner!

- **Plan BEFORE Planting**
- **Select the ‘Right Tree For the Right Place’**
- **Begin pruning trees while they are young**

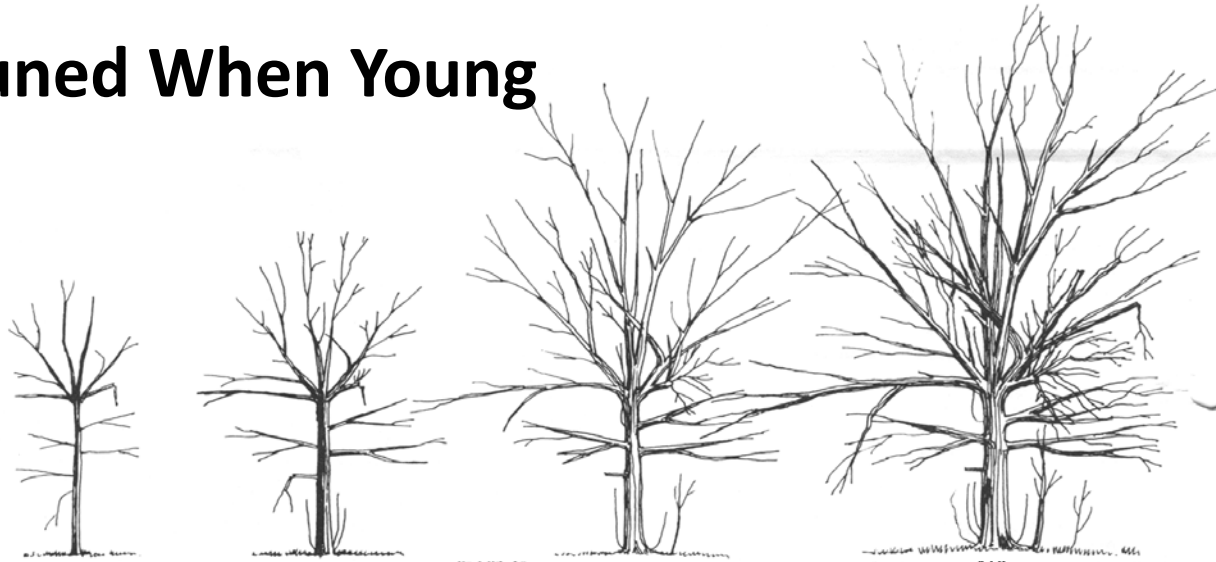
Common Mistakes:

- planting trees under power lines
- planting trees too close to anything: houses, sidewalks, street signs
- planting trees that will impair visibility at intersections

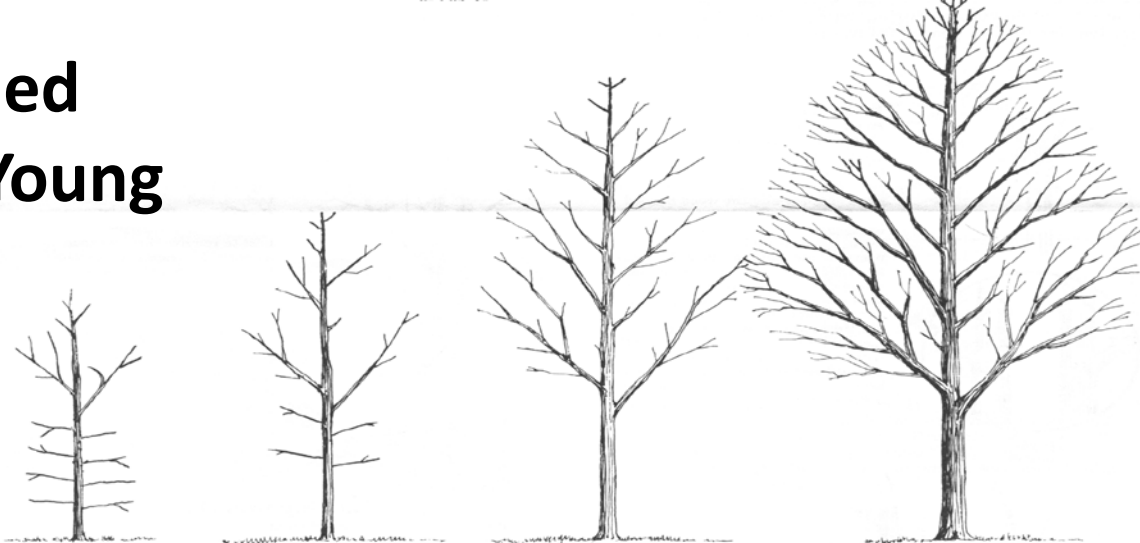


Prune early in the life of a tree

Not Pruned When Young



Pruned When Young



Pruning Objectives

WHY does a tree need pruning?

- **Develop Structure** in Young Trees
- **Maintain Structure** in Mature Trees
- Removal of **Hazard Limbs**
- **Safety Clearance** (traffic intersections, blockage of road signs, pedestrian crossings)
- Electrical **Line Clearance**-*always hire professionals for this!!*

Timing Tips

- **Dead and Diseased Wood...Prune at Any Time**
- **Crossing and Rubbing...Prune at Any Time**
- **Hazard Limbs . . . Prune at Any Time**

A HAZARD TREE has a structural defect that may cause a portion of the tree or the entire tree to fall on someone or something—A TARGET.

When to Prune *Live* Branches

Spring - during growth flush

- Bark and cambium easily damaged
- May stimulate excessive suckering
- Considered by some to be the worst time to prune (additional research is needed)

When to Prune *Live* Branches

Mid-Summer –

following growth flush-leaves harden and turn dark green

Considered a better time for most species

- Potentially best time of year for species that “bleed” with spring pruning
- Potentially slow root growth temporarily-This will direct growth by slowing growth on branches
- May be desirable or undesirable for slowing canopy growth
- Good time for wood closure

When to Prune *Live* Branches

Late Summer/Fall

- May stimulate canopy growth into the fall
- May interfere with winter hardiness
- Decay fungi spread spores in fall
- Healing of cuts generally seems to be slower in fall

When to Prune *Live* Branches

Late Winter – DORMANT before buds swell

Considered a better time for most species

- Results in new flush of growth in spring
- May stimulate growth rates
- May be desirable on young trees in growth phase without growth limiting factors
- Good time for wood closure
- NEVER prune during freezing temperatures, as this can damage the cambium

When to Prune *Live* Branches

To Enhance *Flowering* on Flowering Trees

- For trees or shrubs that bloom in SUMMER or FALL on current year's growth, prune in winter.
- For trees or shrubs that bloom in the SPRING from buds on one-year-old wood (typically most flowering fruit trees); prune when their flowers fade.

During Drought

**Do NOT remove live
tissues during
drought stress**

Key Pruning Concepts

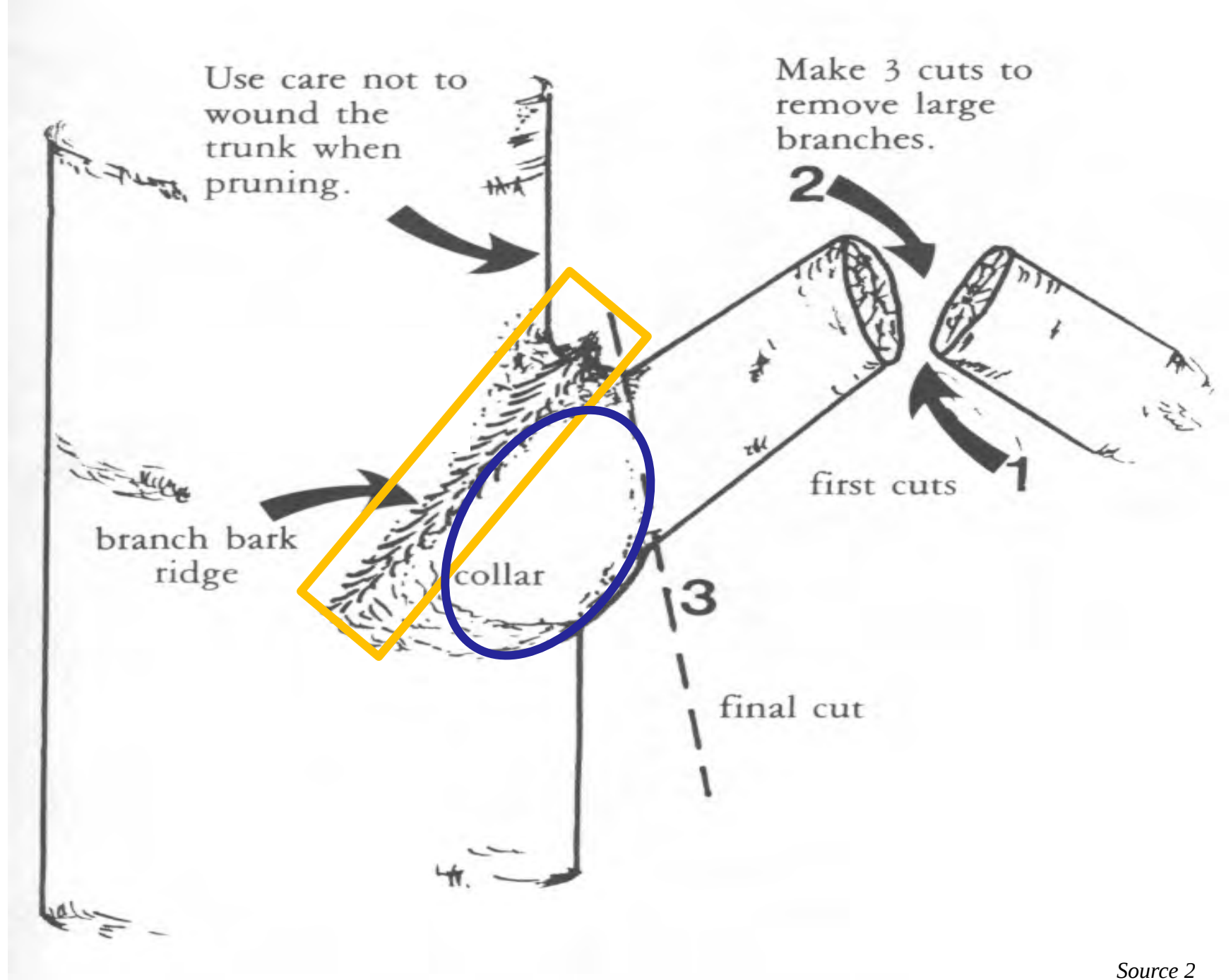
- Trees do not ‘heal’, they ***compartmentalize*** (form walls) around decay.
- The success of the compartmentalization process is dependent on ***making proper pruning cuts!***
- ***Pruning cuts***, whether proper or not, ***are still considered wounds*** and take energy to close over the wound.
- ***The larger the pruning cut, the more energy the tree will need to close the wound***, and it will take longer for wound closure.

The Basic Pruning Cut

Key Terms

1. Branch Bark Ridge

2. Branch Collar





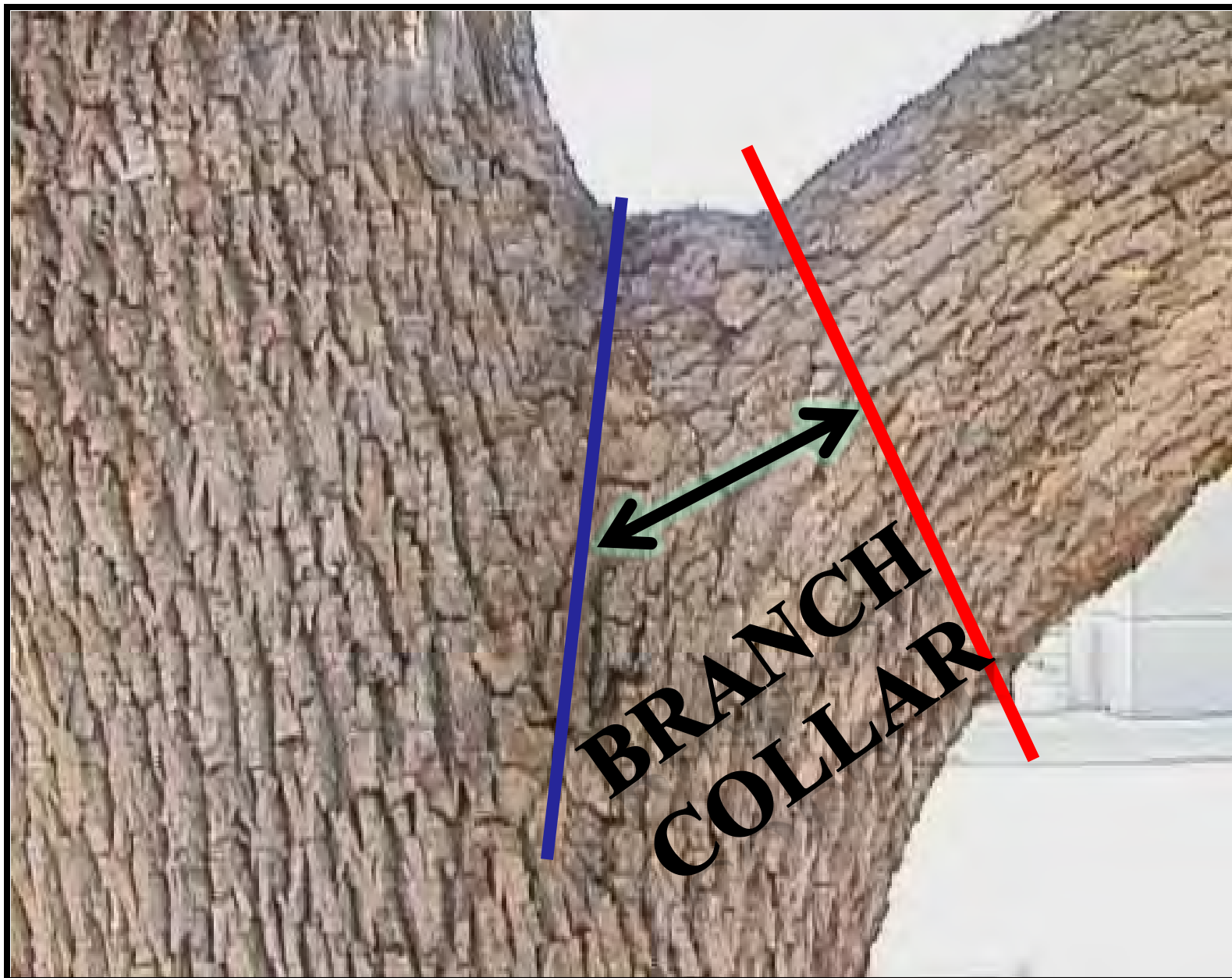
Picture
Source 6

**BRANCH BARK
RIDGE**





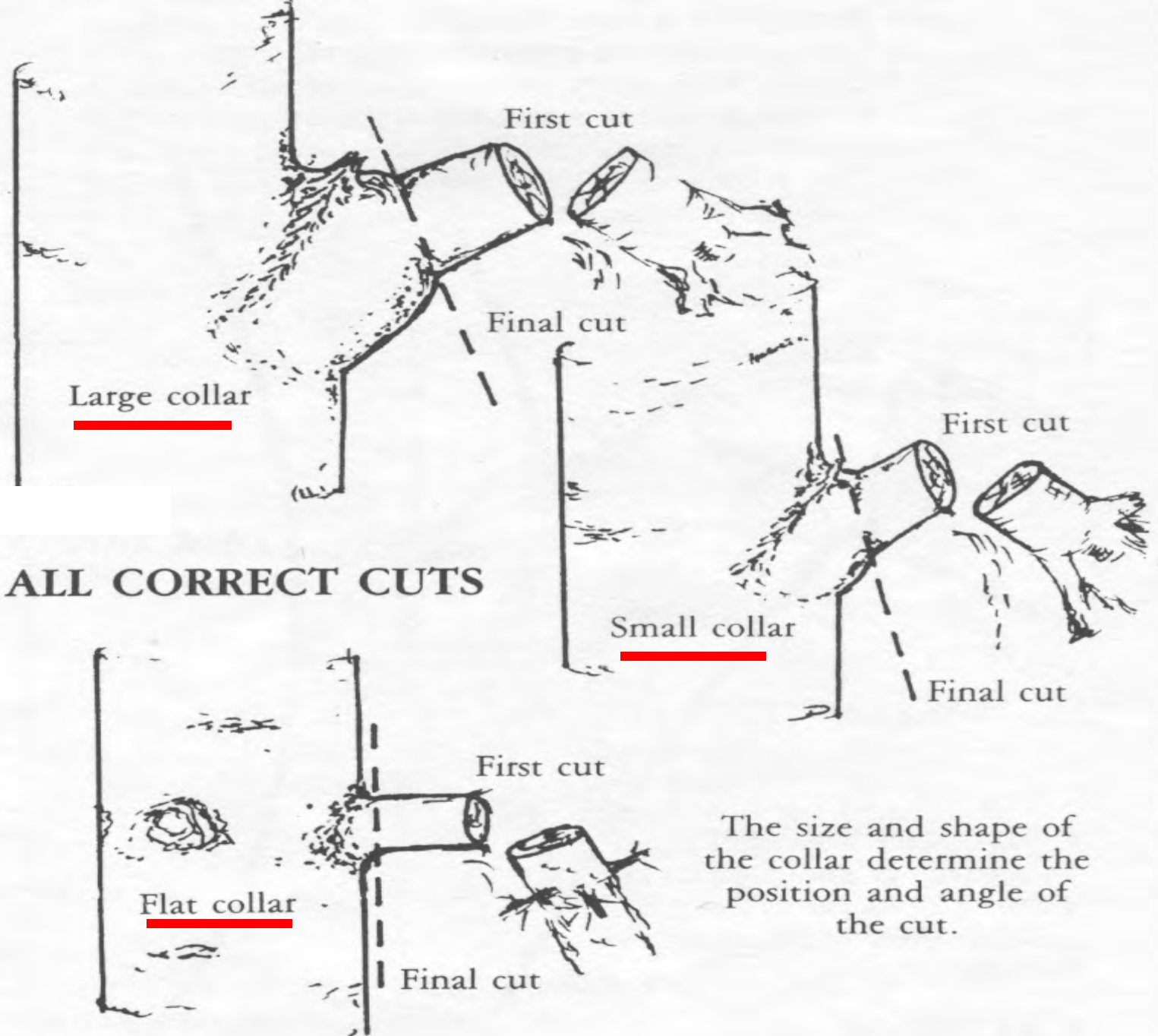
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Make the final cut just outside the branch collar-do not remove collar.



Source 6

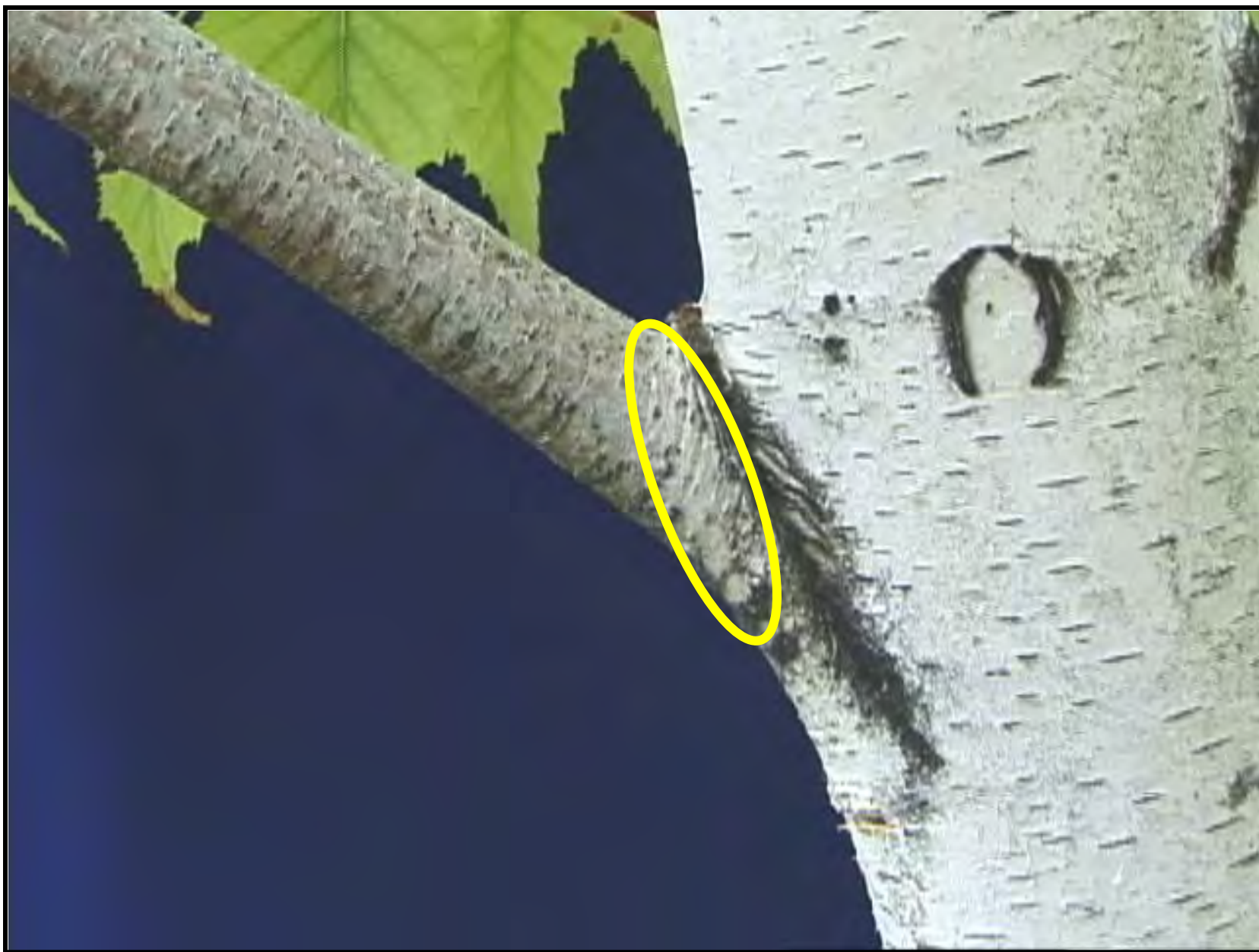




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Picture Source 6



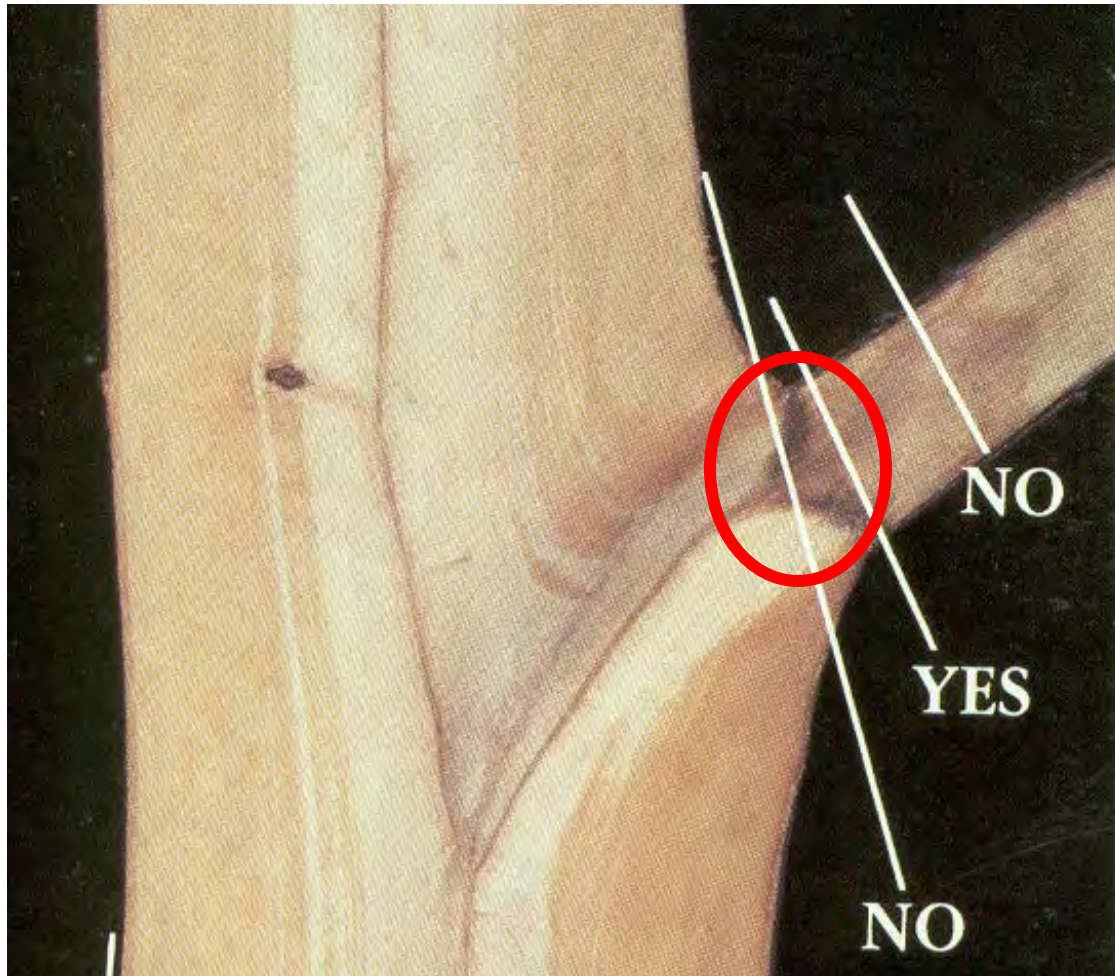
Picture Source 6

Make the final cut just outside of the **branch collar**

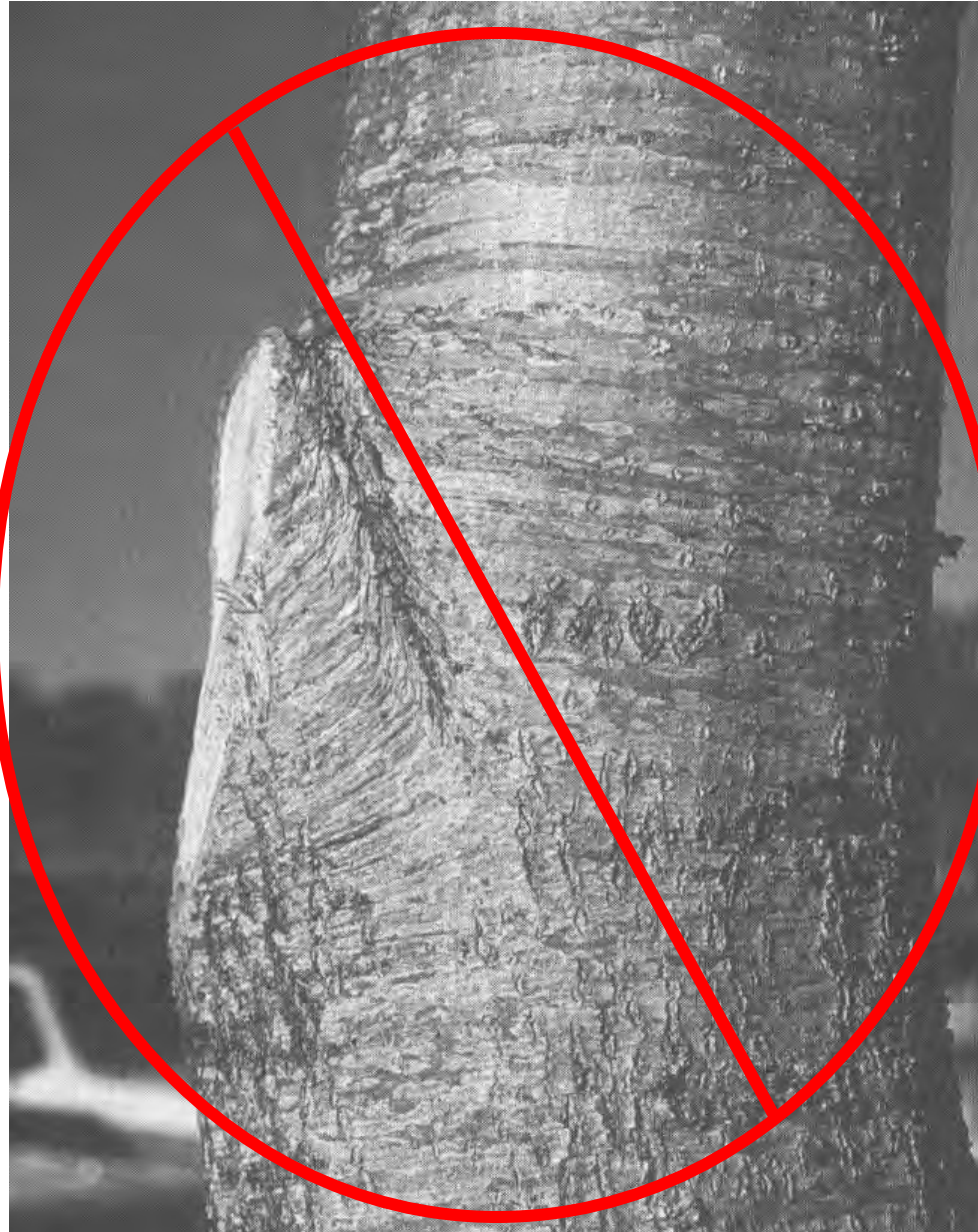


The 'Chemical Boundary'

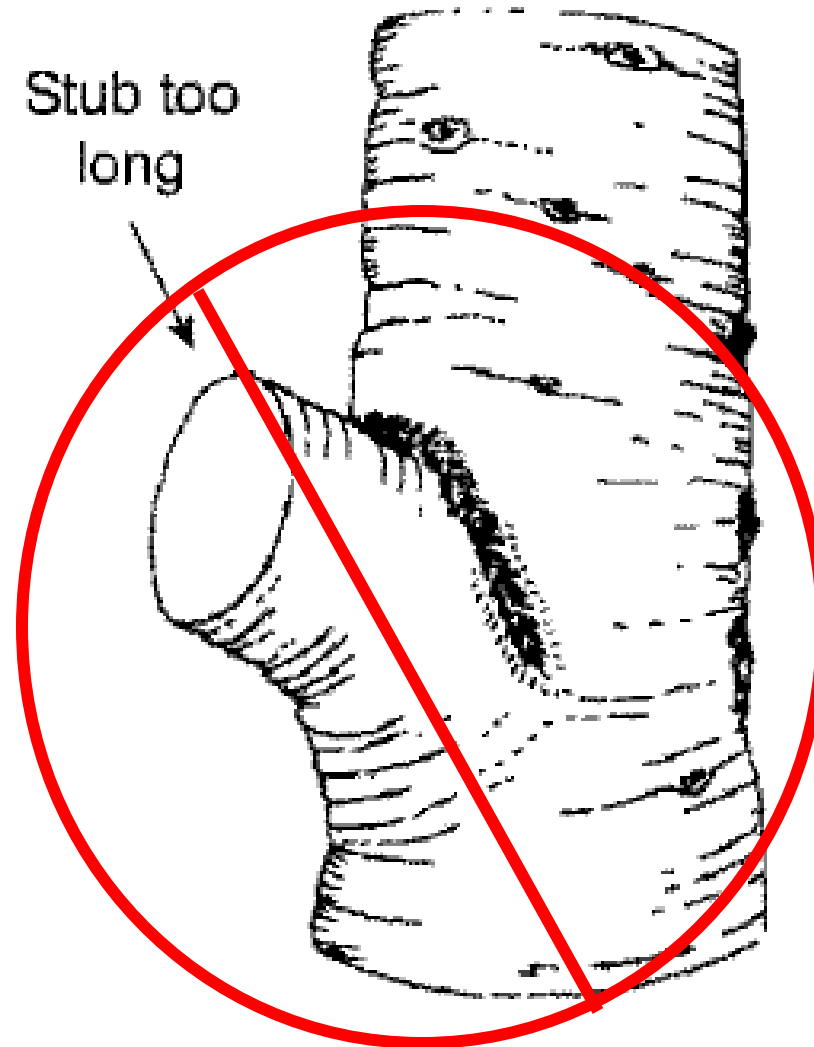
The collar contains a 'chemical boundary' which resists the spread of fungi and helps the wound close.



Flush Cut = Removing Collar and/or Bark Ridge



Stub Cut = Leaving too much beyond the branch collar



Wound Painting = Poor Pruning Practice



Wound Closure



Wound Closure



Wound Closure



The (Not-So) Basic Pruning Cut

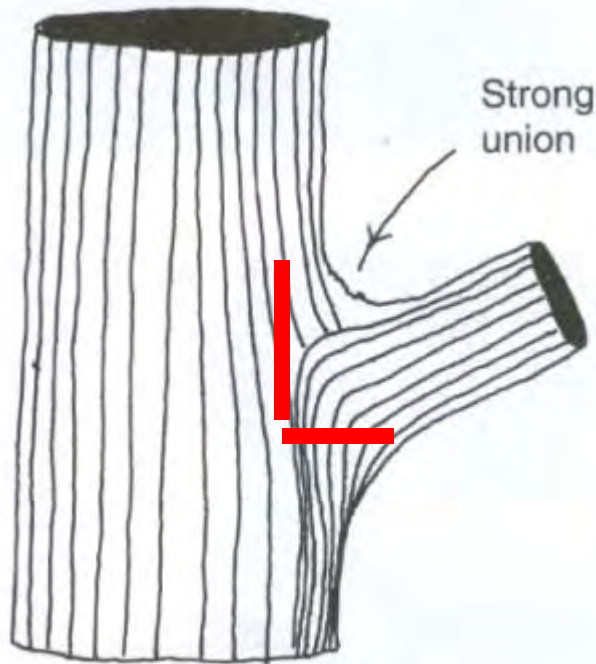
Key Terms

1. Co-dominant Stems

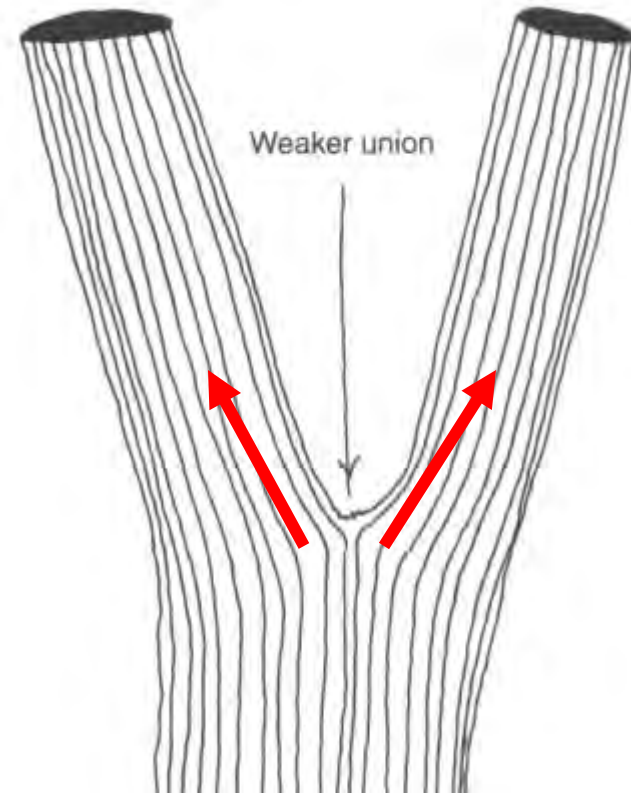
2. Included Bark

Codominant Stems = Weak Branch Union





**Strong Branch Union –
forms branch collar**



**Codominant Stems
Weak Branch
Connection - no
branch collar formed**



Weak
union

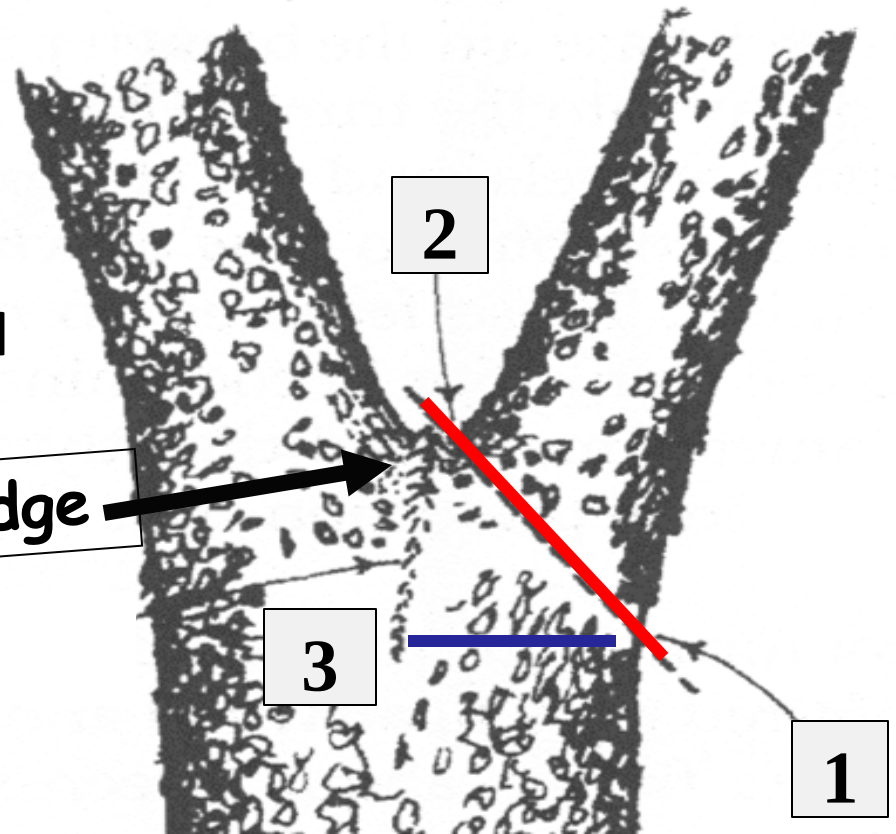
Strong
union

Pruning Codominant Stems

To remove one stem, begin from point 1 and cut up to point 2 (red line), just to the outside edge of the bark ridge.

Bark Ridge

Point one should be even with point 3 (blue line), which is the base of the bark ridge.



Included Bark = Weakest Branch Union



Included Bark = Weakest Branch Connection

Included bark: branches with bark pinched between the trunk and the branch—they are “squeezed” together.

The bark does not grow together.

Branches with included bark actually “push” against one another, have no collar, and do not have a bark ridge.





Source 1

Close-up of base
of tree





Same tree five
years later

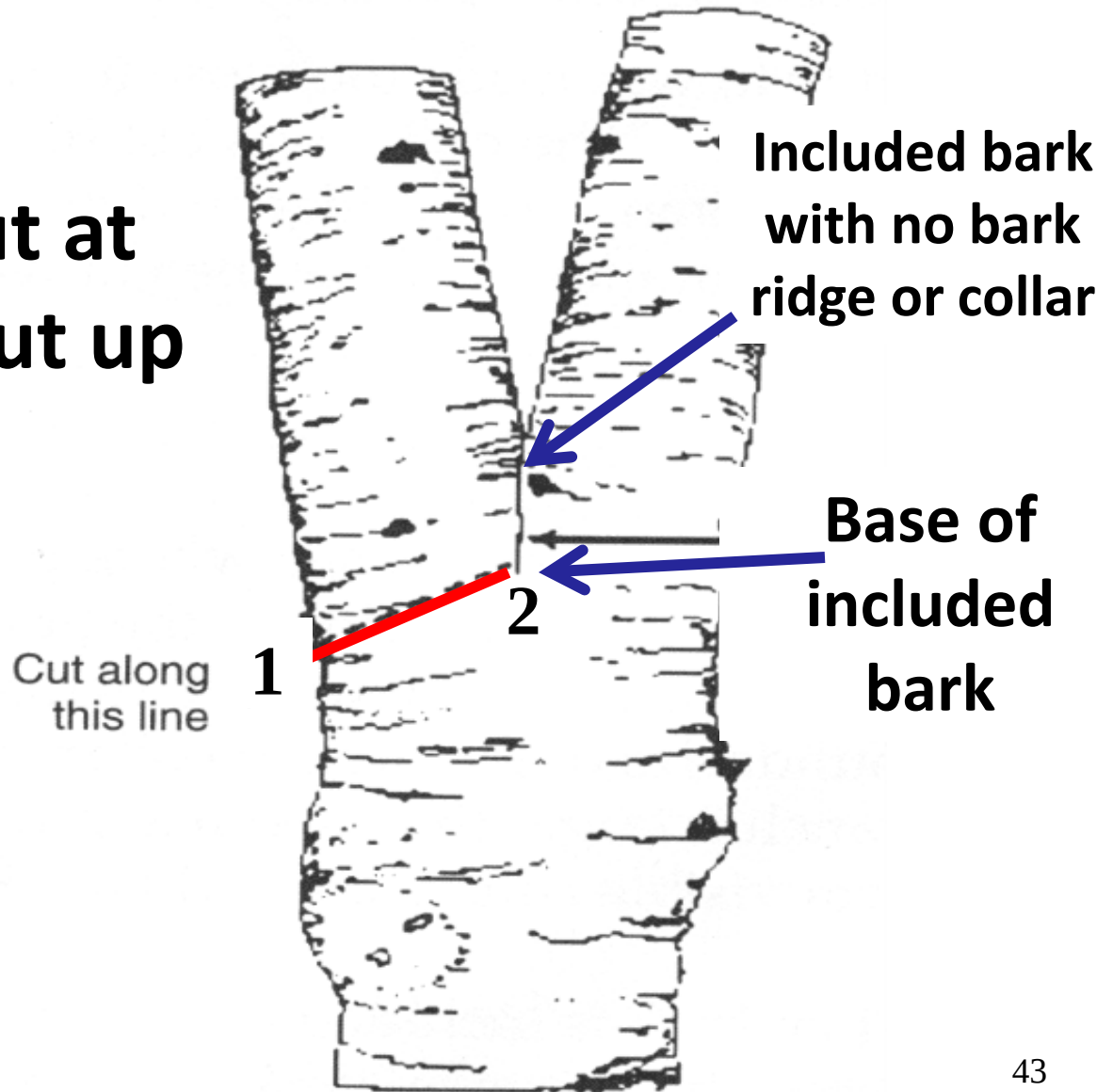
A photograph of a tree trunk cross-section. The bark is dark, textured, and covered with lichen. A vertical crack runs down the center. Below the bark, the wood is light brown with visible grain. A horizontal line of decay and discoloration is visible, with an arrow pointing to it from the text 'Decay and discoloration from self wounding'.

Bark inclusion

Decay and
discoloration
from self
wounding

Pruning Included Bark

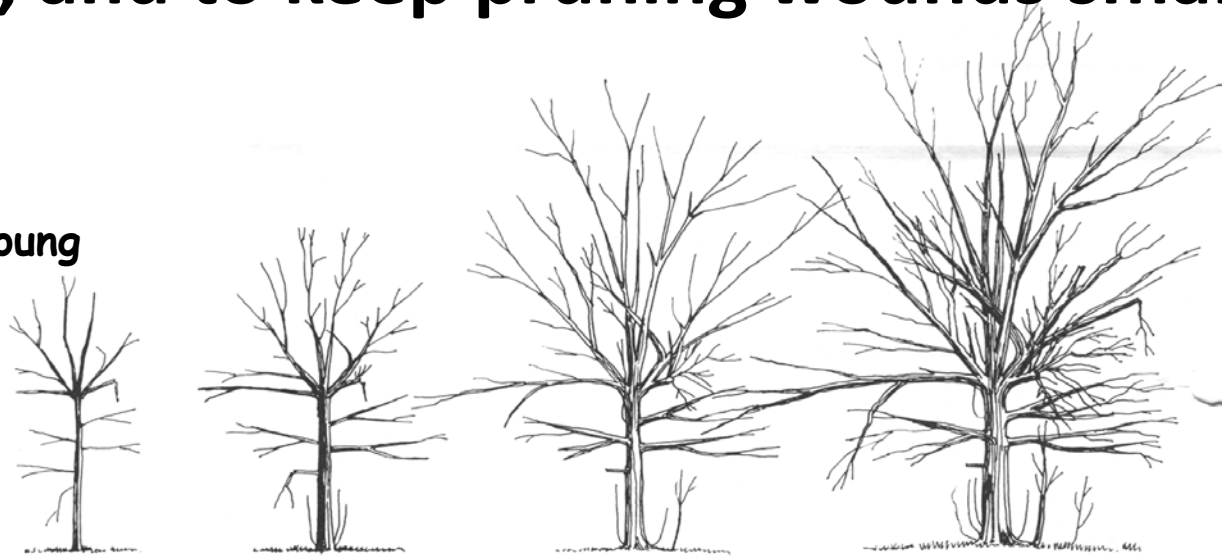
Begin your cut at point 1 and cut up to point 2 (red line)



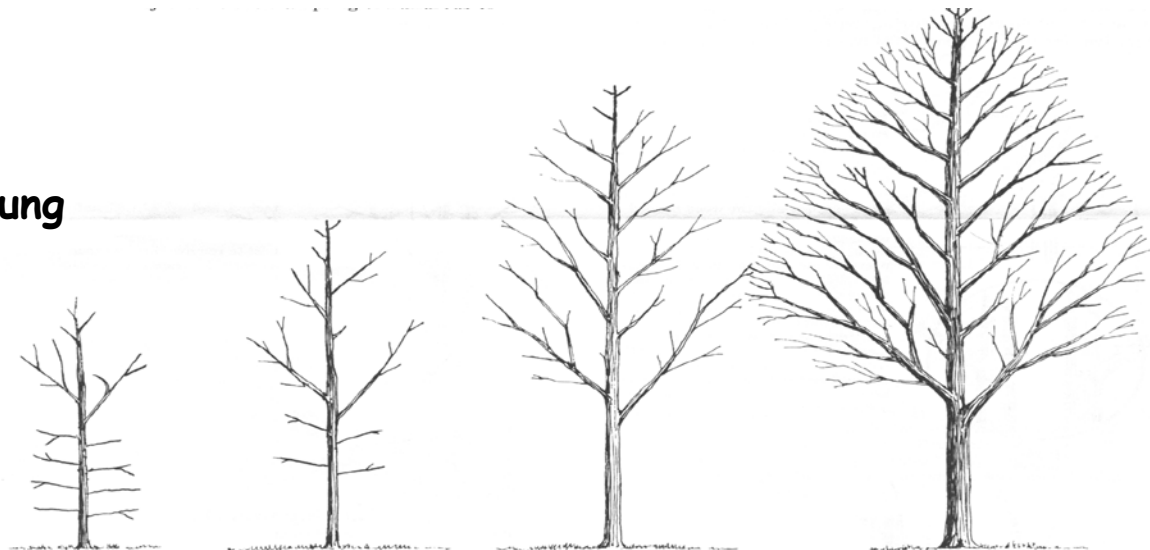
Pruning for Structure

Prune *early in the life of a tree* to develop good structure, and to keep pruning wounds small

Not Pruned When Young



Pruned When Young



Structure . . .



**Poor Structure -
multiple stems (trunks) and
co-dominant stems
(i.e. Siberian elm)**



**Better Structure -
One main stem (trunk) and nicely
spaced scaffold branches
(i.e. oak, sycamore)**

Weak
union



Strong
union



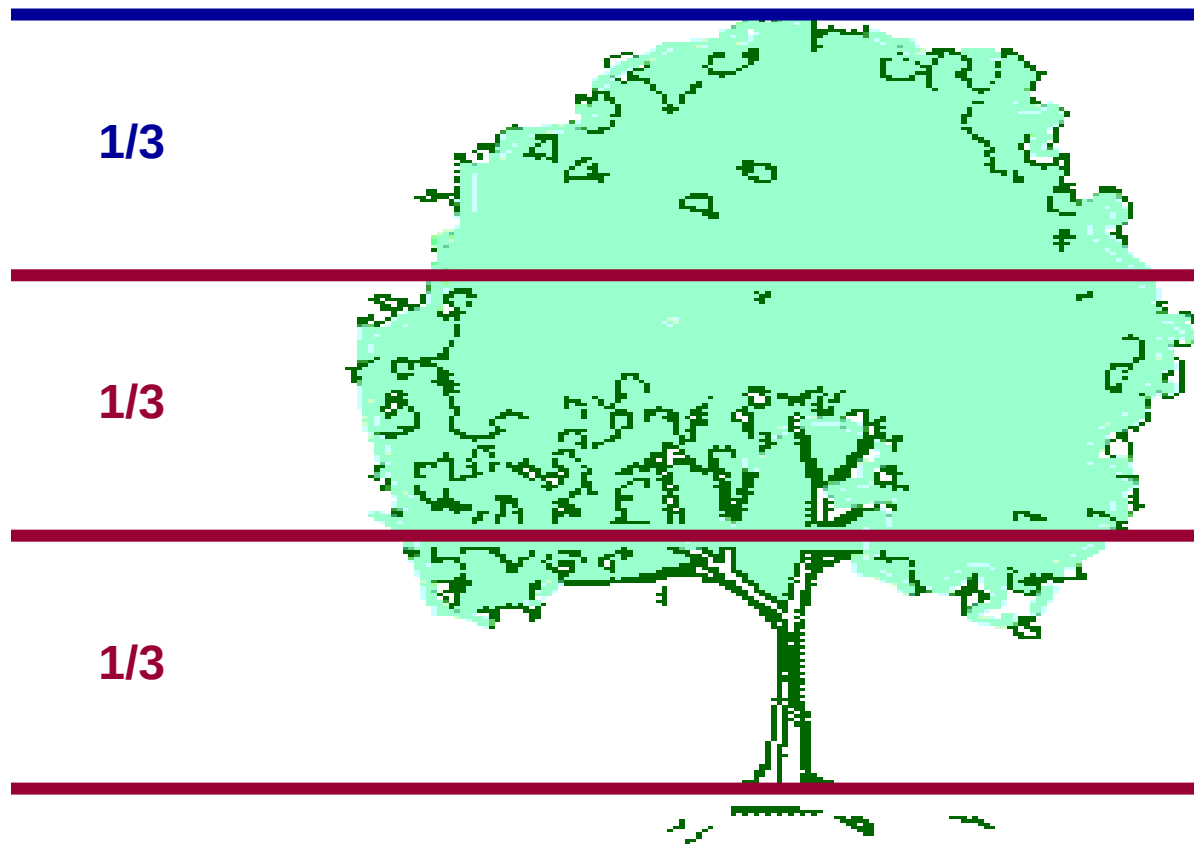
Avoid “Lions-Tailing”

Cleaning out lower foliage while leaving top outer canopy full—turning limbs into ‘pom-poms’



More Structurally Sound...

When pruning-up the trunk, always keep at least $\frac{1}{2}$ of the foliage in lower $\frac{2}{3}$ s of tree.



Tree Topping

A common practice, but NOT recommended



Topping = A Poor Pruning Practice



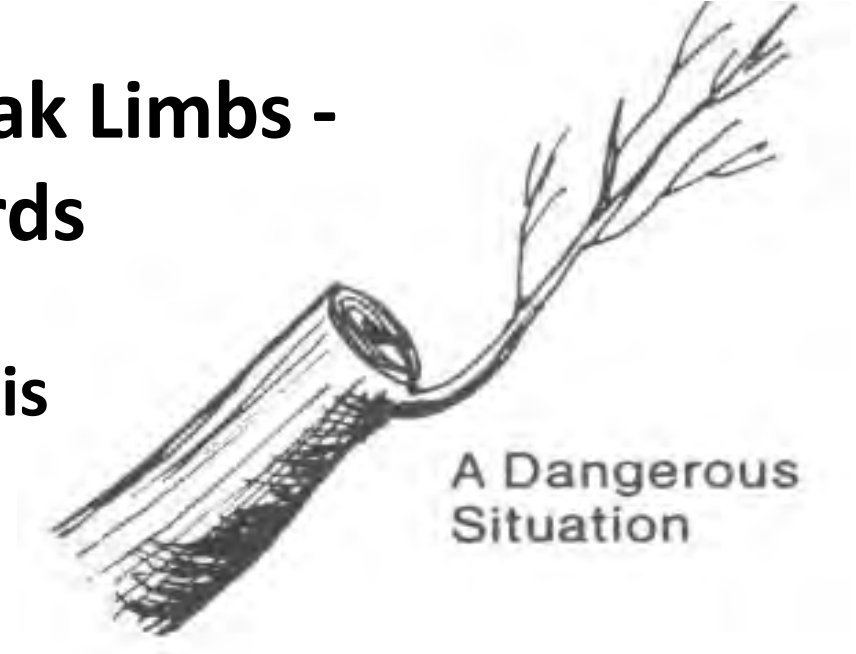
Why Not to Top

1. Topping Causes Decay -Trunk and root rot



2. Topping Promotes Weak Limbs - It CREATES Hazards

**The main reason for topping is
to reduce the size of a tree**



**However, topped trees become more of hazard in the
long run because of the excessive shoot growth at the
topped location.**

**These shoots are weakly attached and are attached to
a limb that is beginning to decay because of an
improper pruning cut: a hazardous combination.**

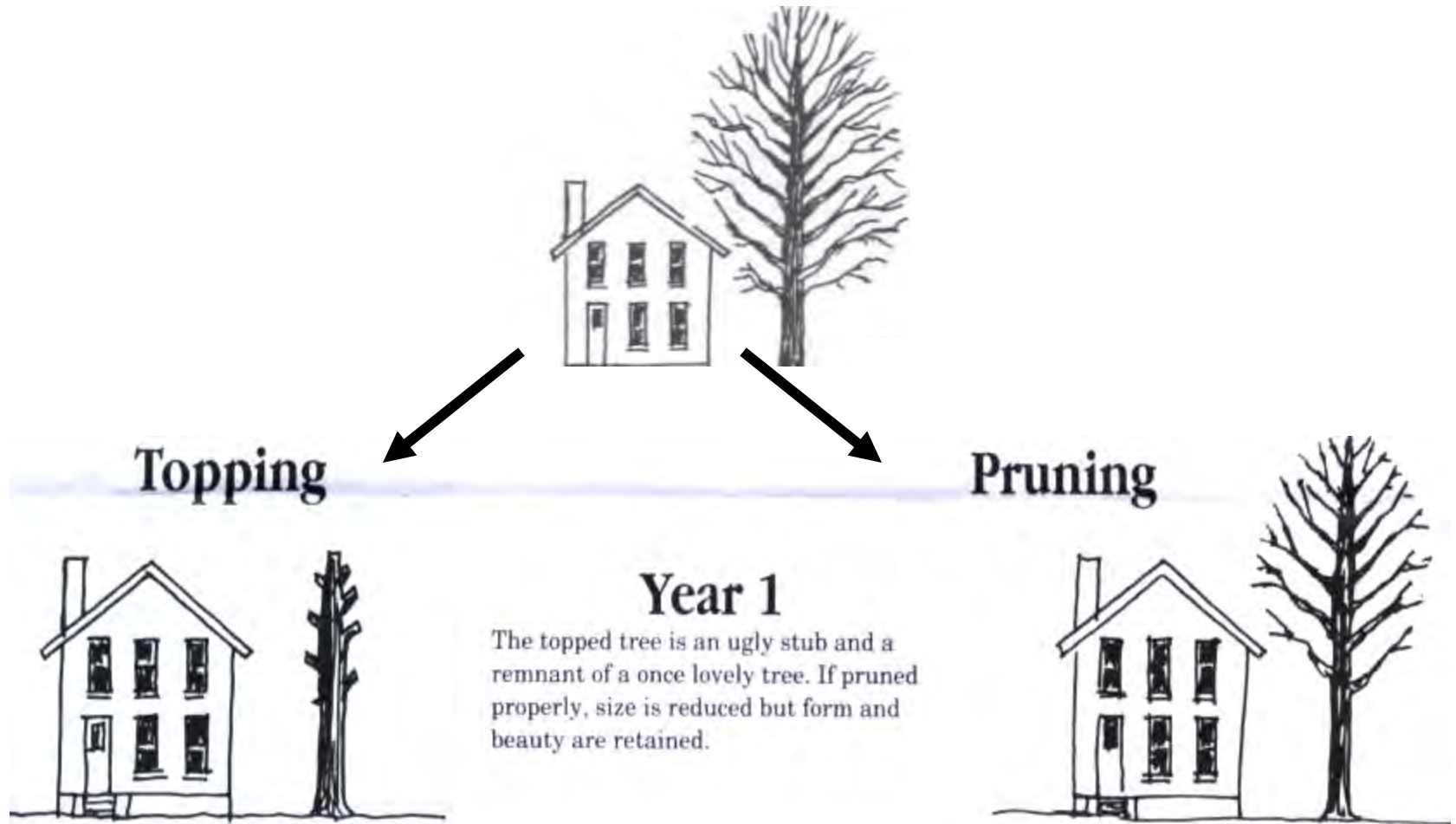


Regrowth is structurally unsound

3. Topping is Expensive -

In the short run topping may seem inexpensive, but in the long run it is extremely expensive

- Topping causes rapid new growth: new shoots develop profusely below a topping cut. These new shoots quickly grow to the original height of the topped limbs, increasing the need for pruning and maintenance.
- Topping may very well cause the tree to die. You will pay to have it topped and then pay to have the entire tree removed—Very expensive.
- Topping increases the risk of liability due to weakened branches.
- Topping decreases property value.





Year 3

Vigorous sprouts have sprung out of the topped tree in large numbers and are growing with abnormal rapidity. The pruned tree adds growth more slowly and distributes it more normally.



Year 6

In a relatively short time, the topped tree is as tall—and far bushier and more dangerous—than it was to begin with. The properly pruned tree is safer, more beautiful, and its size better controlled.



Key Terms to Remember

- **Branch Bark Ridge** - ridge of bark formed at branch unions
- **Branch Collar** - tissue formed at strong branch unions
- **Drop Cut** - removing the weight of a branch first
- **Chemical Boundary** - the cells located in the branch bark ridge and collar that wall off decay after wounding
- **Compartmentalization** -
trees do not heal - if possible, they build walls around decay
- **Codominant Stems** - weak union
- **Included Bark** - weakest union
- **Good Structure** – One main trunk with evenly spaced branches with strong branch unions
- **Electrical Line Clearance** - always hire a professional!

Key Things To Avoid

- **Stub Cutting**

cutting a branch too far beyond the collar, leaving a stub

- **Flush Cutting**

cutting off or into the branch bark ridge and/or collar

- **Wound Painting**

- **Lions Tailing (*pom-pom*)**

pruning all limbs off of a branch, except for the very tips

- **Topping**

- **Planting large trees under power lines**

- **Waiting to prune trees until they are mature:
start young!**

Hiring an Arborist

Consider Several Things When Hiring an Arborist . . .

- Membership in Professional Organization: ISA Certified Arborists are experienced professionals who are knowledgeable in all aspects of tree care
- Ask for Proof of Insurance/Liability/ Worker's comp
- Ask for References
- Get more than one estimate (especially if you are hiring an arborist for the first time)
- Be wary of people who go door-to-door and offer bargains for performing tree work
- Don't always accept the low bid: determine the best combination of price, work to be done, skill and professionalism

**Remember, a Properly Pruned Tree
is a**





“I never before knew the full value of trees. Under them I breakfast, dine, write, read, and receive my company.”
—Thomas Jefferson



Arbor Day Foundation

We inspire people to plant,
nurture, and celebrate trees.

Interactive Tree Pruning Guide

<http://www.arborday.org/trees/pruning/>



[http://www.treesaregood.com/treecare/resources/
Pruning_YoungTrees.pdf](http://www.treesaregood.com/treecare/resources/Pruning_YoungTrees.pdf)

[http://www.treesaregood.com/treecare/resources/
Pruning_MatureTrees.pdf](http://www.treesaregood.com/treecare/resources/Pruning_MatureTrees.pdf)

Sources for this Presentation

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3. Shigo, Dr. Alex L. *Caring for Young Trees From Nurseries to Landscapes*. New Hampshire: Shigo and Trees, Associates, 1990.
4. International Society of Arboriculture. ^(a)*Pruning Young Trees* (1997), ^(b)*Pruning Mature Trees* (1997), ^(c) *Why Topping Hurts Trees* (1997), ^(d) *Why Hire an Arborist* (1995). USA: International Society of Arboriculture. Website: www.isa-arbor.com
5. Fazio, Dr. James R. ^(a)*Tree City USA Bulletin No.1: How to Prune Young Shade Trees* (2000). ^(b) *TCUSA Bulletin No.2: The Way Trees Work* (1998). ^(c) *TCUSA Bulletin No.8: Don't Top Trees* (1999). Nebraska: National Arbor Day Foundation. Website: www.arborday.com (go to 'trees' and choose 'Pruning Guide')
6. Whiting, Dr. David. Colorado State University, Landscape/Horticulture Department.
7. Lilly, Sharon J. Arborists' Certification Study Guide. USA : International Society of Arboriculture, 2001.