THE GOAL FOR TODAY

• Convey to you the simple guidelines most important to pruning
• If you practice these, you’ll be in an elite 1.3% of pruners
• And you’ll be lots happier (I hope)

The Objective of Pruning – Good Tree Health
Good Tree Health = Good Tree Structure

• Thus, pruning is a worthy topic of study
Why Do We Have to Worry So Much About Pruning …

- Most of our trees are in a “built environment”; pruning:
  - Prolongs the life of the tree
  - Reduces the risk of tree failure

- A good tree structure:
  - Actually reduces the cost of maintenance over its life
  - Confers many benefits to its owner and the community

Stages of Tree Life for Pruning

- The young (new) tree – “Training”
  - The optimal/easy time to create good structure
  - From planting for the next few years

- Maintaining the structure

- The neglected (big) tree (“Remediating”)
  - Difficult
  - Hazardous
  - Hard on the tree

Here are some simple guidelines for pruning of trees at all stages of life.
The Best Times to Prune Trees

- Landscape trees – Jan. ’til leaf out
- Fruit trees – just before they bloom
- Deadwood, suckers, water sprouts – anytime
- Light summer pruning acceptable at or before summer solstice
- A bad time to prune – late summer or fall

The 20 – 25% Rule for Pruning

Do not remove more than 20% of the canopy (leaves) in any given year.
(25% on a young tree)

- Energy (carbohydrates) is created via photosynthesis in the leaves
- Tree uses up energy trying to replace leaves
- Heavy pruning risks leaving less - or no - energy left for other tree functions

The 2nd Year Wood Rule of Pruning

Prune 2nd year wood or older

- Buds on 1st year wood are immature
- Pruning 1st year wood will result in poor growth
- An exception – if newly planted tree is a “whip” (no side branches), head it back by ~ ⅓.
The $\frac{1}{4} - \frac{1}{3}$ Diameter Rule of Pruning

Prune to a lateral at least $\frac{1}{4} - \frac{1}{3}$ the diameter of the "mother" branch

- “Reduction cut”
- Sustains the existing tissue
- Re-directs growth in a positive way

Rule #3 Violated

This branch died in one season after a too large “reduction” cut.
This Is Not Pruning, It’s Topping

What Happens to a Topped Tree

Other Pruning Guidelines

Small cuts heal much better than large cuts
  • Pruning is wounding (for a noble purpose)
  • Tree walls off the wound in an attempt to limit decay (compartmentalization)
  • Wound wood is created to strengthen the site

Pruning is wounding (for a noble purpose)

Tree walls off the wound in an attempt to limit decay (compartmentalization)

Wound wood is created to strengthen the site
Cutting Just Outside the Branch Collar
Is the Right Place

Branch collars are swollen areas at the base of the area where branch meets trunk.

If you leave the branch collar, the tree will create wound wood.

When Cutting a Large Limb

• Take the weight of the limb off first
• Then come back to the branch collar 1, 2, 3
Establishing a Structure in a Young Tree
Let's Start Here

Two Forms of Trees

- **Excurrent Tree**
  - Strong apical control
  - Strong central leader
  - Upright
  - Most conifers
  - All trees start out excurrent

- **Decurrent Tree**
  - Weak apical control
  - Round-headed form
  - Require training/pruning
  - Most broadleaves

We Want to Maintain a Central Leader for a Long While

At maturity, the trunk should comprise 40% of the full tree height.
One Way to Maintain Central Leader; Remove Competing Stems

Another Way to Maintain Central Leader
Subordinate Competing Stems

Leave Temporary Branches – They Are Critical for Trunk Development, Strength, Girth, and Taper

Temporarily branches should be left along the lower trunk.

Good

Not Good

Slowly remove temporary branches (1 or 3 a year) as tree gains height.
As Tree Starts to Get Tall
Scaffold Branches Should Be Well Spaced
Radially and Vertically

Some Trees Are Notorious
for Poor Branch Structure If Left Untrained

• Callery Pear “Bradford” is another
• (Callery Pear, “Aristocrat”, however, has been bred for a much better structure)

Branch Size Ratio to Trunk
(a.k.a. Aspect Ratio)

• Where the branch meets the trunk, branch diameter should be < 50% of trunk diameter
Branch Diameter Examples

On Tree with Branch Ratio Approaching 50%

- Slow down branch by:
  - Subordination – cut back to a lateral
  - Removal – if cut is not too large
- With subordination, branch growth rate – in girth and elongation – will be slowed

Branch Angles

- Wider branch angles are more desirable (~60° - 90°)
- Some cultivars tend to narrower angles
  - Know your tree and its habit
  - Remove or remediate poor angles when young
- Limb spreaders or weights
  - only work well on smaller diameter limbs
**Branch Attachments**

Branch attachments should display a wider angle of attachment.

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**Co-dominant Stems – with Included Bark**

- When co-dominant stems contain included bark, they are highly prone to failure.

Branch bark ridge in the center of this branch union.

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**A Tree Snapped at Co-dominant Stem with Included Bark**

Included Bark
The Time to Correct Co-dominant Stems
Is When the Tree Is Small

- By removal or subordination (reduction cut)

Lion Tailing – Injurious to a Tree

- Stripping out interior branches, leaving a plume of foliage at the end

Lion Tailing Increases Risk of Failure

- Reduces food source dramatically
- Greatly increases risk of limb damage in wind or ice storms
A Young Tree without Any Training

Oh, What a Difference Good Training Makes!

Eventually, the Tree Goes Decurrent
And Here is What We Hope for in a Mature Tree

• Central leader for much of the trunk
• Good trunk taper
• Scaffold branches well spaced vertically and radially
• Good branch ratio - smaller branches arising from trunk
• Good branch angles to trunk
• Absence of co-dominant stems
Here Is an Example of What We Often Get
This Is the Hard Part;
Remedial Pruning of a Neglected or Untrained Tree

Untrained and/or Neglected Trees

- Are a multi-year project; that from previous slide, 4-5 years
- Require a higher level of knowledge
  - What/where to cut (science)
  - How to cut it so it doesn’t look butchered (art)
  - How to get up there to cut it (engineering)
- Neglected trees often exceed the abilities of the owner

Working with Big and/or Neglected Trees

- First and foremost, know your limits
- Tree work can be (and often is) dangerous
- Correcting major defects usually requires a professional
- What to look for in hiring tree work
  - A company (or individual) with an ISA certified arborist on staff
  - Proof of both liability and injury insurance
  - Proper equipment and training to accomplish the job safely
- Then, watch them
I Use Simple (But High Quality) Tools

• Including extremely stable 3-legged orchard ladders
• It’s hard to get a good cut with loppers; I don’t use them
• If my tools and I can’t do the job, I call a professional

For Fruit Tree Growers

• Slowly remove temporary branches as tree grows
• Eventually reduce the central leader to scaffold branches
• Thereafter, make reduction cuts to laterals
  - To keep tree within bounds
  - To keep fruit accessible
• Prune to shade the SW side of trunk to avoid sunscald

Eventual Fruit Tree Shapes

- Modified Central Leader
- Delayed Vase

For: Apple, Peach, Apricot
For: Cherry, Pear, Plum
Final Thoughts – Part One

- Get down off your ladder frequently, step back and look at the tree
- Do not feel bad about endearingly funky trees IF
  - They are relatively small
  - They aren’t going to injure anyone or damage any property

Final Final Thoughts on Pruning

- There is a lot of joy in knowing what you are doing
- It’s a process … this is just a beginning

Thanks for Listening!
There Seems to Be Interest in Growing Smaller Trees on City Lots

- Heretofore, most choices involved using dwarfs
- This book presents another idea for accomplishing a small tree orchard
- I would like to give a quick review of the book and the procedures touted
The Author's Idea – In a Nutshell …

• By pruning trees in a systematically radical way, you can:
  – “Easily” keep the tree small
  – Reduce fruit production to a manageable amount

This Theory Is Not New

• Has been used by commercial growers for quite a while
• Some of it is “graduate level” fruit tree growing
• Nevertheless, it is intriguing and will be interesting to the “hard core”

Some Interesting Points Made Regarding This System
Control Tree Size by Pruning, Not by Rootstock Selection

- Skip the dwarf and ultra-dwarf rootstocks
  - When ‘dwarfing’ is the main goal, other qualities lose out
  - Dwarf/ultra-dwarf usually not well anchored
  - Expect shorter life
  [ = I agree; they have drawbacks ]

- Even genetic dwarfs are not favored by the author
  [ = I think I disagree ]

The Radical Prune at Planting

- Author recommends removing 2/3 of the top growth of the tree being planted
  - To ~knee high, 18 – 24”
  - Encourages low branching
  - Where you cut becomes the crotch of the tree; the trunk will not grow taller

  I am concerned
  - Trunk should be ~40% of the tree mature height, ~30” for a 6’ tree
  - There will be fewer leaves to feed the tree in its 1st year

From Grow a Little Fruit Tree by Ann Ralph
More Trunk Makes Me Happier

Author Then Cites Two Times of the Year to Prune Fruit Trees

• End of winter pruning, for structure
• Early summer pruning, for size control

Author’s Theory of End of Winter Pruning

• It encourages zealous growth
  – Comes out of dormancy and cranks up to replace what’s been pruned
  – It should be used principally to correct structural flaws

[This may be true; I haven’t noticed.]
Author’s Theory of Summer Pruning

- It should be performed at or before the summer solstice
- Summer pruning is for keeping the tree small
  - It’s done at a time when
    - the tree’s energy is directed elsewhere
  - Thus, less available energy will result in less vigorous regrowth

[The last is likely true, but is it at the expense of other tree functions?]
Other Concerns/Warnings I Have

- Encouraging the reader to make heading cuts
  - Heading cuts are valid at times
  - They are a ‘professional level’ pruning
  - They need subsequent correction with knowledge and skill

Concerns, cont’d

- “Open up the interior” encouraged more than once
  - Perhaps valid in the Bay Area / San Joaquin Valley
  - Not good here at our altitude and climate
  - We need to aim for filtered sunlight
Pg 108  "Stone fruits take harder pruning, and in the first year and beyond, often require additional attention in August. Check late summer. If your tree looks like it needs pruning, prune it."

This Book Offers Intriguing Possibilities

- If you are interested
  - Study – and follow – the book
  - Follow it with New Mexico peculiarities in mind
  - Work your trees every single year (no skipping)

I'm going to give it a try myself.