

Twining plants: how thick should their supports be?

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joint work with:
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Morning Glory (*Ipomoea purpurea*) twining up a corn stalk

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The Movements And Habits Of Climbing Plants

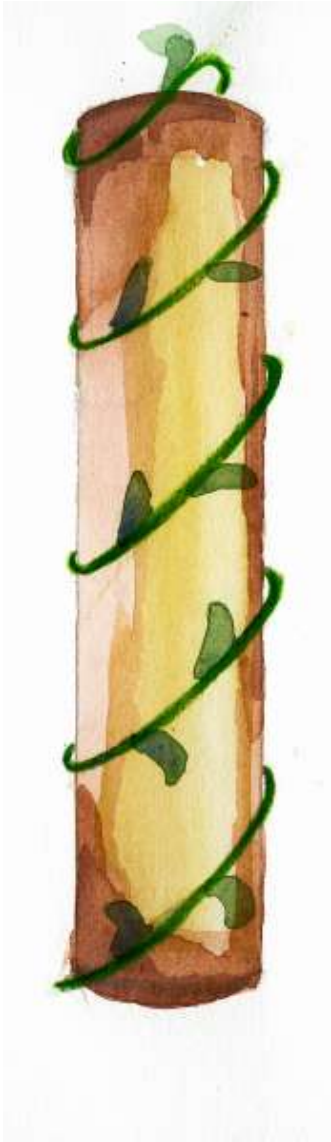


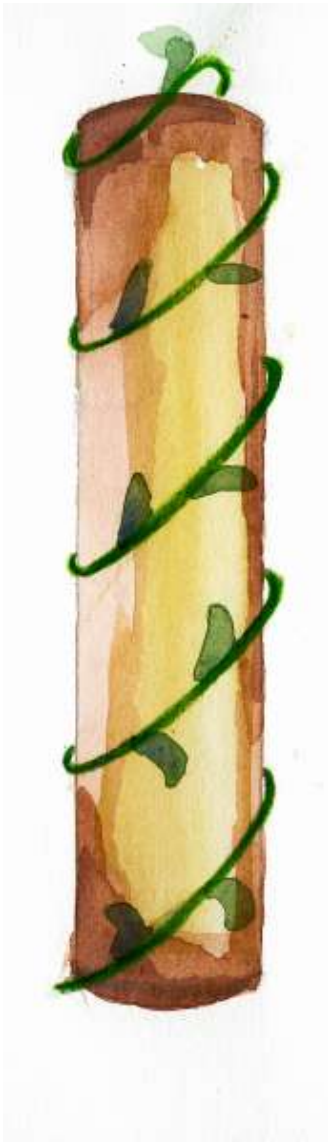
Charles Darwin

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“Most twining plants are adapted to ascend supports of moderate though of different thicknesses. “

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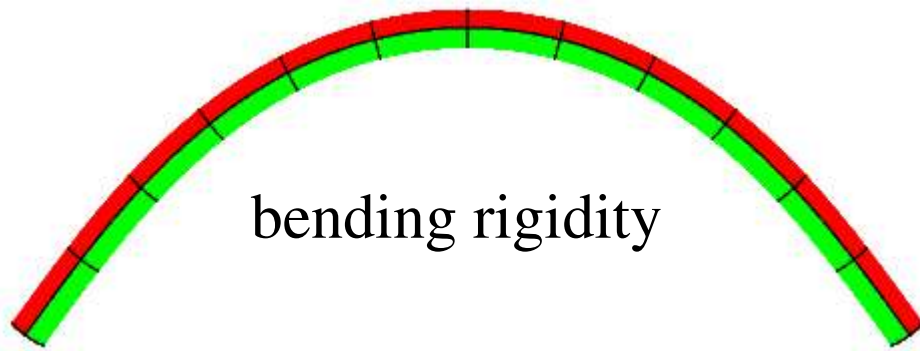
“By what means certain twining plants are adapted to ascend only thin stems, whilst others can twine round thicker ones, I do not know. “

Publisher: Kessinger Publishing (2004)

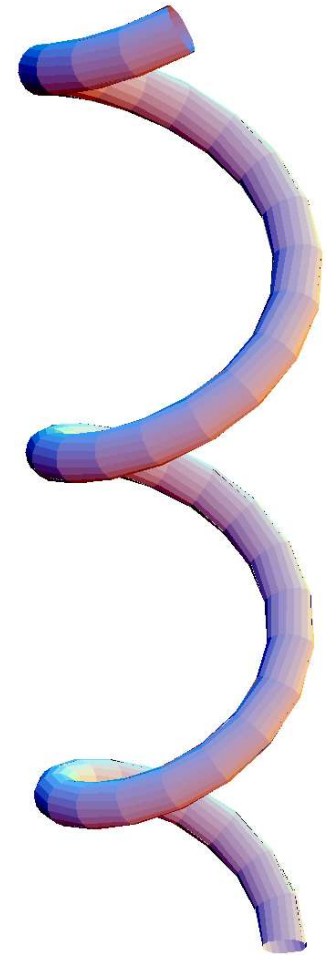
Elasticity theory

stem \equiv elastic filament

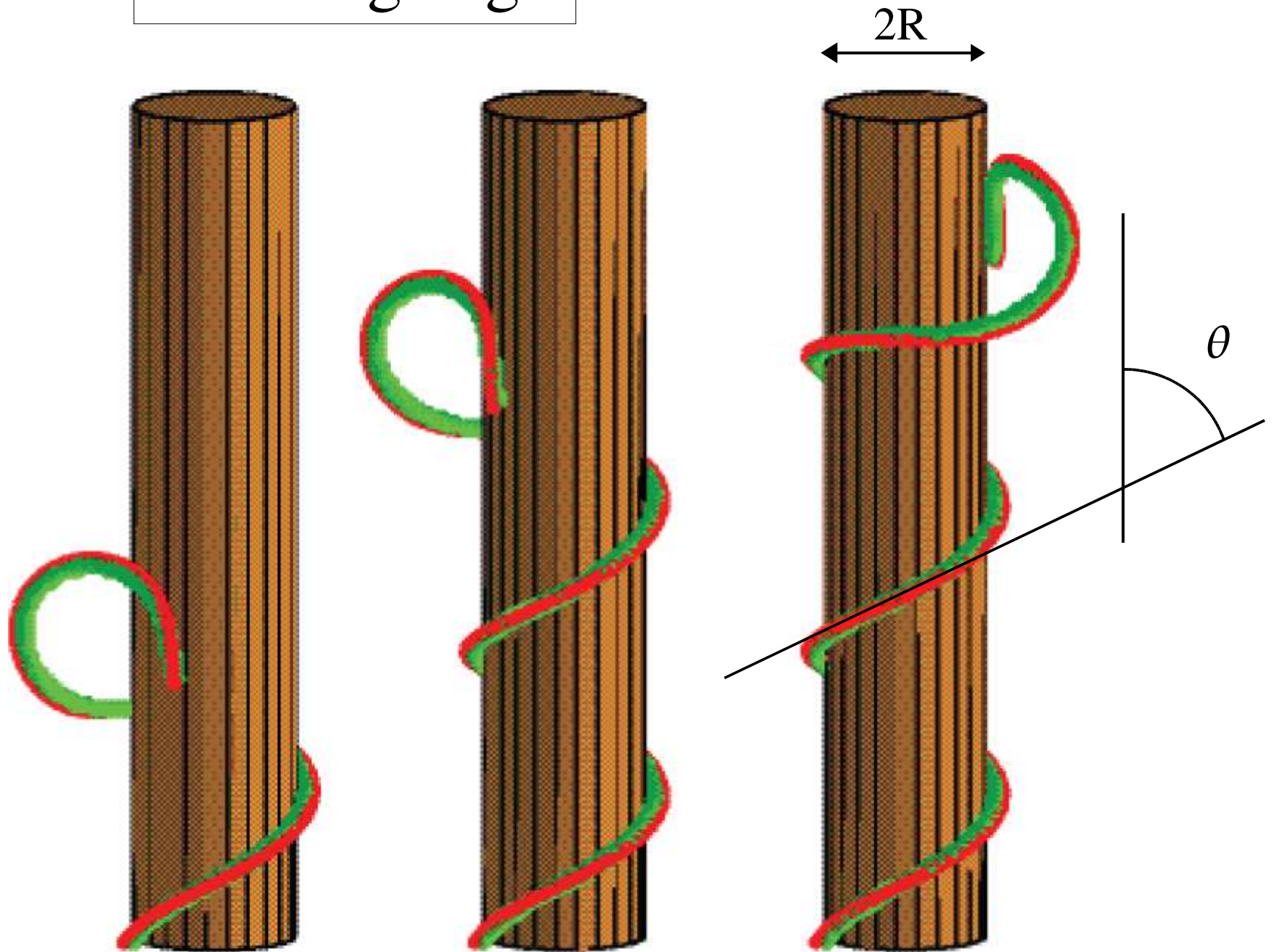
naturally curved (helix)



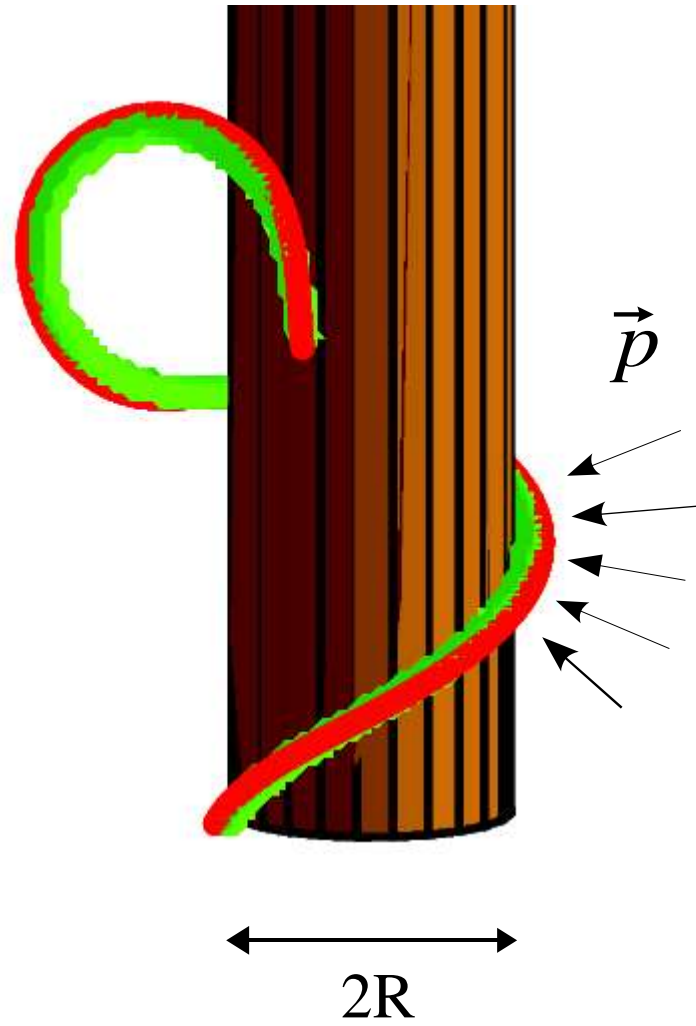
twist rigidity



Climbing angle



Contact pressure





liana in Cairns (Queensland), Australia [www.botgard.ucla.edu]