

Timber harvesting as a timber production phase

Motor-manual logging

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Contents and goals

- After this section you will be able:
 - To tell how the chain saw developed over the years from a safety perspective
 - To describe the motor-manual felling procedure
 - To describe delimiting procedures for various limb thicknesses
 - To describe the bucking procedure



History

CHAINSAW: A TRIP DOWN MEMORY LANE...



Chain saw construction: development from an ergonomic point of view



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Chain saw construction: development from an ergonomic point of view





Technology

CHAINSAW LOGGING





Technology of motor-manual felling

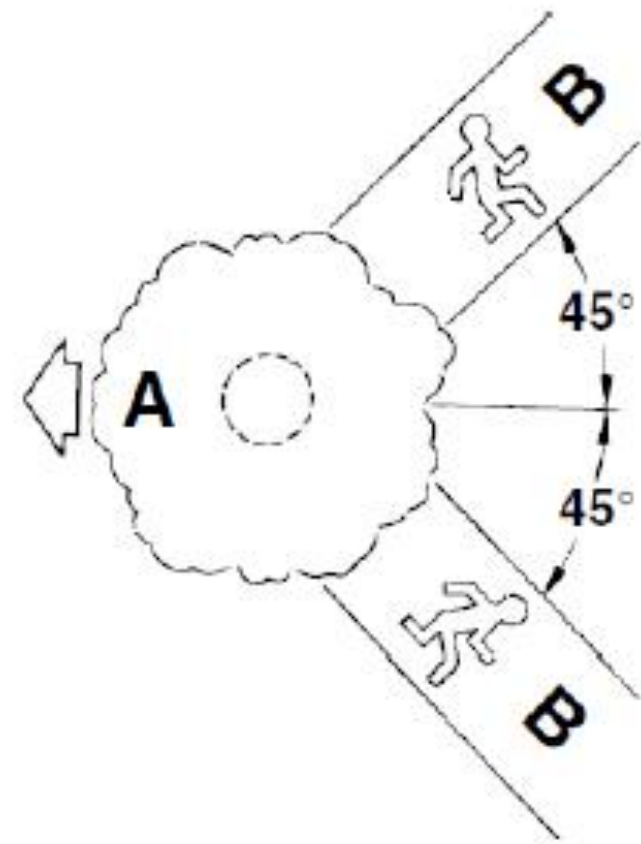
- Inspection of the terrain
- Selection of the direction of felling
- Decision on the escape route
- Clearing the vicinity of the tree and the escape route
- Limbing the lower part of the tree (shoulder height)
- Cutting the buttresses
- Felling the tree
 - Directional cut
 - Back cut
 - Hinge
- Wedging the tree to fall



Selection of the direction of felling Decision on the escape route



a)



b)



Clearing the vicinity of the tree and the escape route



Limbing the lower part of the tree (shoulder height)



Cutting the buttresses



a)



b)

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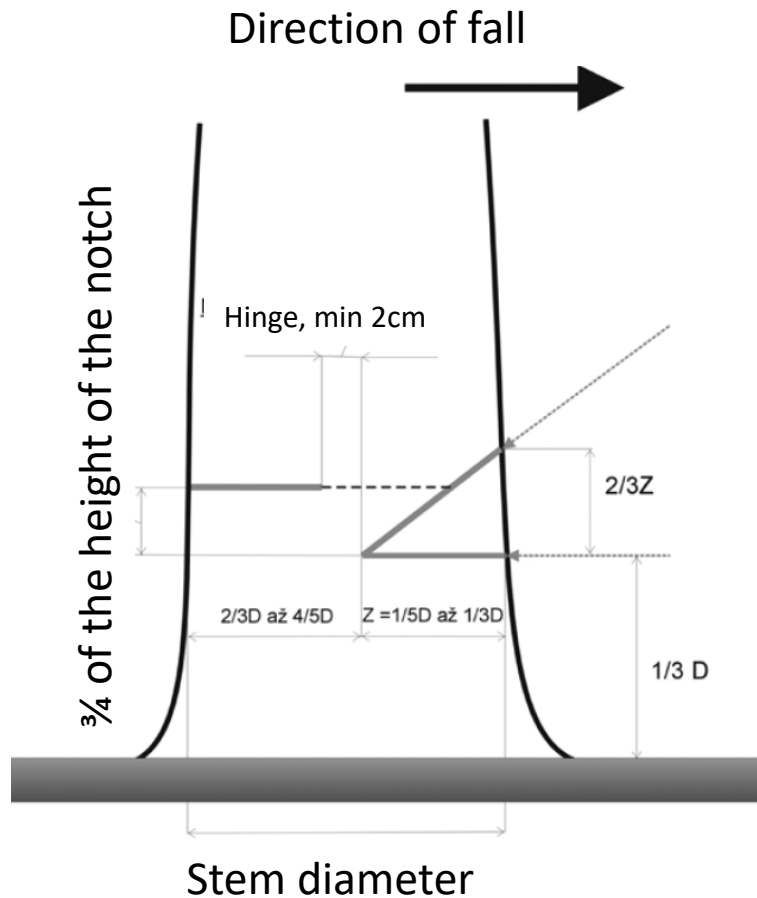
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FELLING



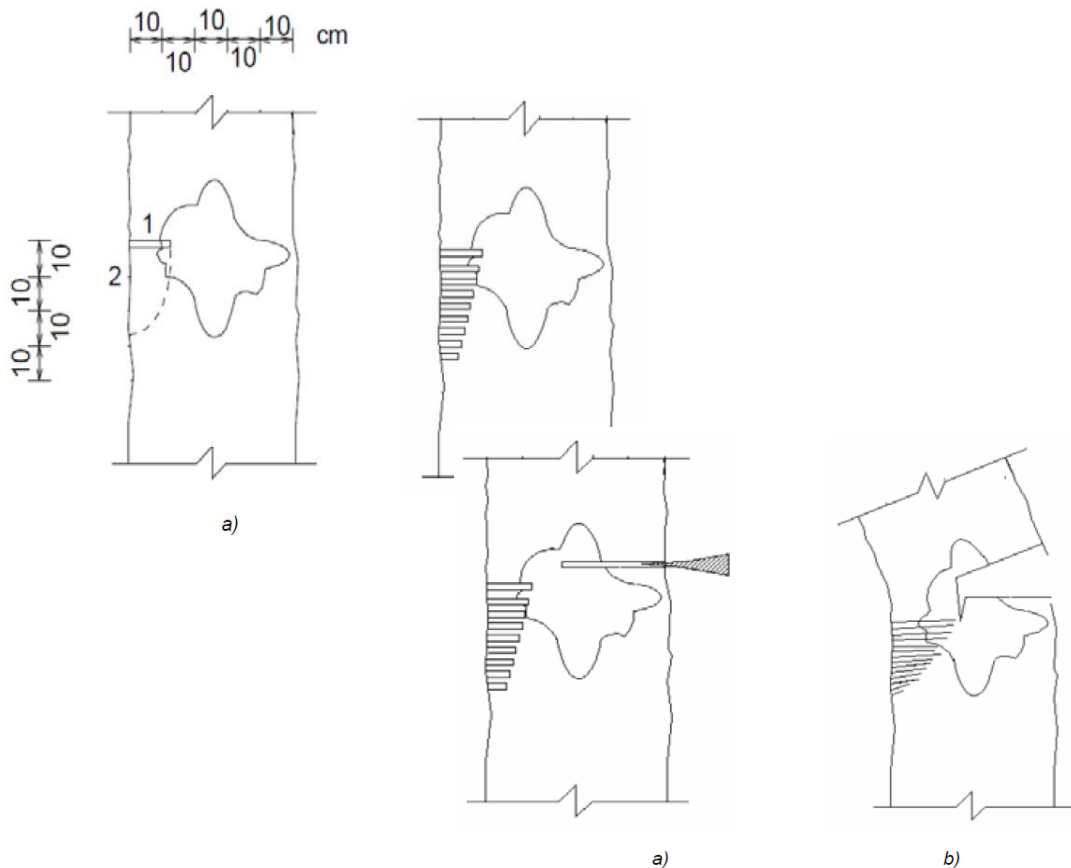
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Felling the tree



- 1st top cut of the notch
 - 2nd bottom cut of the notch
 - 3rd back cut
 - Leave a hinge, min 2cm
- Z – depth of the notch
D – diameter of the stem

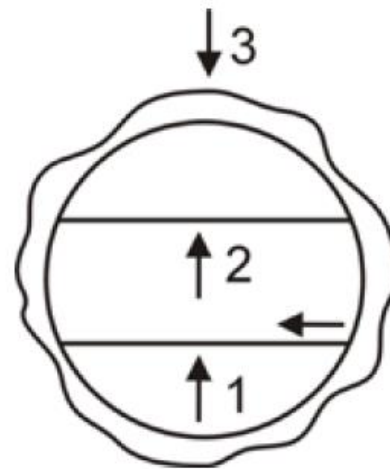
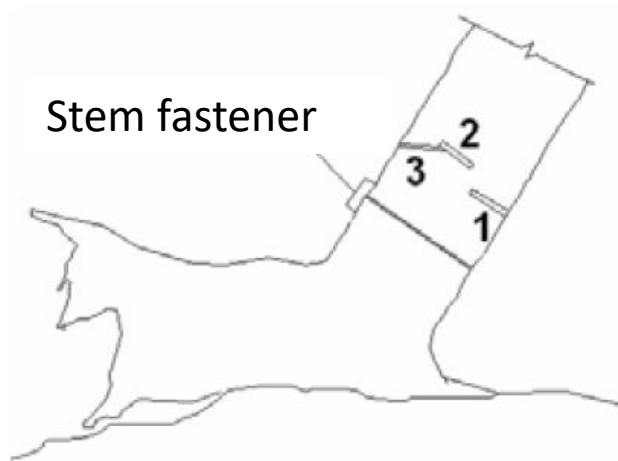
Felling a decayed tree



- Gradually notch the tree
- Cut the stem until decayed wood shows
- Based on the diameter of the tree cut again with 1-3cm space between the cuts
- Other than the first cut, the cuts cannot go as deep as the decayed wood
- Back cut as normal
- Use wedges (preferably hydraulic) to fall the tree
 - The gradual cuts will break and the tree will fall



Felling leaning trees



- If the leaning tree is snagged, it has to be freed first
- Always make the first cut at the pressure side of the stem
- In this case:
 - 1st bottom cut (pressure side)
 - 2nd inner cut (by recessing into the stem)
 - 3rd upper cut (pull side)



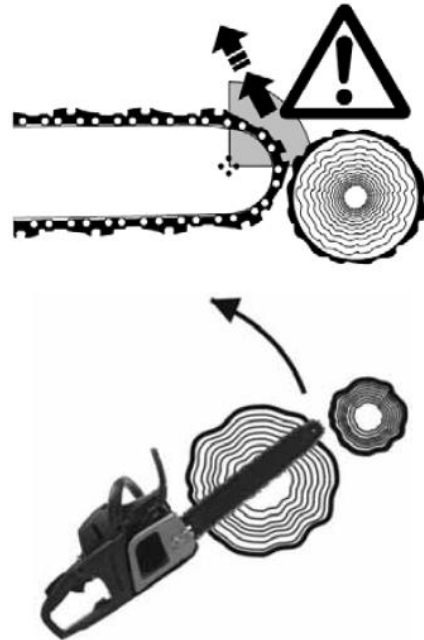
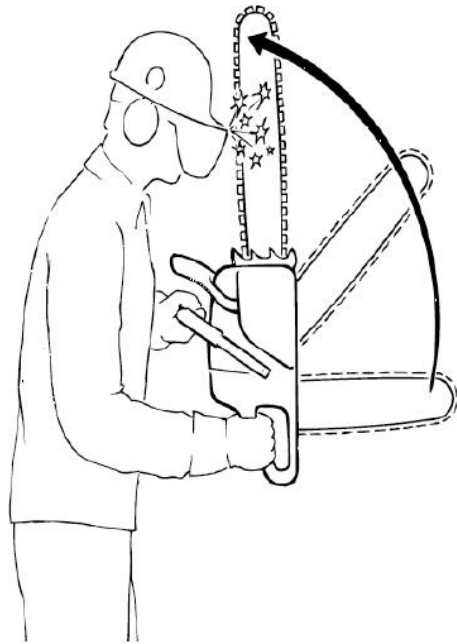
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LIMBING & BUCKING



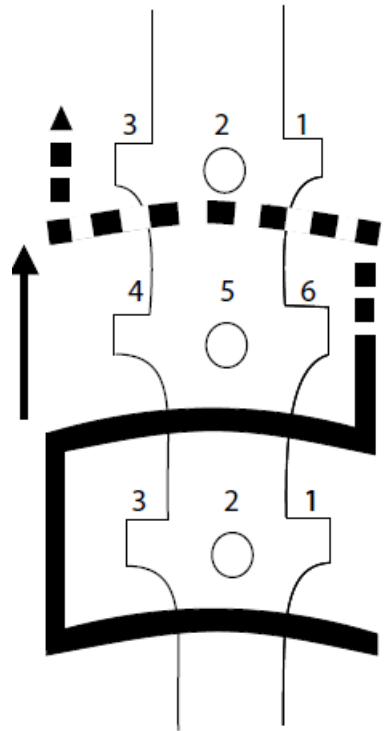
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Limbing



- Several methods available
 - Lever
 - Axial
 - Swing
- Never cut with the tip of the bar

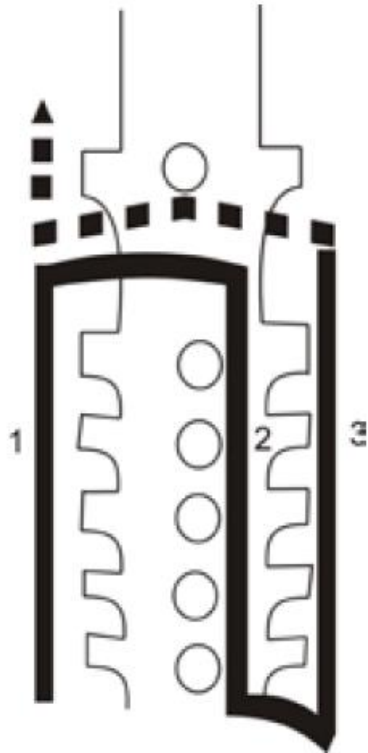
Limbing – lever method



- Used for limbs up to 5cm thick
- 1st cut limbs on the right side by top of the bar, saw lays on the stem; create lever by pressing on the rear handle
- 2nd cut limbs on the top by bottom of the bar, saw bar lays on the stem; pressed by the right leg
- 3rd cut left limbs by the bottom of the bar
- 4th cut the left limbs of the second whorl by top
- 5th cut the top limbs of the second whorl by top; bar lays on the stem, engine past it
- 6th cut the right limbs by the bottom; saw lays on the stem

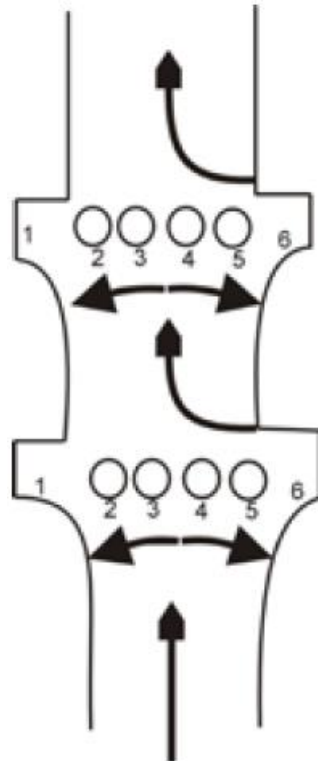


Limbing – swing method



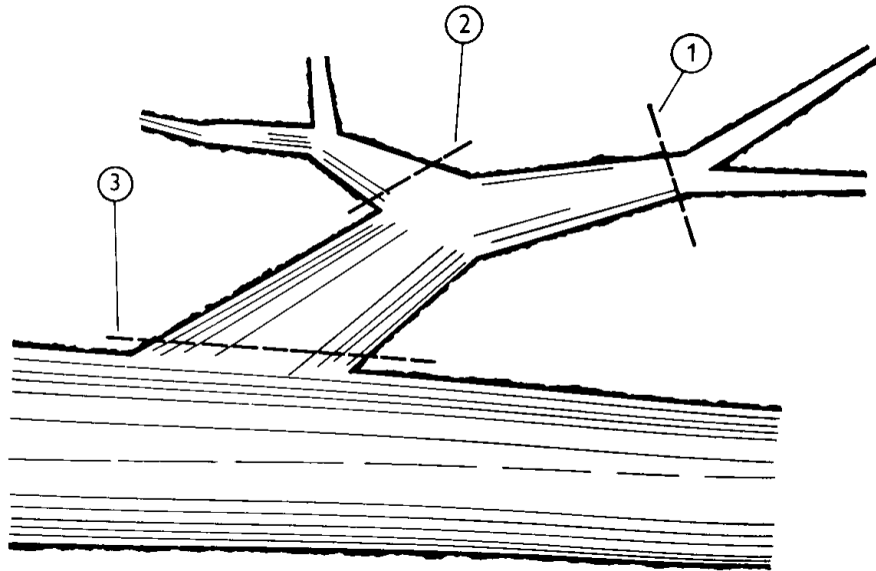
- Very thin limbs
 - Preferred in thinnings
- Important to keep your balance when swinging the saw
- 1st swinging out (up to 1.5m far); top of the bar on the left side of the stem
- 2nd swinging in; by top of the bar on the top side
- 3rd swinging out; by top of the bar on the right side

Limbing axial method



- Used for thicker limbs; hardwoods
- Limbs are cut with regard to their stresses
- Limbing begins at the left (inner) side of the stem
- 1st free limbs are stressed downwards, so they are cut by the top of the bar
- 2nd bottom limbs are pressed by the stem, so they are cut by the bottom of the bar
- 3rd abnormally long limbs should be bucked prior to limbing them

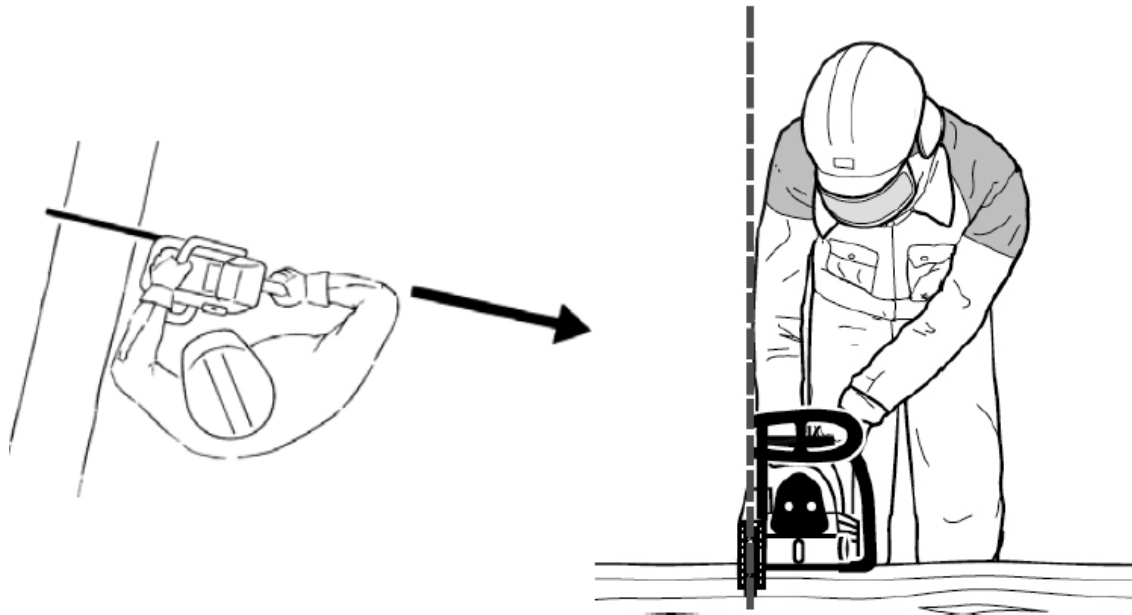
Limbing deciduous trees



- 1. limb thin limbs that prohibit further limbing
- 2. limb semi-thick limbs that cause tensions
- 3. limb the main limbs

Bucking

- Buck the stems on ground
- Use the bumper spikes to your favor
- Correct your stance if necessary





End of section 2

THANK YOU FOR YOUR ATTENTION

