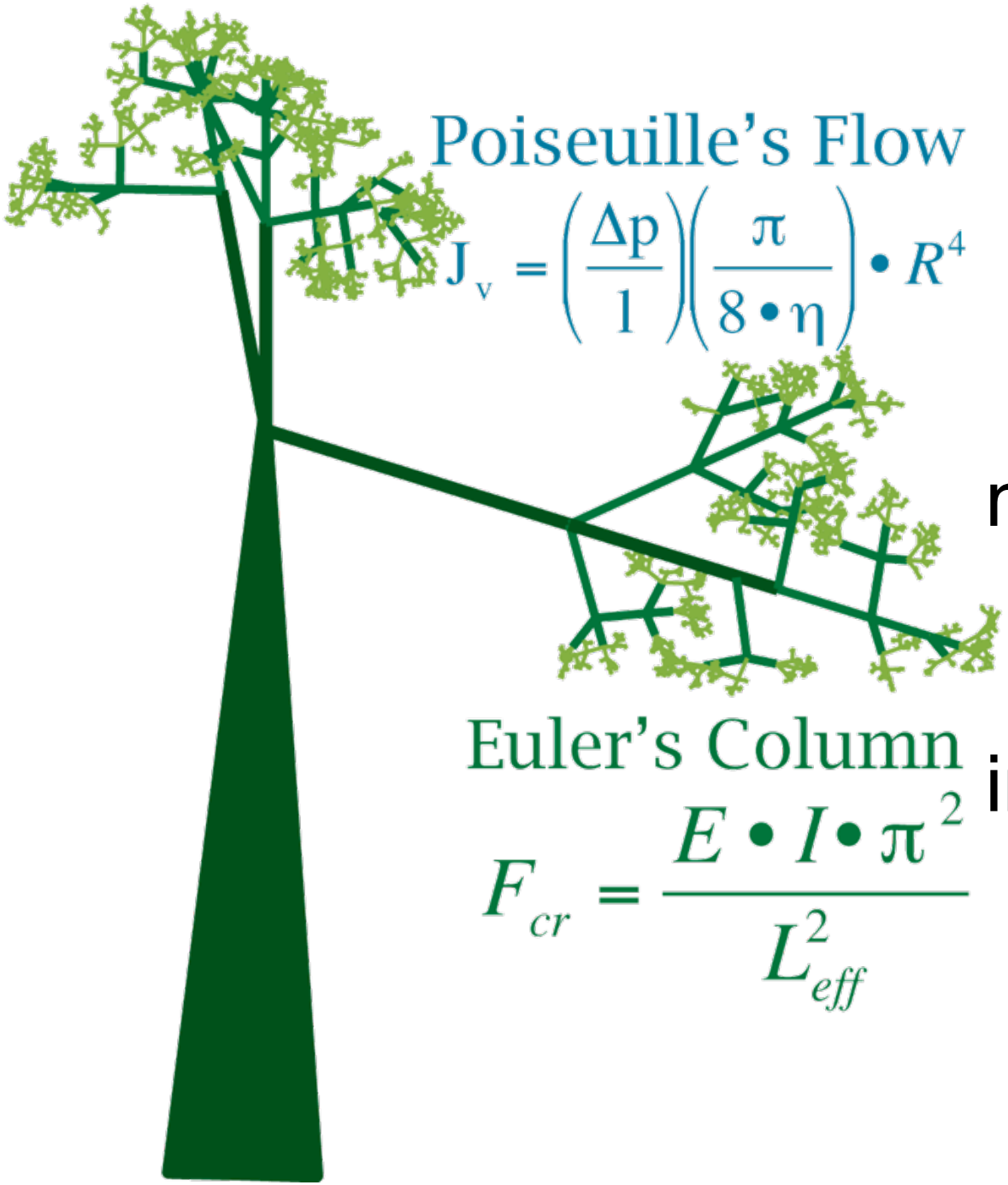
Tensile Water



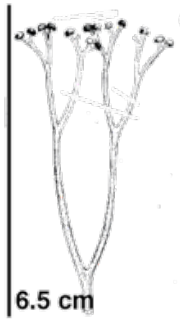
Poiseuille's Flow

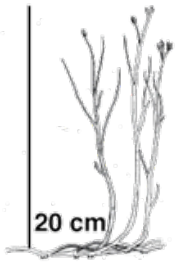
$$J_v = \left(\frac{\Delta p}{l}\right)\left(\frac{\pi}{8 \bullet \eta}\right) \bullet R^4$$

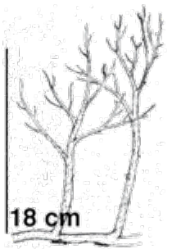
Euler's Column

$$F_{cr} = \frac{E \bullet I \bullet \pi^2}{L_{eff}^2}$$

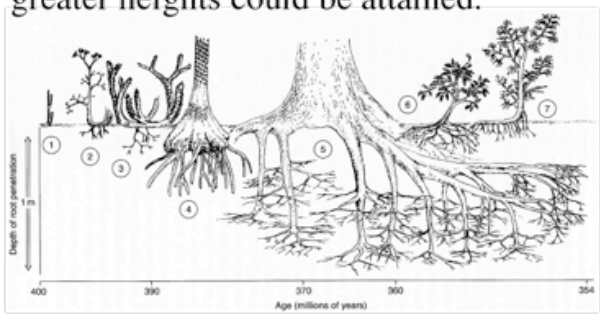
The nature and mechanisms of water movement in a vascular plant

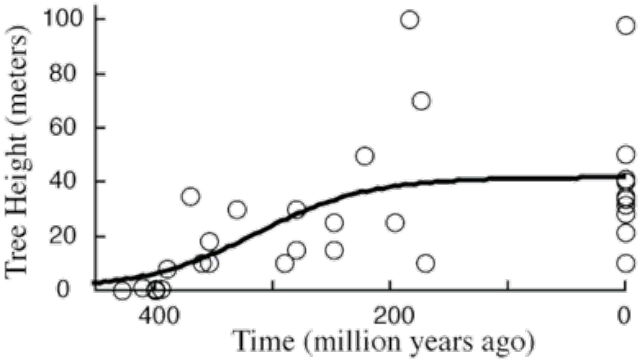


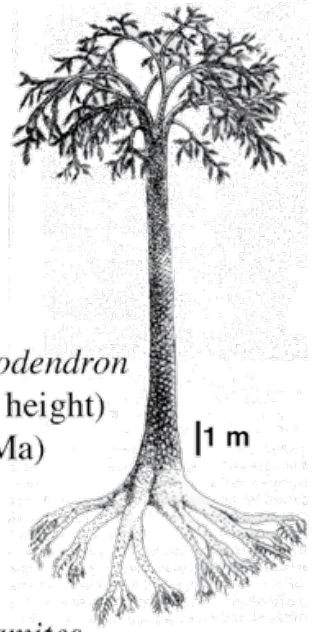


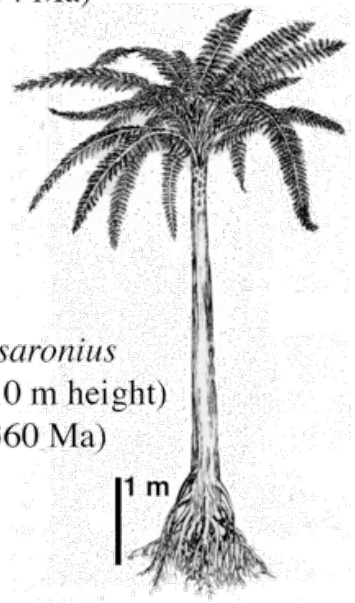


With the development of roots, providing a source of water and mechanical support, greater heights could be attained.

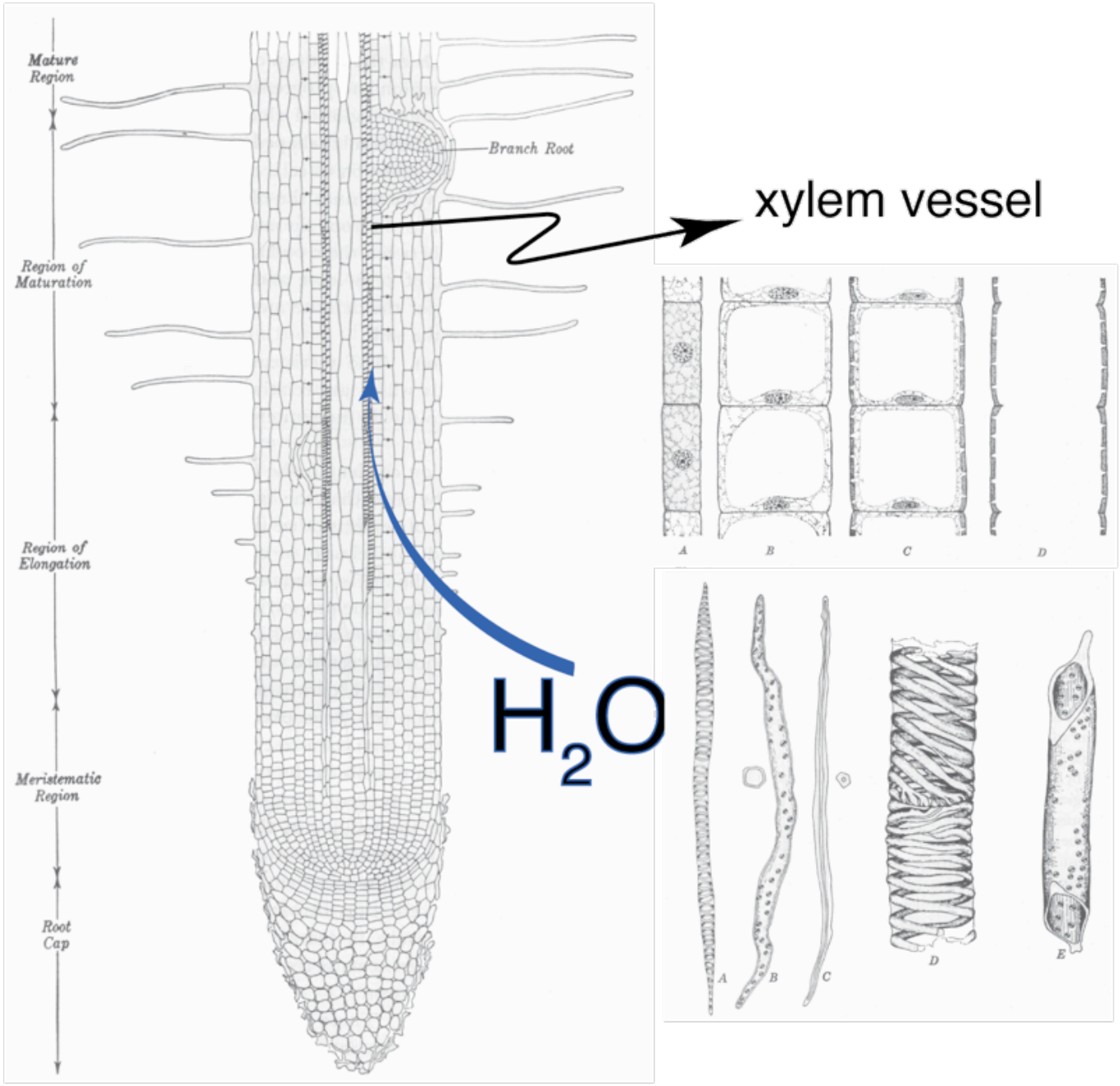




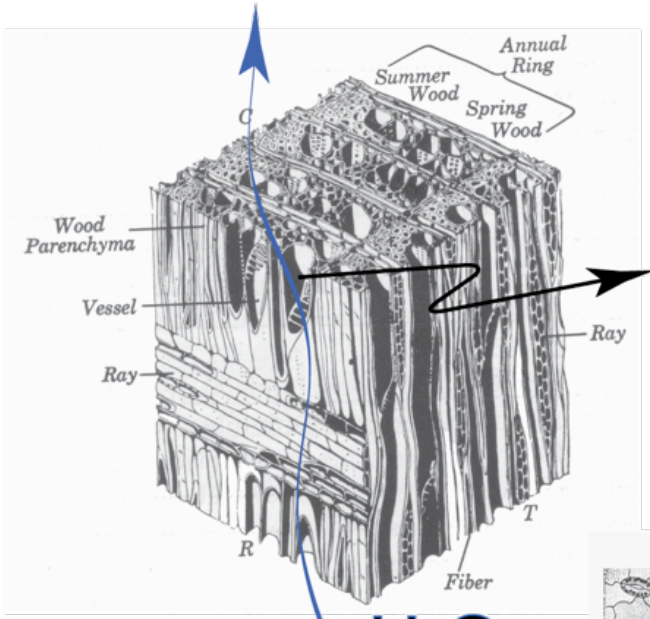




[1]Source: Willis, K.J. and J.C. McElwain 2002. The Evolution of Plants. Oxford University Press.

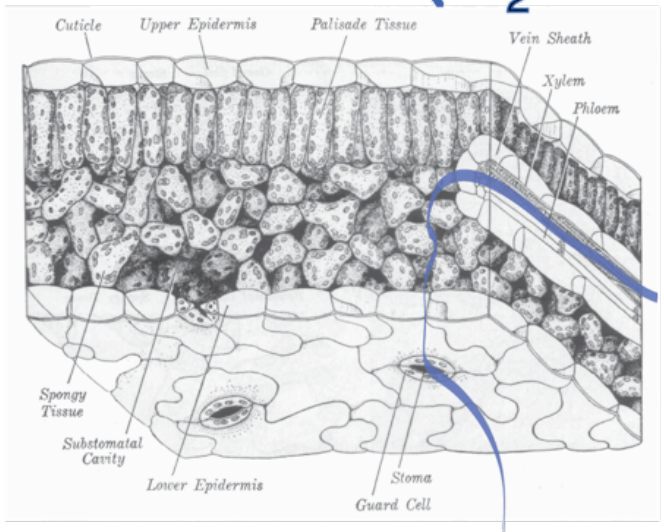


[1]Source: Smith, GM, EM Gilbert, GS Bryan, RI Evans, JF Stauffer (1953) A Textbook of General Botany. 5th ed. Macmillan Co.

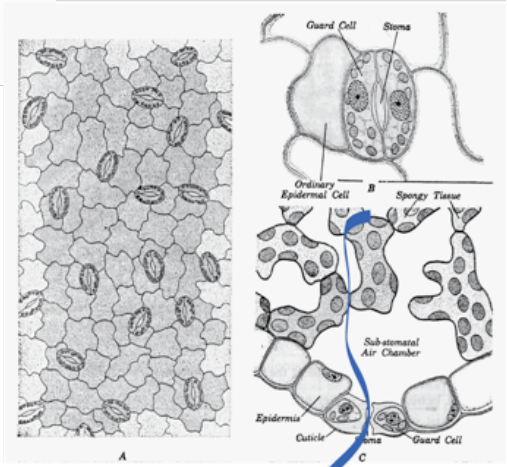


xylem vessel

H_2O



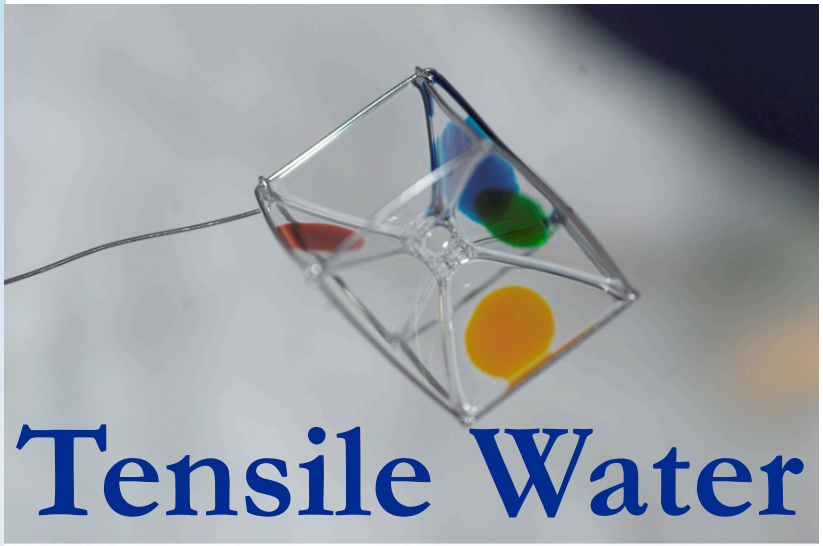
H_2O



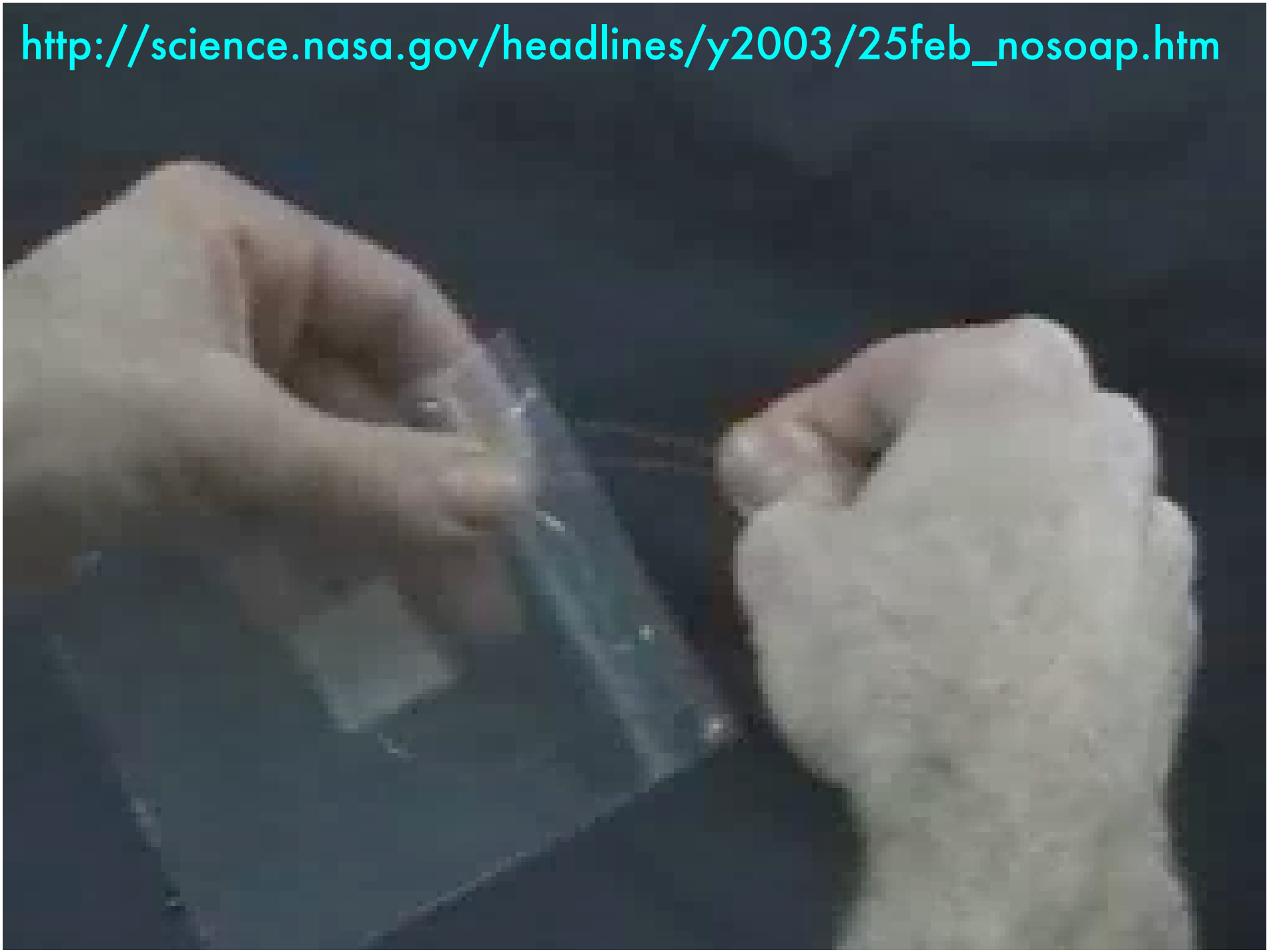
H_2O

H_2O

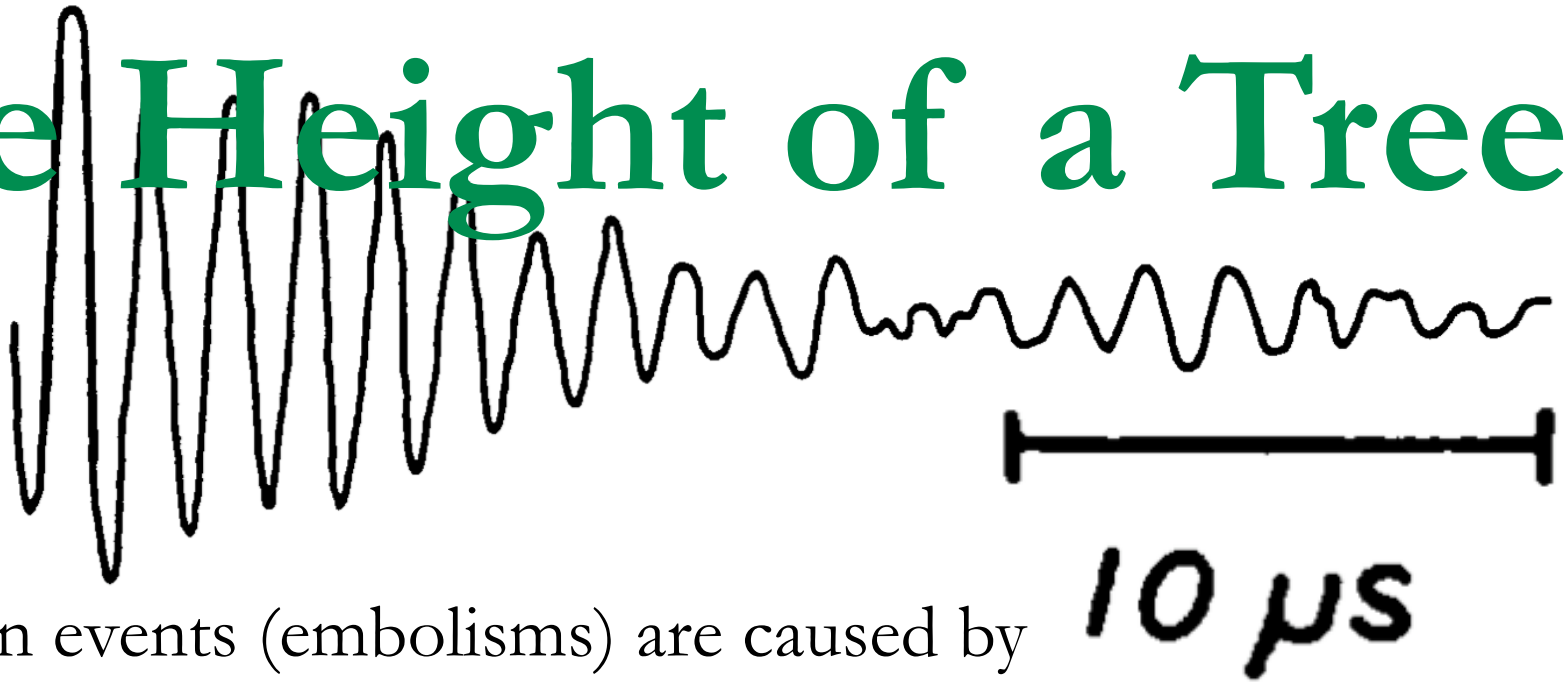
The Height of a Tree



Tensile Water


http://science.nasa.gov/headlines/y2003/25feb_nosoap.htm

The Height of a Tree



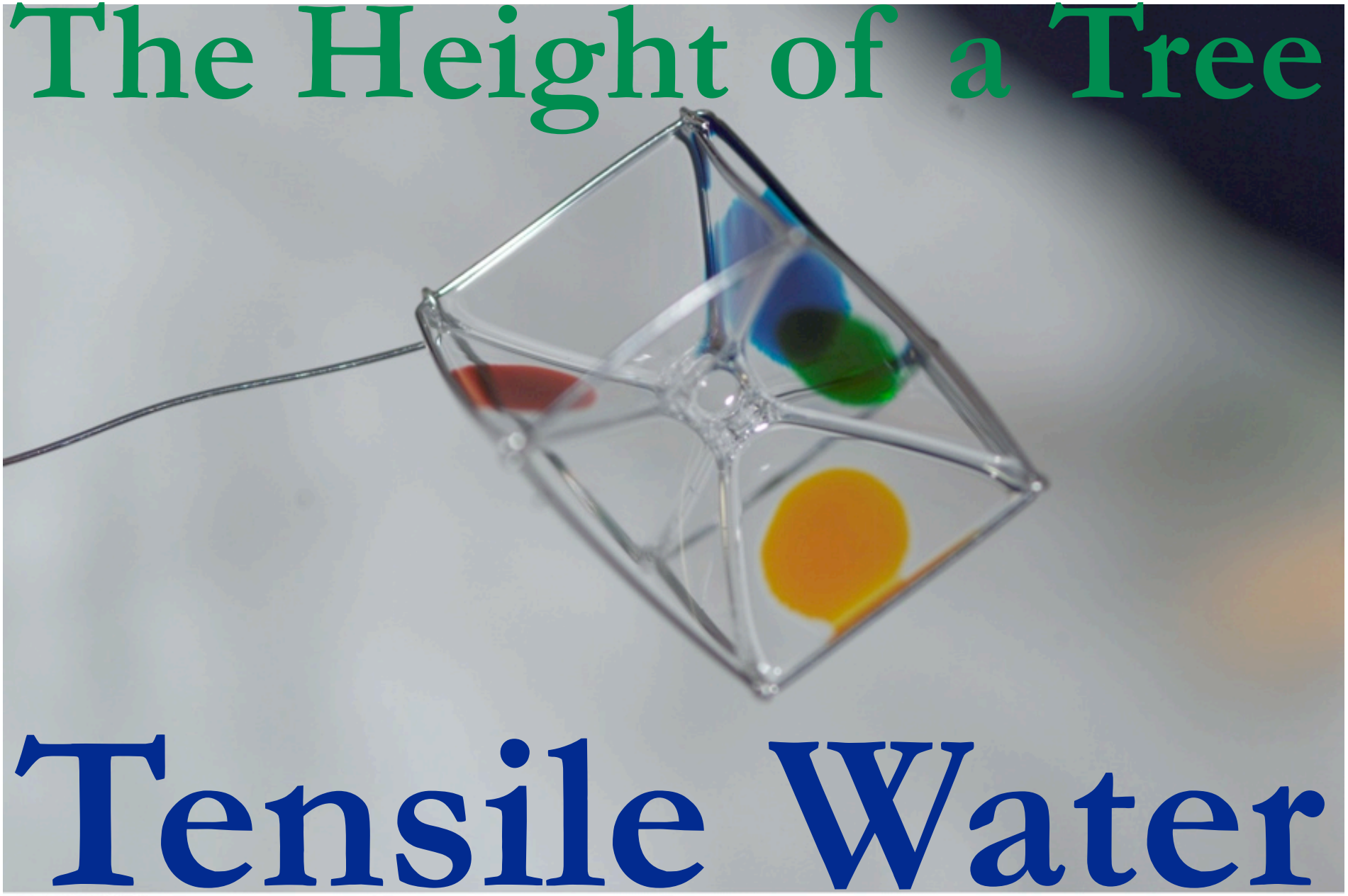
Cavitation events (embolisms) are caused by breakage of water capillaries in the xylem vessels.

www.expressnews.ualberta.ca/article.cfm?id=7390

Melvin Tyree at the University of Alberta

Tensile Water

The Height of a Tree



Tensile Water

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