

# DETECTIVE DENDRO THE DIAGNOSTIC SLEUTH

By Morus Spillane



## The Case of the Ill Illinoinesis

Codit and I were back in the office, ending our lunch with hot pecan pie. The frozen yogurt was melting over the crust, dissolving the sweet filling inside and deliciously drowning the pecans as it slid downward. It all swirled into a slurry on the plate, and, as I scraped it up with my fork, I drowsily dreamed of sweet sap swirling through phloem. Then came a ghastly image of fungal enzymes

predigesting xylem, like a *Velociraptor* in a Jurassic Park movie spitting on those poor actors before devouring them. Maybe all that sugar was causing the discordantly dichotomous daydream, which fortunately was broken by the telephone's ring.

"Detective Dendro, at your service," I answered. "How can we help?"

"Hello, Detective," breathed the voice on the other end of the line. "My name is Carrie Ackurnel, and I'm so glad to reach you. I just moved into an old farmhouse, and I'd like you to help me with the 100-year-old pecan tree right outside my door."

Tree owners sure like round numbers, I thought. If I had a nickel for every 100-year-old tree I was called to look at . . .

"I'd be glad to e-mail some pictures to you," she offered. The lady sure knew how to tempt me into taking her case.

A few minutes later, Codit was downloading images of a pecan tree that indeed appeared to have hit the century mark, with several signs of struggles as it slowly slid into senescence. A broken limb hung over the road, so I called Arbor Cop in on the case. Codit sent a return e-mail giving our hourly rate for a diagnosis and consultation, she replied giving the go-ahead, and we were on the way.

She met us at the driveway, with bright blond hair peeking out from beneath her cap, eyes that mirrored the sky's bright blue, and a sparkling smile.

"I'm Carrie, and I just moved here from Illinois. I'd like to expand this orchard of pecan trees and do all I can for their health and productivity, but I'm most concerned with this old tree," she said, keeping one eye on her children going up and down on a see-saw.

"The Master Gardeners down at the university extension office were very helpful, recommending an ISA Certified Arborist for tree work and a Board-Certified Master Arborist for consulting, and giving me this material." She handed Codit a little cardboard box and some paper. "First, I want to know about these red growths on the trunk."

"Your trees, *Carya illinoensis*, are named after your home state," I told her, as Codit took the cardboard box and began spooning soil into it from different places under the tree. "These two growths are conks of the fungus *Ganoderma lucidum*. They are a sign of decay."

I tapped the bark around them with my rubber hammer, and the hollow "thud" resonated in the pit of my stomach, causing that pie to ferment a little bit. The bark gave way easily, so I excavated some spongy wood until I found solid wood just inside.

The two buttress roots below the conks were not damaged from construction of the patio, but they did not sound as solid as the others.



Conks of decay fungus indicate a loss in wood strength.

I saw a new root growing between them. I looked up and saw that major limbs had been removed some time ago, judging by the big, thick rings of callus tissue around the hollow wounds on the trunk.

"Your tree is in poor condition," I told her, waving at Arbor Cop as he parked near the street. "If you decide to keep it, there are ways to lessen its problems, and we can keep an eye on its condition. Either way, its days are numbered, and you definitely want to move the see-saw and get that broken branch removed. This patio looks a lot older than those branch wounds—is it?"

"Yes, the former owners told me all about the house's history. The patio was built in the 1970s, while the branches were pruned in the 1990s. I will be responsible for this decision to keep the tree and have that broken branch pruned while you are here. I did not notice it, and I don't want it to fall on a car," she said as she signed the release form on the clipboard that Codit extended. "What will you do with that boxful of dirt, young man, and why are you smelling it?"

"I'll send it into the state lab to get it tested, if you will finish filling out this form for me," Codit replied. "The state will e-mail us both the results, then we'll interpret them for you. After risk assessment, that's a service we provide with every diagnosis. The earth does not have the sweet smell of biologically active soil, so we may recommend some rigorous rehabilitation of the rhizosphere."

"Codit, you have come a long way since you stripped the bark off those street trees to get the beetles out of them," Arbor Cop noted with a grin. "I'm glad you're turning your good energy toward good arboriculture. Because this tree is over the public easement, it's my job to make sure that its risk is kept acceptably low for public safety. Dendro, my copy of the book *Wood Decay Fungi* says *Ganoderma* is 'moderately fast progressing,' so is it a good idea to keep the tree?"

"Well, AC, my copy of *Fungal Strategies of Wood Decay in Trees* says *Ganoderma* can be classed as 'harmless,' at least for a certain period. . . . Trees with a soft kind of decay do not fall suddenly and without any warning signals," I read from page 124. "Arboriculture can mitigate the risk. If the roots are revitalized, CODIT may surround the infection."

"How can I sur . . . ? Oh, you mean compartmentalization. I get it now," Codit sheepishly smiled.

"We'll both have to follow up on this risk assessment then, and continue this discussion later," Arbor Cop said. "All tree work must follow our ordinances. First, we require a Certified Arborist to supervise the work on site, and Dendro's a BCMA so you're ahead of the game there. You have your safety gear in place, and I see your insurance certificate posted on the back window of your truck. All work must comply with ANSI standards, so I'll need to know how it will be pruned."

"Me, too," Carrie cut in. "I'd like to know two things. First, why has that *Ganoderma* fungus infected the roots and the trunk? Second, I know that more branches may need pruning so they do not break, and I know that topping is bad. So should the branches be removed back to the trunk instead?"

"All pruning is wounding," I began, "but Arbor Cop and I will make certain that pruning will not strain your tree's health any more. The answer to your first question answers your second question."

Her blue eyes crinkled in curious consternation. Codit considered me quizzically, as if I was coming down too hard from the sugar buzz I got from the pecan pie. Arbor Cop scratched his head for a minute, then nodded in understanding.

What did Dendro mean? Could pruning have anything to do with basal decay? And what will our team do about limbs breaking? Turn to page 56 for the answer. **AN**



## WHAT'S THE DIAGNOSIS?

"I've looked through these publications, Detective, but I am stumped," Carrie admitted. "How is branch pruning related to root de- . . . Oh, darling, are you all right?"

Her daughter was crying on the ground next to one end of the see-saw, and her son was walking away from the other, grasping for the glittering gear in Codit's bag.

"There is your answer," I said as Carrie picked up her daughter, who seemed more surprised than hurt. "The branches and roots of your tree grew in balance, like your children on the see-saw. The roots relied on carbohydrates moving downward for their nutrition, and on auxin, a hormone stimulated by buds on the branches. After all those branches were taken off that side of the tree, the roots crashed like your daughter did when your son got off that side of the see-saw. The decay advanced as it did because the tree's resources were strained."

"I'm still confused," Carrie said. "If topping is bad for the tree, and cutting large limbs back to the trunk is also bad for the tree, how should it be pruned?"

"On sprawling trees such as pecans and silver maples and jacarandas, the simple act of correctly reducing a branch can prevent breakage," Arbor Cop took over. "We've been fighting an anti-topping war for decades now. We have won battles, but we cannot win the war until we present positive options. That's why our urban forester Ashley Green is working on a new pruning manual. It'll show why, how, where, and when branches should be removed, thinned, or reduced, with minimal harm to the tree. I believe that Codit is ready to show us how it's done."

"Sure thing, Arbor Cop!" Codit answered. "First, I've checked the trunk and scaffold branches to see that the tree is safe to climb. Next, I'll set the line in that big fork just above the broken branch."

"Easy does it, Codit," I reminded him as he smoothly slipped the slingshot on the pole. "You remember what happened last ti . . ."

Whack! Crunch!

"Caw, caw!" cried the angry crows, whose nest in the top of the next tree had been hammered by Codit's overshot. His cheeks blushed bright red as he noticed Arbor Cop pull out his camera. The next shot was perfect, and we all watched Codit tie off and glide up with his ascenders. After tying in, he cut the broken branch back to a strong upright lateral, then from the same position used his pole tools to reduce other branches that were sprawling over the road.

"Codit's come a long way since he started climbing with Electra Cline, eh?" I asked Arbor Cop.

"He sure has," he answered as we watched Codit rappel downward. "As you see, ma'am, the branches over the road are now reduced enough to avoid breakage, while leaving enough leaf surface to maintain a healthy tree system. I'd like to use pictures of your tree with our pruning manual, to show people one more alternative to topping."



**Making an undercut to prevent ripping when using a pole saw in a tree often calls for repositioning.**

"Certainly," Carrie agreed as she comforted her daughter, who was now smiling. "Detective, I'd like to get more information about all my pecan trees when you return with the results of the soil test."

"Absolutely," I answered. "And I am glad to see that your daughter is recovering from her crash so much better than your tree has so far."

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*Morus Spillane is the great-nephew of pulp fiction legend Mickey Spillane. Morus follows his great-uncle's tradition of a hard-boiled hero; his Detective Dendro's quest is for Truth, Justice, and the Arboricultural Way. Morus got his training from touching trees and a close reading of ISA publications over the years. If you have comments, Peggy Currid (pcurrid@isa-arbor.com) will forward them to Mr. Spillane.*

*Photos courtesy of the author.*