



DETECTIVE DENDRO THE DIAGNOSTIC SLEUTH

By Ellyn Shea

The Case of the Plane Truth

I turned my collar against the wind as a mournful fog-horn sounded in the distance. The gray San Francisco weather reflected my mood perfectly. Codit and I had come west to present one of our cases at an ISA Western Chapter meeting. After that, he was staying behind to climb giant sequoias for a few days, and I was going to the city to visit family. As the applause receded and the question and answer session began, I left a note for Codit saying I would catch up with him later and slipped out the back door.

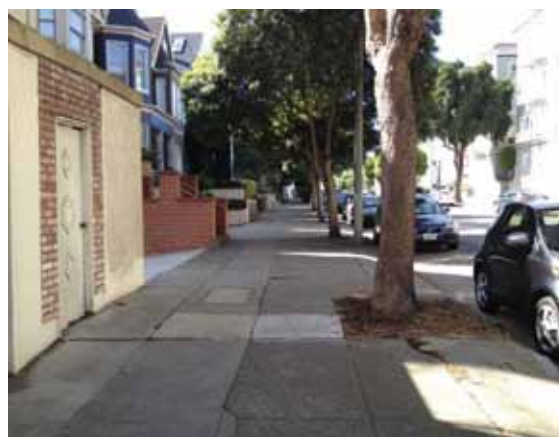
The truth was, I was feeling a little burned out and needed some time to myself. Call it a mid-career crisis. Codit and I had worked some tough cases lately. We'd nailed a corrupt developer cutting corners on tree protection measures and unmasked a substandard tree service operator as a phony ISA Certified Arborist®. We worked hard to preserve trees and educate people, but we couldn't win them all. Some days, I felt old and tired. Codit was young and energetic, building his own fan base. How long before he went out on his own?

I shook my head to dispel these dark thoughts. I needed to take a break and snap out of this depression. My cousin Julie always made me laugh. I was looking forward to a distraction from trees.

"My friend needs help with a tree while you're here. Do you mind, Dendro?" Julie said as she opened another beer and slid it across the table. "The homeowner's association votes soon."

Julie was a grad student in entomology specializing in moths and butterflies. Her thesis advisor, Professor Doptera, lived in a condo on Nob Hill. A new resident was close to convincing the HOA board to cut down one of the street trees, but the professor wanted to keep it. So much for a few days off.

The building was on the south side of an east-west street in a swanky neighborhood. The tree was between the sidewalk and the curb on the north side of the building, with long, lanky branches hanging out over the street. Directly across the sidewalk from the tree was a



London plane (*Platanus x hispanica*) with asymmetric canopy (top), posing pavement problems for local residents (bottom).

door leading to a one-story courtyard paved in brick, creating a sunny gap between the condo building and the adjacent house to the west.

Professor Doptera was probably on the shady side of forty, with a gorgeous smile. She wore a light blue cashmere dress that matched her eyes. "Please, call me Leppie," she said as she showed me the tree, a London Plane or sycamore tree (*Platanus × hispanica*). "It may not be the most beautiful specimen," she added. "It's a bit lopsided, and the autumn color is rather dull, but this species is so important to the Western Tiger Swallowtail butterfly (*Papilio rutulus*)."

"Tell me more," I asked, if only as an excuse to look into her eyes a little longer.

"Butterflies sip nectar from a variety of plants but can only lay their eggs on certain plant species or families. Sycamores are a host plant for the Western Tiger Swallowtail. The female lays her eggs high in the treetops, and the caterpillars eat the leaves when they hatch. In the wild, the native California Sycamore (*P. racemosa*) would be their preferred host plant, but as those are hard to find in cities, the butterflies have adapted to the London Plane. City streets with multi-story buildings and street trees are like the forested canyons of their native habitat."

A male voice interrupted our fascinating conversation. "Hey, are you the tree detective? Awesome!" said a man in his mid-30s, wearing jeans, Converse, and a graphic T-shirt. A phone appeared to be surgically attached to his left hand. "Peter Bunyan. No relation, ha ha," he said, shaking with his right. "Check out this root! All the bricks are lifted up in the middle of the patio. The sidewalk is lifted too. It's got to be this tree because there are no others around." His phone grumbled, and he raised a hand and turned away as he opened the door to the courtyard. I tuned out his nattering and surveyed the situation.

A large root-shaped lift ran diagonally from the northwest to the southeast under the unmortared bricks, which had been laid directly on the sandy soil. "It's been the same for many years," Leppie said. "It's a private courtyard for the downstairs unit, and the previous owner never used it. Mr. Bunyan moved in and wants to fix it up. He's putting a lot of pressure on the board to remove the street tree. If I can't prove that this tree isn't the cause of the damage, the board will side with him." She sighed as delicately as the stroke of a luna moth's wing. "There used to be so many more trees in this neighborhood. People have cut them down and not planted new ones. They don't understand the benefits big trees provide."

I walked out the courtyard door and stood in the next-door neighbor's paved front yard, looking up at the clear blue sky. A picture was forming in my mind. The fog had burned off, and the chill was receding. Suddenly, it was too warm for my coat. Peter's call wound up, and he came out again.

"Hey, don't get me wrong, I like trees, but come on, this root is huge! It could be damaging the foundation of the building. Hey, tree detective, think there are any clues under the bricks?"



Running northwest to southeast, a ridge of lifted bricks in a nearby courtyard.

I just smiled and shook my head. "I'll take up some bricks, sure, but I bet all we'll find is dead wood." I turned to Leppie. "I think you'll be able to keep this tree after all."

What's the Plane truth here? Turn to page 65 to find out.



"FIFTEEN YEARS IN, I'M STILL MOTIVATED TO DO MY BEST EVERY DAY."

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I drew a quick sketch to illustrate the situation. “Your planetree has an asymmetric canopy: full and hanging over the street on the north side and flatter on the south side, even though there’s a gap between the buildings letting the southern sun through. Trees grow towards light, so the south side of the canopy should be the same size or greater than the north side. However, if two trees grow close to one another, both trees develop asymmetric canopies, fitting together like puzzle pieces. Notice how the neighboring street tree is flatter on the side closest to the London Plane, and fuller where it’s open on the west side?”

“Even years after one tree is removed, the remaining tree can still be one-sided. It’s as if the ghost of the missing tree is still there. From the way the lifted bricks are arranged diagonally across the courtyard, I’d say the roots came from the next door neighbor’s property rather than the street tree. This means the missing tree would have been growing in the neighbor’s front yard, which is now covered in concrete, and blocking the light on the south side of your street tree.”

Leppie reiterates that the bricks have been lifted the same way for many years. “Dead roots don’t grow, Mr. Bunyan. Another tree is the culprit here. And that tree is long gone.”

To prove my point, I went and pulled up a few bricks from the affected area (if only Codit were there to do some heavy lifting!). Brushing away the sand, I encountered gray, lifeless wood just under the surface. “You should be able to remove the dead wood and fix the bricks without affecting the street tree.”

I took a deep breath and surveyed the situation. “The sidewalk lifts are small, and I think they can be repaired without cutting down the street tree. Many concrete guys would just cut all the roots in a square shape and pour a new tree well; this may cut structural roots and cause the tree to become hazardous. Instead, let me come back when

WHAT’S THE SOLUTION?

the old concrete has been demolished. I’ll take a look at the exposed roots and cut only the ones that can be safely removed. It also looks like there’s room to expand the tree well without impacting the path of travel on the sidewalk. A bigger tree well means less concrete to maintain, and more rainwater going into the earth instead of down the storm drain.

“The branches are long and lanky because someone topped the tree many years ago. The resulting growth is usually weakly attached and more prone to failure. Let me write pruning specifications to help your tree service balance the canopy, reduce weight at the end of the limbs, and restore a more natural-looking branching structure over a period of years. With a little maintenance, this tree can be an asset that raises your property values by one to six percent. In this town, that’s not chump change.”

“Thank you so much, Mr. Dendro.” Leppie’s eyes shone with emotion as she looked up at me. “Write me a report that I can present to the condo board, and I’ll pay your fee personally.” She took my hand. “You are so lucky to have such meaningful work that makes a difference—for the trees, the butterflies—for all of us. I’ll never forget what you’ve done.”

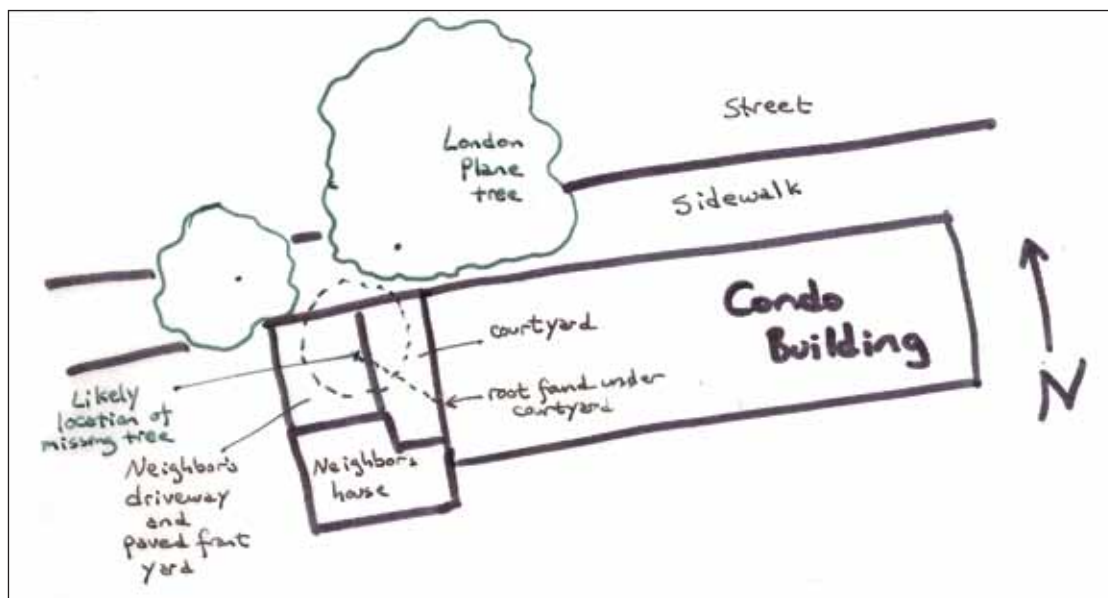
After a long moment, I turned to go, but not before promising to return. I walked away with a spring in my step—couldn’t wait to call Codit and get back to work.



Ellyn Shea is an ISA Certified Arborist and a consulting arborist in San Francisco, California, U.S. In her spare time she reads way too many detective novels.

Photos and illustration courtesy of the author.

Thanks to www.natureinthecity.org for information on the Western Tiger Swallowtail butterfly.



Dendro sketch. The diagnostic sleuth supposes that a previous tree (dotted circle), positioned to the south and west of the *Platanus × hispanica* in question, is (was) the source of the lifted bricks and the disheveled sidewalk.