



A Story FROM a Tree Stump

Backyard Wisdom - March/April 2022

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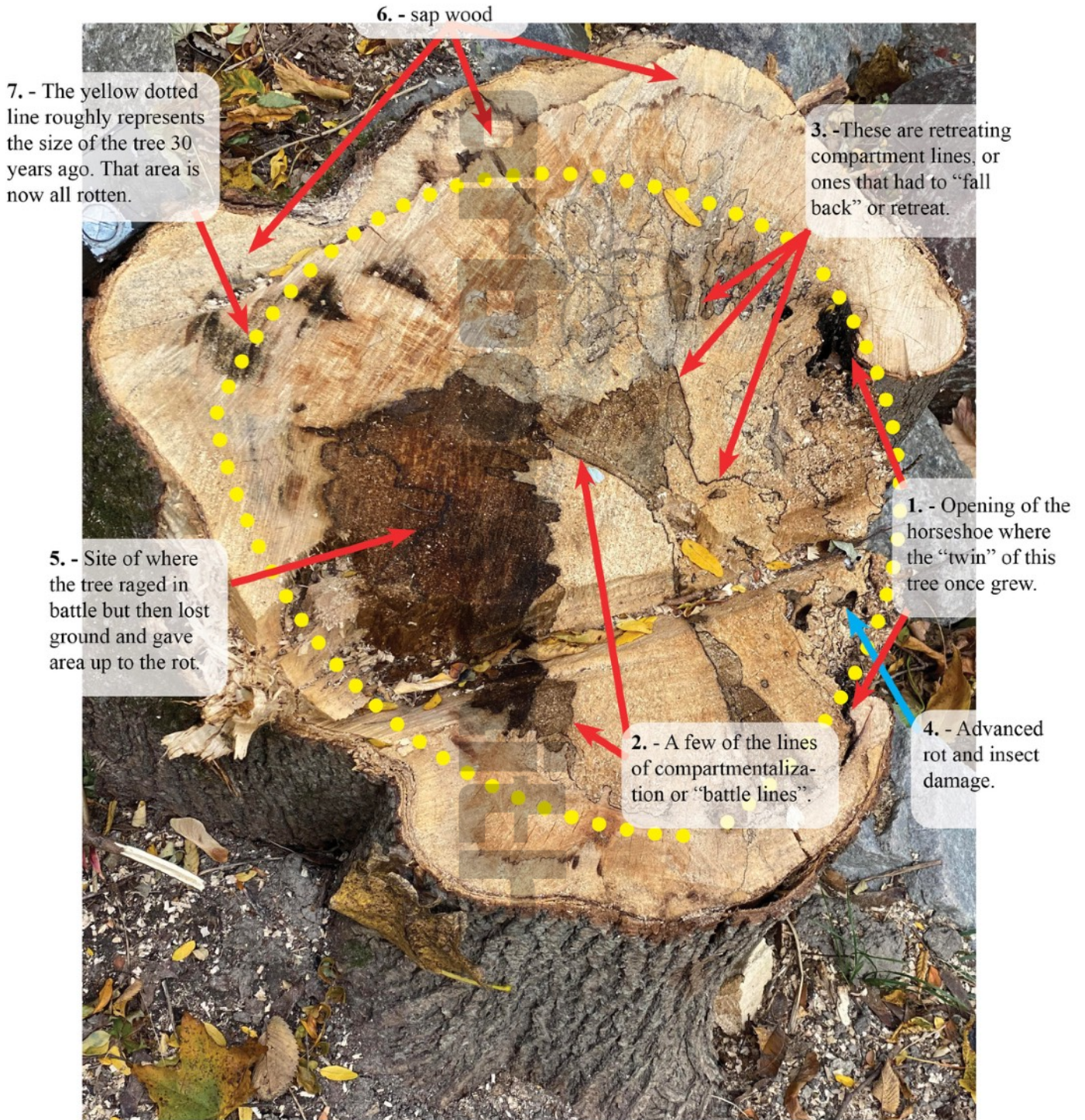
I'm sorry to say it, but we had to take this tree down for safety reasons. But, it has a story to tell us, from the inside out!

This Norway Maple landed as a “whirly bird” seed on a bluff overlooking Lake Michigan in Lake Forest in 1960. I counted the annual rings as best I could. I guess everyone knows how to count the tree rings to determine the age of a tree. In April 2019 in our *Wisdom From The Trees* article Lesley and I talked about how trees grow and how they heal. Also Aldo Leopold, in his famous book, **The Sand County Almanac** explained the history in the rings of a tree.

This Maple grew with two closely spaced and weakly attached stems (which is not uncommon in wild trees) and one of the stems ripped out about 40 years ago. *(see #1 on photo)* “But why would a tree grow a weak structure,” you may ask? In the forest trees are in a desperate race for food, which they get from the sun. Very few seeds, less than .01% (that’s right, one tenth of one percent) actually succeed and reach maturity. So many trees sacrifice strength for speed to grow tall. Even if they break, as this one did, they have a chance to mature, set seeds and propagate.

Look closely at the trunk where it looks like a horse shoe. That’s where the weak stem broke out. Now what does this wounded tree do to protect itself from rot? If it were like you and me it would replace the damaged stem with new healthy tissue. But a tree can **not** replace tissue. Once it has been damaged, that tissue remains damaged for the rest of its life. What the tree does is to try to cover over the wound by adding successive layers of live wood. If the wound is small enough the tree may close it in time to keep borers, ants, woodpeckers and squirrels out. But this wound was too big and never had a chance to close.

This is where we can begin to see the historical battle play out over the next 40 years right in front of our eyes. The maple responds by telling all of the cells right next to the damaged tissue to stop doing whatever they were doing, whether it was carrying water and essential minerals, or water and food (sugar from photosynthesis), or storing food. Then the tree tells those straw shaped cells to fill up with **terpenes**, which are toxic to invading damaging organisms and **tyloses** which are bulges that block up the cells and make it hard for wood rotting organisms to physically get through those cells. Also the cells near the damage dry out so that fungi and bacteria can’t easily grow on their parched surfaces. This process is called **compartmentalization**. The tree sets up battle lines or walls of a compartment to protect itself against invasion. *(see #2 on photo)* Look at the stump. Can you see distinct dark lines running throughout the



stump wood? If the tree is healthy and a strong compartmentalizer those battle lines hold. When the tree is weakened by drought, disease, insect attack or physical damage the battle lines can't hold and have to fall back and regroup. Can you see where some compartment lines had to fall back? *(see #3 in photo)*

It is important to mention at this point that those compartment lines are strategic battle lines for the tree. If they are broken by improper cuts made by well-meaning trimmers, the tree loses and becomes a hazard.

About 30 years ago the wood next to the oldest wound lost the battle and began to rot. Do you see grey punky areas near the mouth of the horseshoe where there are small holes made by insect borers? *(see #4 in photo)* There are some darker splotches where the battle raged fiercely and then the tree lost ground and began to rot in this area. *(see #5 in photo)* Notice the light colored area on the outside of the tree, that's called the sap wood. *(see #6 in photo)* Every year a new tree is added onto the outside of the old tree by the vascular cambium just underneath the bark. Trees don't lengthen their bones and grow like people do. They just add a new living layer onto the old every year, very much like coral grows.

If you trace the darker area about an inch and a half inside the bark you can see a roughly circular area, what the tree looked like 30 years ago, is now rotten. *(see #7 in photo)* It has been digested by wood rot and has completely lost its strength. And yet the tree still stood for 30 more years before I had to condemn it. How did the tree hold up in all of the storms of the last 30 years? Simply put, the tubular structure of a tree is strong even when the heart wood is rotting. (see wisdom articles on how a tree grows and heals)

It takes a lot of study, training and experience to forecast the safety of a tree when the outside doesn't look that bad. That's why its good to have a certified arborist inspect your trees and then try not to complain when we suggest that it's time to thank your tree for its beautiful life, and then let it go. Your arborist should be almost as grieved as you.

