

In wood present at the time of wounding, the tops and bottoms of the compartments are the weakest walls. These we will call Wall 1. The inner walls are the second in weakness—Wall 2. The side walls are fairly strong—Wall 3. The strongest wall is the one formed by the cambium after wounding—Wall 4.

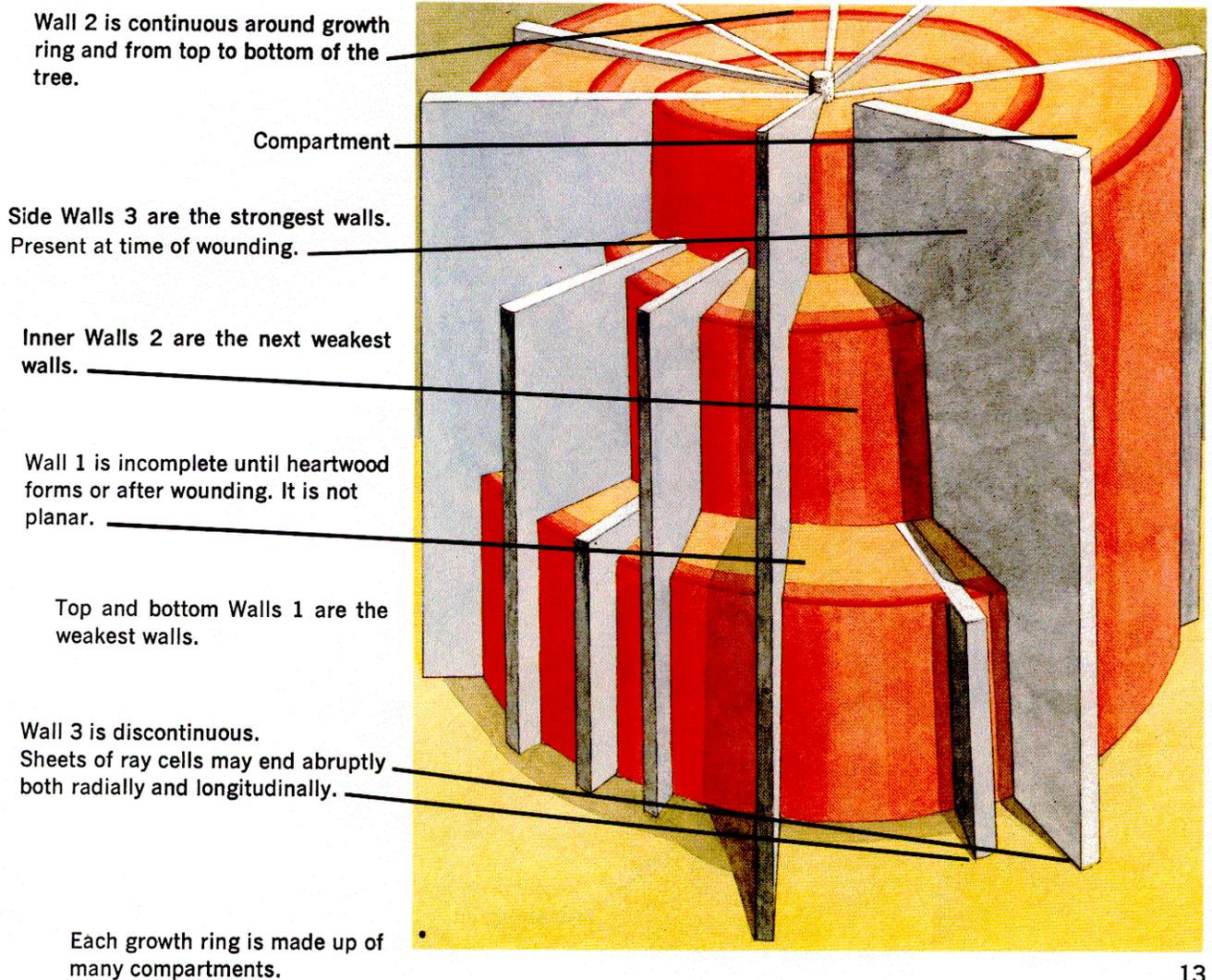
Wall 1 is incomplete in living sapwood because the conducting elements—vessels, tracheids—conduct liquids in a vertical direction. But as heartwood forms, or after wounds are inflicted, pits close or the con-

ducting elements are plugged. The rate and degree of pit closure and element plugging depend on many factors. Completion of Wall 1 is the result of a dynamic process. The plugging will then set the limits for the vertical extension of each compartment. When plugging occurs rapidly, short compartments form, but when plugging is slow, long compartments form.

Wall 2 is continuous around every growth ring, and from the top to bottom of the tree.

Wall 3 is discontinuous because sheets of ray cells are not continuous radially and longitudinally throughout the tree.

Wall 4 is a much stronger, more localized version of Wall 2. The area—longitudinal, tangential—covered by Wall 4 will depend on many factors: Wound size, type, position, severity, time of year when wounding occurs, and intrinsic genetic potential to respond to wounds.



Walls 2 are continuous around the rings and from top to bottom.

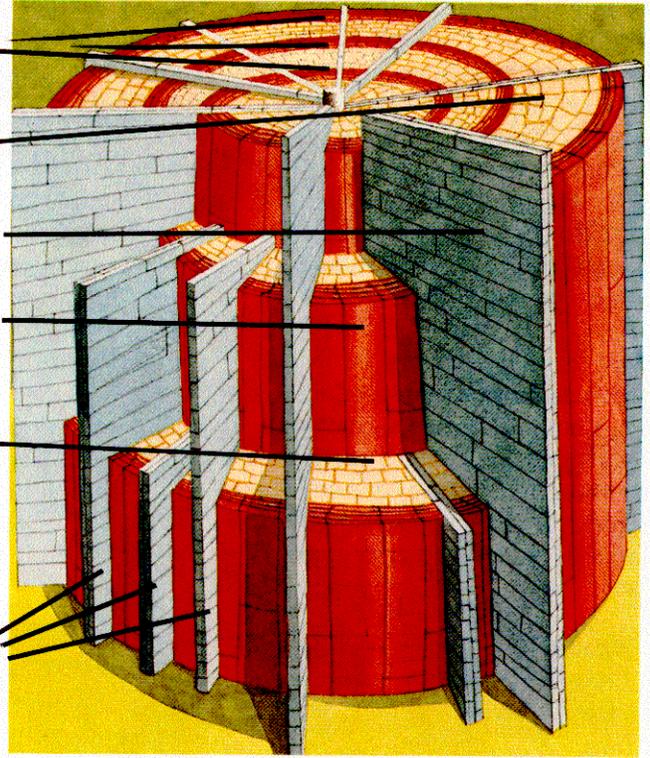
A compartment

Wall 3

Wall 2

Wall 1 is incomplete until after wounding.

Walls 3 are discontinuous inward and up and down.



A compartment

Vascular elements plug after wounding and complete Wall 1.

