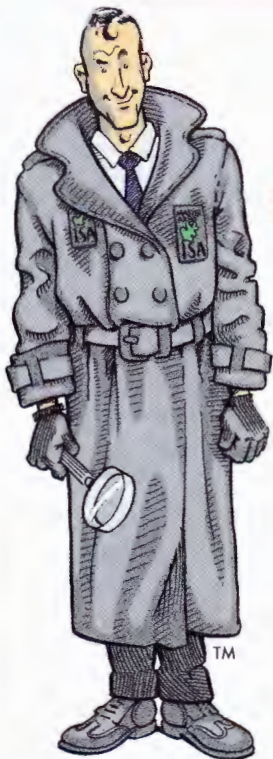


# DETECTIVE DENDRO THE DIAGNOSTIC SLEUTH

By James Komen



## The Case of the Mystery Driveway

Golden sun poured through the western windows of our office, the surest signal my assistant Codit and I were approaching the end of the workday—a Friday, no less. It had been a busy week.

I walked over to Codit's desk and plopped down a stack of reports. "Can you give these reports a once-over before I send them out the door?"

He gave me a look, but I knew he would get it done. Well, he'd get it done . . . eventually.

I returned to my desk. "It's always a good idea to get a trusted peer to review your work."

A snarky grumble followed in response but I had already moved onto my latest email for the week:

*Detective Dendro,*

*My name is Paul Jiang. Six months ago, I purchased a new home from a builder in the City of Ardenville, California. There was a beautiful oak tree out front that was in pristine condition when I bought the property, but it has gradually declined the entire time I've been here. Now it's nearly dead! I suspect the builder may have damaged the root system, but the builder denies any wrongdoing. I would like your expertise to determine the cause of the decline. Please visit the site at your convenience and send me a report of your findings.*

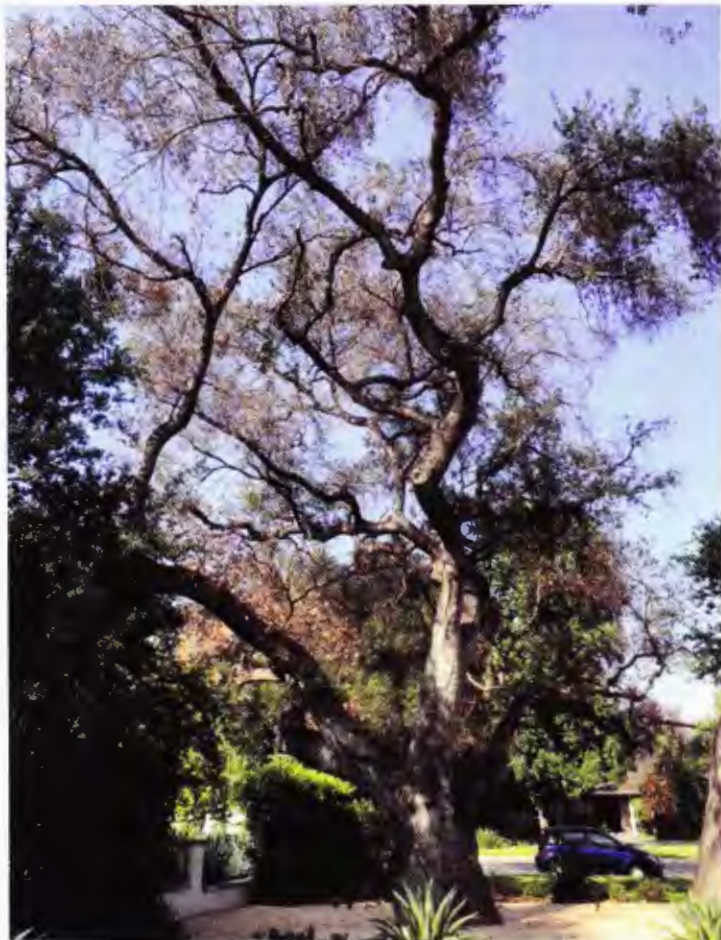
*Paul Jiang, new homeowner*

"Hey, Codit, want to do one more site visit before the weekend?" I asked innocently.

Codit didn't even look up from the stack of reports. It's almost as if he wanted to finish his work and go home for the weekend. But how could I put off exploring such a good mystery? I decided to visit the site alone.

Pulling up to the residence in question, I saw a landscape riddled with problems. An extravagant new home sat imposingly at the center of a full-acre lot (a large lot size for this part of town). In the front yard, several large coast live oaks (*Quercus agrifolia*) stood as remnants of a landscape from the past. The subject oak was the largest on site. And as described in the client's email, it was nearly dead. A long driveway snaked across the center of the lot between several of the mature trees.

Three other oaks showed various levels of symptoms of bleeding lesions around the root crown, potentially indicating *Phytophthora* root rot. They each showed tip



The subject tree has declined rapidly in condition over the past few months. What could have caused the decline?

dieback symptoms in the crown, but not such extreme symptoms as the subject oak.

Interestingly, I didn't see any symptoms of *Phytophthora* root rot on the subject tree. I identified a part of the tree with some old bark loss, likely from many years ago, and there was also evidence of some benign bark beetle activity. I observed several small suckers growing from the base of the tree as well.

Nothing aboveground appeared to be severe enough to cause the decline of the tree over such a short period of time. What was going on?

I continued my walking survey of the site. The soil around all the trees was covered in pea gravel. It appeared to have been laid fresh. Among the pea gravel were several oak-compatible understory plants that also appeared to have been planted fairly recently. This landscape had been updated as part of the construction project, but the question remained: *What precisely was done?*

I pulled out my smartphone and searched for the Google Street View™ perspective of the property from two years prior. Quite a contrast! The fascia of the house had been given a significant facelift. A large swath of English ivy (*Hedera helix*) that had formerly been growing under the other three oaks had been completely removed and replaced with the pea gravel and new understory plants.

Most notably, an asphalt driveway formerly ran right between the subject oak and one of its neighbors. From the historical photo, it was a tight fit, and it appeared that the two trees had begun to incorporate the asphalt into their heartwood. At present, the asphalt driveway was nowhere to be seen. Not only had the builder completely erased an asphalt driveway that was intimately connected with the subject tree, but they had built a new one across even more roots!

Except, something seemed a little strange to me.

I was pretty sure that root cutting was the cause of the subject tree's decline, but *why* did the root cutting happen? Ardenville has a tree protection ordinance in place that requires property owners to file tree-protection reports that detail a preservation plan for protected trees through any planned construction. If this builder had filed his



Dendro looks west, at the subject tree (right) and its neighbor (center). A driveway formerly ran between them, but that driveway was demolished and replaced with a new driveway (left).

permits, he must have filed an arborist report, too. Surely, the consulting arborist who prepared the report would have recognized the potential for root damage and offered mitigation recommendations accordingly. . . .

I dialed the office. “Codit! By my watch, it’s 4:55 pm. City Hall is about to close in five minutes. Can you place a public records request for the arborist report and planning documents regarding the Jiang property?”

A muffled grunt. Clearly, Codit was on fire today.

But sure enough, at 5:01 pm, an email from the city planning department popped up on my phone with a copy of the arborist report. Codit came through!

I skimmed the arborist report quickly, and one discrepancy immediately caught my eye.

“Very interesting,” I muttered to myself. “This must be how the builder got through the planning phase.”

*What did Detective Dendro see?*

*Turn to page XX!*

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Most organisms found in the landscape are not pests. In fact, many organisms make positive contributions to the landscape by improving soil production or by holding together soil particles. In the context of integrated pest management, a pest is any organism that:

- competes with desirable plants for resources, water;
- transmits less health, structural integrity, or other appearance of desirable plants, and/or
- demonstrates potential economic, safety, or utility in the landscape.

Highly magnified image of a plant with a pest.

# WHAT'S THE SOLUTION?

Continued from page 21



Plain as day, the arborist report, which was dated prior to the construction, stated, "Replacement driveway will follow the same path as the existing driveway on site." It went on to describe the tree-protection measures for resurfacing the existing driveway without damaging the trees. The last page bore a bright red embossed stamp from the planning office, which approved the report. Notably, the email from the city clerk stated that this was the only arborist report on file for the project.

Again, something about this didn't feel quite right.

I took a breath, scrutinized the landscape before me, and knew I had to dig deeper. Between the previous landscape, the reports, the construction, and the new landscape, something had gone awry.

Back into the records request I went. This time to review the landscape plans. And that's when I discovered that the new design of the driveway appeared in a plan that was dated *after* the arborist report. It too bore the embossed stamp of approval. But there was no follow-up arborist report discussing the change. . . .

It seems as though the arborist who prepared the initial report did not have an opportunity to review the new plans, and that detail must have been missed by the city planner when approving the project. Without strict guidelines to avoid excavation and soil compaction, the builder followed conventional demolition techniques and ultimately damaged the tree roots. Peer review was the missing link!

Later that evening over a cup of coffee, I wrote up a report on my all-visual inspection of the property, as well

as my findings from the public records request. Since I didn't perform any excavation, I didn't have conclusive proof of root cutting, but I did have evidence that supported my hypothesis.

I provided the option for Paul, the client, to perform a root zone excavation to look for conclusive proof of root cutting:

"Removing the soil along the length of the former driveway would reveal whether there were any substantial root cuts during the demolition phase. Such excavation could be performed by hand or by air excavator. The air-excavator technique is more costly than excavation by hand, but it is less damaging to the roots and can quickly reveal any exposed root ends. If large root cuts are revealed, then there would be strong supporting evidence that the driveway demolition was a contributing factor to the tree's decline. If no large cuts are revealed, then the test may provide evidence against the hypothesis presented in this report."

I proofed the report once and was ready to send it off to Paul. But then I changed my mind and addressed my email to Codit instead: "Here's one more report for you to review over the weekend. I look forward to seeing you bright and early on Monday morning!"

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*James Komen is a consulting arborist specializing in appraisals and tree risk assessment in the greater Los Angeles area.*

*Photos are courtesy of the author.*

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The Google Street View mapping services has an image of the subject property prior to construction. The old asphalt driveway ran between the subject tree (right of driveway) and its neighbor (left of driveway).

