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Defining a Vibrant City

What are the elements that make up a vibrant city? We’ve all been to cities and towns where they “roll up the sidewalks at dusk.” More importantly for the life of a city and the people who live, work and play in it, what elements encourage people to spend time outdoors? And what can we do as green industry professionals to create the types of diverse environments that are essential for a vibrant city?

The Vibrant Cities & Urban Forests Task Force, of which I was honored to be a member, released its final report in November. The goal, in one way, was to answer some of the questions posed above. In another, the goal was to chart a new strategic direction for the U.S. Forest Service’s Urban & Community Forestry programs.

Interestingly, even though the name of the initiative was Vibrant Cities & Urban Forests, there was a great deal of discussion on the Task Force about whether we should place a priority on urban forests at all. Some participants did not see trees as a primary focus. Parks, turf, playgrounds, rain gardens, bio swales, mass transit, walkable neighborhoods – all of these things were seen by some of the participants as equally or more important than the urban forest.

Nevertheless, there was substantial agreement among the participants on:

► value and benefits of green infrastructure
► need for public education, which should include promoting citizen participation and green job creation
► desire to break down program silos and the need for greater cooperation and planning between jurisdictions, agencies, organizations and different levels of government
► hope for greater research funding to reinforce the role of green in improving the environment.

The report makes 12 Recommendations, each with 5-10 Action Steps. As an organization representing members with a vital stake in the future of the urban forest, TCI will look at which of the 100 or so Action Steps in the report to see which ones match our current mission and strategic plan.

I see some potential in Recommendation No. 3 – “Create sustainable jobs in urban forestry and green infrastructure fields.” There may not be much funding available right now, but what is available is focused on job creation. One of the Action Steps under that recommendation, “develop career track training programs in urban forestry, green infrastructure and urban natural resources stewardship,” is clearly something commercial arboriculture should be interested in.

Recommendation No. 8 – “Establish energy efficiency programs that emphasize the use of trees as a best management practice for energy conservation,” is an area in which TCI’s members might be able to assist. One of the Action Steps is to “Create legislation that incentivizes utilities to include tree planting in their energy efficiency programs.” As a trade association with lobbyists and a political action committee, we could work with other, Washington-based organizations on that step.

Lastly, Recommendation No. 12 – “Develop a process to establish national Vibrant Cities standards ...,” is something TCI has a good deal of experience creating. The ANSI A300 Committee has written 10 standards for tree care operations – so far. Developing standards is the last Recommendation but it could be an important first step in making progress on some of the rest.

The report is still new, so we’re clearly in a very preliminary discussion stage. The overarching goals are good ones for TCI’s members, and there may be some very important allies for commercial and utility arboriculture going forward. I urge everyone with a stake in the future health of urban forests – and by extension vibrant cities – to read and think about this report. You can find a link to it on the www.tcia.org home page.

Mark Garvin
Publisher

TCI’s mission is to engage and enlighten readers with the latest industry news and information on regulations, standards, practices, safety, innovations, products and equipment. We strive to serve as the definitive resource for commercial, residential, municipal and utility arborists, as well as for others involved in the care and maintenance of trees. The official publication of the non-profit Tree Care Industry Association, we vow to sustain the same uncompromising standards of excellence as our members in the field, who adhere to the highest professional practices worldwide.
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Taking trees off of houses can be one of the most rewarding parts of being an arborist. Quite frankly, you get to be the hero. Someone has this catastrophe at their home, a tree is on the roof – perhaps through the roof – and here you are with your team, complete strangers to the homeowner, and you can solve their problem.

“Everything will be fine,” you tell them. “We’ll have this tree off your house within two hours. If everything goes as we plan; there will be no more damage to the house. If there are holes in the roof, we’ll nail a tarp to it.” Somehow, this stranger in front of you takes a sigh of relief. Their nightmare is beginning to end.

And so it was as I drove to Connecticut on October 30, 2011, where many people were having a nightmare from a huge October snowstorm, and many tree crews needed to show up and help end that bad dream.

I was actually a reluctant participant. The storm left minimal snow in my home state of Vermont and it’s a big expense sending men and machinery into the wake of a storm. You don’t know if there is enough business to compensate you on all your travel expenses. The crew members are counting on you to not only provide for all their costs, but to pay them hazard pay. And you have to hope that even though many people’s lives are being upended, there is enough upending that you can be properly compensated. So it is a weird feeling. You don’t wish badly on anyone, but if
you are going to travel a far distance into a storm, you need there to be a lot of people whose lives are screwed up, or you just can’t afford to go. You're the one with all the risk. The crews get paid no matter what. The insurance companies want to keep their exposure to a minimum, and the homeowner with the tree on the roof certainly does not understand that you just spent all this money getting to their house. It's a lot on your plate as you start driving.

As I lay there in my sleeping bag on the bench seat of my truck, I thought back on the course of things: three of us had spent nine hours trying to get to a tree on a house and we were still one state away. Between towing, truck repair, fuel and labor I had probably spent close to $2,000 already and was still one state away from making any money.

After calls from two disaster services companies, three of us headed south with a bucket truck, a chip truck pulling a Bobcat with grapple, and a grapple dump truck. Two other men would leave at 3 the following morning with a pickup and chipper. Just at sunset we had our first breakdown. The chip truck blew an alternator belt and it took out a piece of the electrical system with it. The truck was dead on the highway. We decided that Lloyd, the mechanic, would stay with the dead truck, while my lead foreman, Jamie, and I continued to head south. I couldn’t wait to see the tow bill.

As we drove into Massachusetts I thought to myself, if there ever is an apocalypse, this is what it will look like: snapped trees on the highway and no lights anywhere. I mean no lights. Northampton, Holyoke and Chicopee, all medium sized cities, were dark.

My wife, Suzannah, and my office manager, Lynn, back in Vermont were trying to find Jamie and me a hotel to stay in, but there was nothing. Most hotels had no power and those that did were full with people who lost power at their homes.

Jamie and I found a restaurant with power to have a bite to eat, but by 11 p.m. our fate was sealed. We were not going to find a hotel that night. Fortunately, I had thrown two sleeping bags into my truck at the last minute. I gave one to Jamie and we curled up into our respective dump trucks for the night.

The next morning we rose in the pitch dark and started warming up the diesel trucks. I called Lloyd who had found the last hotel room back in southern Vermont. He told me the chip truck was fixed but the two young men, Paul and Luke, had had a breakdown with the pickup truck 40 miles north of him. The truck was dead. Lloyd drove up to meet the men sitting beside the highway. While driving he arranged for a tow truck to hook-up a spare pickup we had in northern Vermont and tow it down to southern Vermont. Lloyd gave his now working chip truck to...
Paul and Luke with the chipper and they kept heading south. When the tow truck arrived Lloyd would swap the dead truck for the good truck and start heading south again, too. The tow truck would bring the dead truck back home. I couldn’t wait to see that tow bill as well.

In the meantime, Jamie and I arrived at our first tree on a house just after sunrise in Connecticut. There was still almost a foot of snow on the ground. The couple had a 28-inch oak on their house that had punched holes through the roof. After signing a contract with the owner, we got the tree off the house using the bucket truck, Bobcat and grapple truck. We stacked the brush by the road while we waited for the chip truck and chipper to arrive.

By late morning everyone was at the job site and by early afternoon we were done.

We were on our way to the next job in an up-scale neighborhood.

The next job was for a woman who had a tall oak on her house that had also punched a hole in the roof. It was at this house that the goodness in the human spirit shown. I never met the woman, Ann, who owned the house, but dealt with her mother, Ruth. Since there was no power, both Ann and Ruth were staying at hotels. When we got to the house, Ruth greeted us with a buffet lunch of sandwiches, hot coffee, soda, chips, energy bars – everything we could eat and more. Whatever we couldn’t finish, Ruth insisted we take with us.

We removed the tree by piecing apart the top with the bucket truck and lowering the log off the roof from a neighboring tree. But now the sun was getting low. The snow that had been melting during the day was starting to refreeze under foot. The driveway was getting glassy again as the water was turning back to ice. I had something that had been weighing on me for hours and I needed to talk to Ruth. While the men were putting away tools I went to her in private and said, “I need to ask you something. You can say ‘no’ if you want, but I have to ask.” Ruth looked at me very concerned. “My office manager still can’t find us a place to stay. Can we sleep on your floor tonight?”
And she said, “Of course. I would have offered by now, but I thought you were moving on. My daughter and I had already talked to each other and knew you had had a tough time last night, so we had already agreed that if you needed a place to stay, you could stay here.”

I breathed a huge sigh of relief. It was one thing for two of us to sleep in dump trucks for one night, but two nights would have been awful and I didn’t have sleeping bags for five. I don’t know what I would have done if she had said no.

Ruth then took me around the house and showed me all the couches and blow-up beds we needed with lots of blankets. She had been melting snow in plastic bins to flush the toilet. She loaned us extra flashlights. The study had a small propane fireplace so at least that room got up to 45 degrees. Then she gave me, a stranger, and four other men the keys to what I’m guessing is a million dollar home, and went to her hotel for the night.

Before we could settle down though, my crew and I had two more small jobs to do. Three crew went to a neighbor’s house to take down two trees that were 70 feet tall and hanging over a sunroom, while Paul and I took the grapple truck to a neighboring town to take a small tree off a house.

If Ann and Ruth had been angels, the woman who owned the house where Paul and I were going was living in a parallel universe. Trees on houses after a storm are very emotional and people feel powerless as they wait for help. Some people are good about it, while others yell at you because you are not helping fast enough. I had told the woman earlier in the day that I would get to her house that day, but now it was getting dark and I wasn’t sure. So now the woman calls me wishy-washy because I can’t make up my mind.

I’m wishy-washy? Well, in the last 24 hours I had had two trucks break down; I spent the night in a truck and hardly slept; I took two difficult trees off of houses; I tried to focus on keeping a safe work site at all times; neighbors were coming up to me wherever we worked asking us to help them next, and I had to disappoint them and tell them we had an agenda working for disaster services companies; my cell phone is going off every few minutes with new emails, texts and voice messages asking me when am I going to be done and can I get to another job site before dark. I’m answering these messages while driving a dump truck like some rolling driving nightmare, and this woman is busting my chops for not working efficiently enough.

Well, you’re darn right I was wishy-washy. My head was spinning with so many things pulling it in different directions; it was hard to make a decision. I wanted to...
say, “Screw you, get someone else.” But I kept my composure and validated her actions. I went right over to her house.

When Paul and I arrived she apologized for snapping at me and said she wasn’t normally like that. I told her it was OK. Then she says, “I just couldn’t get you to make a decision, so it still makes me angry.” So then she apologized for being mean again and said she’s not normally like that. I told her it was OK. Then she asks me how much to take the small tree off her roof and I tell her $250, and she tells me I’m too expensive. So I explain that two of us had to drive to her house weaving through downed trees and power lines all over the place, we were from Vermont, so our expenses were higher, and now it’s almost completely dark, we’re here to help her, and she thinks we charge too much. She apologizes for being mean, says she’s not normally like that. I said it was OK. Would she like to sign a contract and bill her insurance company direct? She said yes.

In the meantime, Paul saw all this back and forth between me and the woman and ignored us. He wanted to get the job done and get back to the others. By the time I had the contract signed, he’d gotten most of the tree off the roof. When he finished up, I gave the woman from the parallel universe one of those one-armed sideways hugs, hoping that will make her feel better, and we head back to the nice lady’s house.

On the way, we find a pizza place that has power and bring drinks and pizza back to the guys. However, the GPS puts us on different roads and we have to turn around twice due to fallen power lines. The next road has a tree across it and we chose to cut that tree in the pitch dark rather than turn around again. A nice local man sees us in our struggles and offers to escort us back to our destination by driving in front of us. We gladly accept his offer. While driving, the local flashes his lights every time he sees a power line low in the road, which means he flashes his lights about 15 times in 15 minutes. When we finally reunite with the others at Ann’s house, the pizza is barely warm, but we’re all inside, we’re safe after a tough day, the candles give just enough light to see, and the propane fireplace is keeping the chill out of the room.

The next morning we chipped the downed branches on Ann’s lawn by headlamp and left her house spotless. Our goal was to get at least three properties done. The first one had a tree on a house and another on a shed. It wasn’t too bad and there was no roof damage so three of us stayed there with the bucket truck, dump truck and chipper, while two others took the grapple truck and Bobcat to the other house.

We got those two jobs done by late afternoon and pushed on to the third property arriving just as the sun was setting. Even though it was almost dark, we treated this job like all the others. We walked around it as a team, came up with a plan so that everyone was on the same page, and set up any necessary road signs and cones. While the men began taking the two trees off that house, a policeman pulled up. He was nice so I offered to clear a tree that was lying across the road. He told me that would be great, but I shouldn’t expect to be paid for it.
The people who lived in the area would certainly appreciate it. It would be the last thing we did before we left that neighborhood, but we took care of the tree in the dark.

While the men gassed up the saws and put their chaps on, they asked me if I had found a place to stay that night yet. I told them I was hopeful and should have something soon. I didn’t want to tell them I didn’t have a thing. I had been in contact with my office manager and she had been trying throughout the day, but since the power was not restored anywhere; no one was leaving the hotels. I had only one place to turn.

I called up Ruth and asked her, “Can we go back to Ann’s (her daughter) house again?”

She said, “I think so but let me call you right back after I talk to Ann.” Less than a minute later the phone goes off with her daughter Ann’s contact name on the screen. This was going to be either really good news or really bad.

Ann said, “Hi, Michael, you can stay again if you want. As a matter of fact, I spoke to my husband and we agreed you can stay for four more nights if you need.” I still had not met this woman and had never even talked to her husband. A big burden was lifted.

I told her, “I only need one more night. By coincidence, TCI EXPO, our national tree care conference and trade show, is tomorrow in Hartford, and I have a room at the Hilton.” Electricity, hot showers, comfortable beds all awaited us. We just had to get through one more night. I thanked her for her generosity and went back to working with the crew.

By this time the crew had moved along nicely and was clearing the trees off the roof, porch and sides of the house. Paul was on the roof cutting with his saw while Luke in the bucket truck worked the steep parts of the roof. The only way the three of us on the ground could make them out was by their headlamps. At one point, Luke got out of the bucket to clear brush off the edge of the roof so he and Paul could tarp it. The roof was soaked from snow melt and Luke slipped. He dangled with his feet over the eave, held only by the lanyard still attached to the bucket. Paul was able to brace himself against the bucket and pull Luke back up. After they were secure again, they tarped the roof and we headed out.

(Regarding working on, and walking on, roofs, whenever we felt it was not safe, we tied in, whether it be to a neighboring tree or the bucket. It depends on the steepness of the roof and the wetness.)

We found a place for dinner on the way back and then settled down in Ann’s house again. It was our third night without showers or electricity after a hard, physical day. Fortunately, it had been cold, so no one smelled that bad. One more day in the field and we could stay in the Hilton. Our anticipation was huge.

Next month – TCI EXPO, nice hotels… and more storm work.

Michael Roche is president of Stowe Tree Experts, Inc. in Stowe, Vermont, a TCIA accredited company and a 16-year TCIA member. Roche is also a Winter Management Conference enthusiast.


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Tree Care Industry – January 2012

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13
Many plant pathogens alone cause considerable damage to landscape plants, as do many insects. But when plant pathogens and insects work together, the results are some of the most devastating and difficult to manage problems. Oak wilt, Dutch elm disease, bacterial leaf scorch, elm yellows, and thousand cankers are five such diseases in which plant pathogens are carried to the plant by insects. The pathogens that cause these diseases are not spread long distances by the insects, but oak wilt, Dutch elm disease and thousand cankers can be moved long distances in firewood.

When insects are involved, crucial questions must be answered when deciding how the diseases they vector should be managed, particularly in relation to whether insecticides can inhibit their development. You must know exactly what insects are involved, know where they survive, and know when they are active. You must also know if the vectors are the same all growing season or if different insects are vectors at different times of the year. You must know whether the insect carries the pathogen on its body and rapidly spreads it to the plant or if the pathogen must be inside the insect for many hours before it can be vectored.

It is crucial to know whether the insect and the pathogen are harbored by just one type of plant or by many different plants. If the pathogen and the insects are coming from many different plants, then managing the disease is very complicated. It is also good to know whether there are hundreds of vector insects visiting a tree or many thousands and what percentage of those insects are likely to carry the pathogen. It is not likely that you can manage the disease successfully without all of this information.

Oak wilt

Oak wilt, caused by the fungus Ceratocystis fagacearum, has been in various parts of eastern U.S. since the early 1960s. While most oaks are susceptible, those in the red oak group are particularly susceptible while white oaks tend to be less susceptible. One of the most dramatic symptoms is the dropping of hundreds of dull green leaves by the tree over a very short period of time. Another symptom is the discoloration of the current annual ring.
The fungus is spread by sap-feeding beetles, that carry the sticky spores from an infected tree directly to fresh, bleeding wounds of other trees, where infection occurs rapidly. Wounds, such as pruning cuts, are attractive to the beetles for about two weeks. Because more than one beetle is a vector and, taken as a group, the beetles are active throughout the growing season, it is best to prune oaks only during dormancy when the beetles are not active.

Insecticides can’t kill the beetles fast enough to prevent introduction of the fungus into a wound. Trees can be injected with a fungicide to protect them, but the fungicide will not cure a tree that is already infected. To prevent the spread of the fungus to neighboring oaks, all root grafts that could occur between trees must be cut or killed promptly. The fungus remains viable under firmly attached bark and the transport of infected logs is one way the fungus can be moved long distances. The U.S. Forest Service has an excellent bulletin on oak wilt and its management at www.na.fs.fed.us/spfo/pubs/howtos/ht_oakwilt/toc.htm.

**Dutch elm disease**

Another disease that is insect vectored is Dutch elm disease (DED) caused by the fungus *Ophiostoma ulmi*, a close relative of the oak wilt fungus. Many municipalities are planting DED resistant cultivars here and there, but we have learned to avoid reestablishing “Elm Street” with numerous elms.

Part of managing susceptible elms for this disease is the application of insecticides timed to inhibit bark beetles that spread the fungus. At Penn State, two applications per year are made based on data from many years of monitoring native and European elm bark beetle populations. In most years at Penn State, trees can be protected from the beetles if an insecticide is applied when 300 growing degree days, and again when about 1,300 growing degree days (50 F base temperature for the growing degree day calculation), have been accumulated. Peak flights of the beetles occur shortly after those times. Prompt removal of infected trees, cutting root grafts among neighboring elms, and injecting high value trees with fungicide are also practiced on campus.

**Insecticides resistant diseases**

Three diseases not likely to be managed with the help of insecticides are bacterial leaf scorch, caused by *Xylella fastidiosa*; elm yellows (EY), caused by a bacteria-like phytoplasma; and thousand cankers of black walnut, caused by the fungus *Geosmithia morbida*.

**Bacterial leaf scorch** occurs on a wide variety of trees and is vectored by several different insects. Both the pathogen and the vector are harbored by many different plants and the vectors are active throughout the growing season.

The most obvious symptom of bacterial leaf scorch is the browning of the leaf margins and the distinct yellow border separating the dead tissue from the green...
tissue. The symptoms progress toward the base of the leaf in an undulating front. Often the leaves on the inner and lower portion of the tree exhibit symptoms first and then those symptoms progress upward and outward in the canopy. Defoliation is not usually a symptom on red oak, but water sprouts (epicormic shoots) develop on red oak as the disease progresses.

It may take several years for an oak to die from this disease and essentially all oaks are susceptible. It has been clearly shown that tetracycline can suppress symptoms but not cure an infected tree. No chemicals have been found effective in protecting trees from this disease.

**Elm yellows** may be vectored by several different leafhoppers whose identities are currently being determined. It appears from Penn State data that more than one leafhopper species is involved and the suspects may be active all season long. We believe that it would not be possible to protect trees all season with an insecticide. Another problem is that DED resistant cultivars are susceptible to EY. Only one cultivar, Heritage, is reported to be resistant to both diseases. We have observed on campus that EY infected trees are very attractive to bark beetles. As a result, we frequently see trees with the double infection of EY and DED.

**Thousand cankers** is a disease new to the eastern U.S. It was probably brought from the western U.S. in black walnut logs to be sold to craftsmen. It is also likely that its main vector, the walnut twig beetle (*Pityophthorus*), also came east in the logs.

Because the tiny beetles can be active throughout the growing season and the fungus just needs a ride and a wound to quickly infect a walnut, insecticides would not act fast enough to protect a tree. If an infected tree is removed, the beetles are so small, they are likely to survive chipping.

If you find a cankered, dying black walnut, you should report it promptly to your state department of agriculture for diagnosis. The only way to slow this disease is to eliminate infected trees promptly and dispose of logs, bark, chips, etc. properly. English walnuts are susceptible but butternut is not. Butternuts are being eliminated from the east by a different fungus, one that is probably insect vectored.

These are just a few examples of diseases vectored by insects. There are many others, some of which can be managed with insecticides while others can’t. Clearly, you need to know a great deal about the pathogen and the insect in order to decide how to manage the disease in the landscape.

**Gary W. Moorman** is a professor of plant pathology at the Pennsylvania State University, Department of Plant Pathology, University Park, Pennsylvania. This article was based on his presentation on the same subject at TCI EXPO 2011 in Hartford. To listen to the audio recording of his entire presentation, visit www.tcia.org and click on podcasts on the homepage. Or in the digital version of TCI Magazine online, click here.
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ArborSystems Shepherd Fungicide newly labeled

ArborSystems’ Shepherd Fungicide has been newly labeled to now include diplodia tip blight, powdery mildew, and flower blight in addition to the previously labeled conditions of oak wilt, Dutch elm disease and other devastating tree diseases. Conifers can now be successfully trunk injected with ArborSystems’ Wedgle Direct-Inject System and their Portle Injection Tips, eliminating the need to spray trees. One application provides protection for all of the following year.

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Wicked Tough Handsaw

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Cutting Edge Grass Seed

Cutting Edge Grass Seed produces turf that needs virtually no mowing, watering or fertilizing once established. This grass revolutionizes lawn care and is at the front lines of environmentally-friendly maintenance. This product is a blend of eight grass seeds highly rated by NTEP (National Turfgrass Evaluation Program) and Rutgers University as a deep blue-green grass year-round, fine texture and dense growth. Cutting Edge Grass grows up to 4-foot-deep roots and is endophyte-enhanced, making it a lawn that needs no watering or fertilizing, and is extremely durable and insect-resistant once established. It is rhizome enhanced, creating a carpet-like look and feel. It also has exceedingly slow growth, requiring approximately one mowing in the spring and one in the fall. For high heat climates, the grass repels gray-leaf spot, a common lawn disease that is often misdiagnosed as a lack of water. This is all possible with the special blend of exceptionally rated grasses.

Circle 94 on RS Card or visit www.tcia.org/Publications

For more information on products featured here, circle the number on the Reader Service Card, or visit www.tcia.org/Publications.
Zenith and Bandit partner on chipper knife distributorship

Bandit Industries has partnered with Illinois-based Zenith Cutter Co. to be the exclusive distributor for Zenith Cutter hand-fed and whole tree chipper knives.

Zenith Cutter’s full line of competitively priced chipper knives for Bandit, Morbark, Vermeer and Altec chippers will be available for purchase exclusively through Bandit’s global dealer network of more than 170 locations, parts and service outlets, or directly from Bandit. A leading manufacturer of high quality industrial blades and knives for nearly 90 years, Zenith Cutter is the largest manufacturer of chipper knives in the United States with over 250,000 units produced annually, serving 10,000 customers and several OEMs.

“We’ve spent considerable time looking at the Zenith brand, from the manufacturing process to materials testing and real world applications, and these knives are better than any other knife on the market,” said Jerry Morey, Bandit president. “For nearly 30 years, Bandit has built a reputation for quality by not settling for anything but the best in materials and construction. Zenith Cutter meets these standards and we’re proud to be the exclusive distributor for their knives.”

Zenith Cutter products are manufactured in two state-of-the-art, 100,000-square-foot facilities in the United States and Vietnam, using high-grade, modified A-8 chipper steel sourced from U.S. and European suppliers. Zenith knives undergo a proprietary heat treatment developed to reduce brittleness in the center while maximizing the durability of the edge, reducing the possibility of knife breakage that can inflict catastrophic damage to a chipper.

Bandit dealerships will stock a wide assortment of Zenith knives in conjunction with online 24/7 ordering and available same-day shipping. “No matter where you are in the world you’ll be able to get the Zenith knives you need, when you need them,” said Morey.

ASCA Announces 2012 Board of Directors

The American Society of Consulting Arborists has installed its new Board of Directors. The Board’s term will run until the association’s annual meeting in San Diego, California, November 28-December 1, 2012.

ASCA 2012 Board of Directors include: president: James R. Clark, Ph.D., Pleasanton, CA; president-elect: Gordon Mann, Auburn, CA; immediate past president: Alan Jones, Charlottesville, VA; and directors: Patrick B. Brewer, Austin, TX; Brian K. Gilles, Kirkland, WA; Dennis Panu, Thompson, CT; Molly E. Sinnott, Carson City, NV; and John W. Wickes, Spring Valley, NY.
Events & Seminars

January 15-16, 2012*
New York State Arborists Association Annual Meeting
Suffern, NY
Contact: www.nysarborists.com; (518) 694-5507

January 19, 2012*
CT Tree Protective Association Annual Meeting
Southington, CT
www.CTPA.org

January 19, 2012
CPR/First Aid (morning & afternoon sessions)
Wayne CO. Community College, Belleville, MI
Contact: MGIA karla@landscape.org; (248) 646-4992

January 20, 2012
Electrical Hazard Awareness Training (EHAP)
Wayne CO. Community College, Belleville, MI
Contact: MGIA karla@landscape.org; (248) 646-4992

January 24-25, 2012
2nd Annual NJ Plants Trade Show & Conference
New Jersey Convention Center, Edison, NJ
Contact: NJNLA, 1-800-332-3976; www.njplantshow.com

January 24-26, 2012
2012 Annual Indiana Arborist Association Conf.
Marriott Inn, Indianapolis, IN
Contact: Lindsay Purcell www.indiana-arborist.org

January 26, 2012
Landscape Contractors Day
Moore-Norman Tech Ctr, South Penn Campus,
Oklahoma City, OK
Contact: Becki, ONLA (405) 945-6737; info@oknla.org

January 29-31, 2012*
Wisconsin Arborist Association Trade Show/Conf.
Hotel Sierra & KI Convention Center, Green Bay, WI
Contact: (414) 286-8660, waa-isa.org; Jeffrey.boeder@milwaukee.gov

January 30-February 2, 2012
Mid-Atlantic Horticulture Short Course
Marriott at City Center, Newport News, VA
Contact: www.mahsc.org; (757) 523-4734**

February 1-3, 2012*
47th PennDel Shade Tree Symposium
Lancaster Convention Center, Lancaster, PA
Contact: www.penndelisa.org; (717) 412-7473

February 1, 2012
ONLA Spring Field Day
Guthrie Greenhouses, Guthrie, OK
Contact: Becky, ONLA (405) 945-6737; info@oknla.org

February 6-7, 2012
MGIA 25th Annual Trade Show & Convention
Suburban Collection Showplace, Novi, MI
Contact: MGIA karla@landscape.org; (248) 646-4992

February 7-8, 2012
18th Annual ELA Conference and Eco-Marketplace
Springfield, MA
Contact: wwww.ecolandscaping.org

February 13, 2012
EHAP Electrical Hazards Awareness Program
Wayne Co. Community College, Belleville, MI
Ctct: (517) 337-4999; asm@acd.net, www.asm-isa.org

February 21, 2012
It’s A Jungle: Growing Things/Things Growing on Them!
Bingham Office Center, Bingham Farms, MI
Contact: MGIA karla@landscape.org; (248) 646-4992

February 22-24, 2012
ASCA 2012 Consulting Academy
Crowne Plaza, Philadelphia, PA
Contact: asca@mgmtsol.com; (301) 947-0483;
www.asca-consultants.org

February 26-28, 2012*
47th PennDel Shade Tree Symposium
Lancaster Convention Center, Lancaster, PA
Contact: www.penndelisa.org; (717) 412-7473

March 1, 2012
ONLA Spring Field Day
Guthrie Greenhouses, Guthrie, OK
Contact: Becky, ONLA (405) 945-6737; info@oknla.org

March 6-7, 2012
MGIA 25th Annual Trade Show & Convention
Suburban Collection Showplace, Novi, MI
Contact: MGIA karla@landscape.org; (248) 646-4992

March 7-8, 2012
18th Annual ELA Conference and Eco-Marketplace
Springfield, MA
Contact: www.ecolandscaping.org

March 13, 2012
EHAP Electrical Hazards Awareness Program
Lansing Board of Water & Light, Lansing, MI
Ctct: (517) 337-4999; asm@acd.net, www.asm-isa.org

March 17-20, 2012*
ISA Southern Chapter Annual Conference
Birmingham, AL
www.isasouthern.org

March 21, 2012
EHAP Electrical Hazards Awareness Program
Kalamazoo Dept. of Public Services, Kalamazoo, MI
Ctct: (517) 337-4999; asm@acd.net, www.asm-isa.org

March 27, 2012
EHAP Electrical Hazards Awareness Program
Grace A. Dow Memorial Library, Midland, MI
Ctct: (517) 337-4999; asm@acd.net, www.asm-isa.org

April 29-May 2, 2012
Western Chapter ISA Annual Conference
Asilomar Conference Grounds, Pacific Grove, CA
Contact: www.wcisa.net; (866) 785-8960

May 1-30, 2012
Arboriculture I - Basic Tree Climbing
Tues/Wed every week
Quail Hill Boy Scout Camp, Manalapan, NJ
Contact: John Perry (732) 833-0325; www.caanj.org

August 11-15, 2012
ISA Annual Conference & Trade Show
Oregon Convention Center, Portland, OR
Contact: www.isa-arsbor.com; (888) 472-8733

November 8-10, 2012
2012 TCI EXPO Conference & Trade Show
Baltimore, MD
Contact: 1-800-733-2622; www.tcia.org;
dcyr@tcia.org

* Indicates that TCIA staff will be in attendance

47th Annual Penn-Del ISA Shade Tree Symposium
February 27 – 28, 2012
Lancaster County Convention Center
Lancaster, PA

- Top Industry Speakers, including:
  - Dr. Kim Croder
  - Dr. John Ball
  - Dr. Jason Grabosky
- CTSP, CEU & SAF Credits
- Pesticide Credits for PA, NJ, DE, and MD
- CPR/First Aid, EHAP/Aerial Rescue, ISA Certification Exam (Sunday Sessions)
- Live Rigging Demonstrations
- Large Trade Show

For more details, visit
www.penndelisa.org

More almanac online! For the most up to date calendar information,
visit www.tcia.org ➔ news ➔ industry calendar
Send almanac listings to editor@tcia.org.
The Federal Motor Carrier Safety Administration is amending its regulations to restrict the use of cell phones by drivers of commercial motor vehicles (CMVs). This rulemaking is expected to reduce the prevalence of distracted driving-related crashes, fatalities and injuries. The agency will also amend its regulations to implement new driver disqualification sanctions for drivers of CMVs who fail to comply with this federal restriction as well as for CDL-holders who have multiple convictions for violating a state or local law or ordinance on motor vehicle traffic control that restricts the use of cell phones. This rule becomes effective January 3, 2012.

On December 21, 2010, FMCSA published a notice of proposed rulemaking in the Federal Register, proposing to restrict the use of cell phones by interstate CMV drivers. FMCSA received nearly 300 public comments and made changes to the proposed rule in response to these comments.

Driver distraction can be defined as the voluntary or involuntary diversion of attention from primary driving tasks due to an object, event or person. Researchers classify distraction into several categories: visual (taking one’s eyes off the road), manual (taking one’s hands off the wheel), cognitive (thinking about something other than the road/driving), and auditory (listening to the radio or someone talking). Research shows that using a cell phone while driving may pose a higher safety risk than other activities (e.g., eating or adjusting an instrument) because it involves all four types of driver distraction. Both reaching for and dialing a cell phone are manual distractions and require visual distraction to complete the task; therefore, the driver may not be capable of safely operating the vehicle.

Using a cell phone may reduce a driver’s situational awareness, decision making or performance; and it may result in a crash, near-crash, unintended lane departure by the driver, or other unsafe driving action. Indeed, research indicates that reaching for and dialing cell phones are sources of driver distraction that pose a specific safety risk. To address the risk associated with these activities, the agencies (within the U.S. Department of Transportation, or DOT) restrict CMV drivers’ use of cell phones, which includes, “…using at least one hand to hold a mobile telephone to conduct a voice communication.” As discussed below, while operating a CMV, the driver may only use a compliant mobile phone, such as a hands-free device, to conduct a voice communication.

In an effort to understand and mitigate crashes associated with driver distraction, the DOT conducted research concerning behavioral and vehicle safety countermeasures to driver distraction. Data from studies indicate that both reaching for and dialing a phone increase the odds of a CMV driver’s involvement in a safety-critical event, such as a crash, near crash, or unintended lane departure.

The odds of being involved in a safety-critical event are three times greater when the driver is reaching for an object than when the driver is not reaching for an object. The odds of being involved in a safety-critical event are six times greater while the driver is dialing a cell phone than when the driver is not dialing a cell phone. These increases in risk are primarily attributable to the driver’s eyes being off the forward roadway.

While no state has completely banned mobile telephone use, some states have gone further than this rule for certain categories of drivers. For example, 19 states and the District of Columbia prohibit the use of all mobile telephones while driving a school bus. Additionally, nine states and the District of Columbia have traffic laws prohibiting all motor vehicle drivers from using a cell phone while driving. Transit bus and motor coach drivers are the focus of stricter mobile telephone rules in some states and local jurisdictions.

Any violation of this restriction may result in a civil penalty imposed on drivers in an amount up to $2,750; a civil penalty of up to $11,000 may be imposed on employers that fail to require their drivers to comply. Disqualification of a CMV driver for violations of the Act and its regulations is also within the scope of the agency’s authority.

Peter Gerstenberger is senior advisor for safety, compliance & standards for TCIA.
Despite an unprecedented early snowfall that wreaked havoc on the region, nearly 2,000 attendees enjoyed three days of workshops, seminars and demonstrations focused on the tree care industry during TCI EXPO in Hartford, Connecticut, November 3-5.

An October 29 snowstorm dropped from 3 inches up to 3 feet of wet snow on areas from New York to Southern New Hampshire, causing foliage-laden branches and whole trees to bend and break, resulting in widespread power outages. Connecticut suffered the worst of it, with some areas out of power and with blocked roads for up to 10 days.

But the airports were open and the show went on, with 177 exhibitors and the 2,000 attendees maneuvering through the outages, travel difficulties and reservation glitches for the business, safety and arboriculture workshops and seminars; professional tree climbing demonstrations on a 30-foot tree on the trade show floor; and the opportunity to compare equipment and evaluate products.

"Despite a storm that ravaged our host city and state for this year’s TCI EXPO, customers showed up in good spirits and quantities," says Tony Gann, regional vice president for Altec Industries, Inc. and a former TCIA Board member. "This was one of the strongest shows I’ve seen in recent history for actual equipment purchases off the show floor."

Many tree service companies that came to Connecticut for the show also performed double-duty, carrying out tree work for local residents hit hard by the storms. And on Saturday, November 5, TCI EXPO opened the show floor and gave free admission to all tree care crews who were working to restore essential services to the New England and the Northern Atlantic Region. Some came in just to resupply before heading back to work.

"Despite a terrible storm that left hundreds of thousands of homes without power, the tree care industry came together for one of the best TCI EXPO’s to date," says Bill Weber, team captain for Arborwear and a current TCIA Board member. "No other industry bonds together like ours. Where else can you find exhibitors sharing their hotel rooms with attendees because hotels were without power, or have residents opening their homes to crews that have been working through the night?"

Michael Roche, owner of Stowe Tree Experts in Stowe Vermont, brought his crew and equipment down to the show, attended the keynote speech Thursday morning, then headed out to work for the day before coming back for the show Friday and Saturday. Word was that after taking limbs off one house still without power, Roche’s crew, who did not have a hotel for the night, were invited by the homeowner to spend the night at the house, which they did.

In addition to the trade show and conference, TCI EXPO hosted a Student Career
Days event, which drew about 230 college and high school tree care students from around the U.S. They participated in friendly tree climbing competitions, took part in educational seminars, workshops and even a job and internship fair, which gave students enrolled in horticulture, forestry and related programs an inside look at the field they’re studying. The trees at Bushnell Park, site of the student climbing competition in Hartford, had been cleaned up for the students the week before the show, but were then damaged by the storm. Through the efforts of SCD sponsor Stihl and numerous volunteers, a group of arborist climbers returned to the park on Thursday and cleaned up some of the storm damage so that show, too, could go on.

If you missed this year’s TCI EXPO, we hope it was because you were out working, restoring power to some of the unfortunate Northeast residents inconvenienced by the storm. You missed a good one. But don’t fret – we’re going to do it again next year. See you at TCI EXPO 2012 in Baltimore!
Beyond Ordinary TCI EXPO 2011

Vermeer’s 100,000th piece of equipment giveaway was held at TCI EXPO, won by Pittman Tree. (L to r) Mark Garvin, president of TCIA; Calley Pittman, co-owner of Pittman Tree; and Jason Andringa, vice president distribution and global accounts at Vermeer Corp.

Attendees get to check out the latest at the world’s largest trade show – just for tree care companies!

ABC Professional Tree Services – www.abctree.com
ACRT, Inc. – www.acrtinc.com/training
Ahlborn Equipment, Inc. – www.ahlbornequipment.com
Air-Spade Inc. – www airs-spade.com
All Access Equipment – www.allaccessequipment.com
All Gear, Inc. – www.allgearinc.com
Alliance for Community Trees – www.actrees.org
Allied Equipment – www.alliedequipment.com
Altec Industries, Inc. – www.altec.com
AlturnaMATS, Inc. – www.alturnamats.com
American Arborist Supplies – www.arborist.com
Arbor Age Magazine – www.arborage.com
ArborGold/Tree Mgt. Systems – www.arborgold.com
Arborjet, Inc. – www.arborjet.com
ArborMAX Insurance Program – www.gasinsurance.net
ArborSoftWorx – www.arborsoftworx.com
ArborSystems, Inc. – www.arborsystems.com
ArborTech – www.arbortech.cc
Arborwear, LLC – www.arborwear.com
Arrowhead Aerial Products – www.arrowheadaerial.com
Asplundh Tree Expert Co. – www.asplundh.com
Bandit Industries, Inc. – www.banditchippers.com
Barnel International, Inc. – www.barnel.com
Bartlett Tree Experts – www.bartlett.com
Bobcat Company – www.bobcat.com
Boomtrux Inc. – www.boomtrux.com
Branch Manager Attachments/Top Notch Equipment – www.topnotchequipment.com
Branch Tree Service, Inc. – www.brontree.com
Buckingham Mfg., Co., Inc. – www.buckinghammfg.com
BugBarrier Tree Band – www.treebands.com
Cleanfix North America Ltd. – www.cleanfix.org
Compostwerks LLC – www.compostwerks.com
COR Ergonomic Solutions – www.corgenomicssolutions.com
Corona Clipper, Inc. – www.coronatoolusa.com
Creative Sales, Inc. – www.acecap-medicap.com
Cutter’s Choice – www.cutterschoice.com
Dakota Tree Transplanter – www.dakotatransplanter.com
Dave Leonard Consulting Arborist – www.dlantarborist.com
Davey Tree Expert Company – www.davey.com
DICA – www.dicausa.com
DMM International Ltd. – www.dmmprofessional.com
Doggert Corporation – www.doggertcorp.com
Dosko – Great Northern Equipment Distributors – www.dosko.com
DuraTech Industries, Inc. – www.duratetchindustries.net
East Coast Crane & Aerial Services, LLC
Enginaire – www.enginaire.com
Fanno Saw Works – www.fanosaw.com
Fecon, Inc. – www.fecon.com
Fifth Element Protocol, LLC – www.cheapoaktreeexpertscareandlandscapes.org
Flexxaire Manufacturing Inc. – www.flexxaire.com
Florian Ratchet-Cut – www.floriantools.com
FEVA Forestry Equipment of VA – www.feva.net
Forestry Suppliers, Inc. – www.forestry-suppliers.com
Fred Marvin Associates – www.pruner.com
Freightliner Trucks – www.freightlinertrucks.com
Giuffre Brothers Cranes – www.giuffre.com
Good Tree Care Company
Green Manufacturing & Treeman Supply – www.greenarbor.com
Green Pro Solutions – www.greenprosolutions.com
Growtech, Inc. – www.growtech.com
Growth Products, Ltd. – www.growthproducts.com
The Hartford – thehartford.com/business/industry/arborists
Helena Chemical – www.helenachemical.com
Herbert L. Jamison & Co., LLC – www.jamisongroup.com
HMI – www.hmiadvantage.com
Husqvarna – www.husqvarna.com
Hyatt Regency Curacao Golf Resort, Spa & Marina www.curacao.hyatt.com
IML-Instrument Mechanic Labor, Inc. – www.imlusa.com
Independent Protection Company – www.ipcp.com
International Safety Components, Ltd. – www.iswales.com
ISA New England Chapter – www.newenglandisa.org
J. J. Kane Auctioneers – www.jjkane.com
J. P. Carlton Company, Div. DAF Inc. – www.stampcutters.com
Jameson, LLC – www.jamesonllc.com
Jarraff Industries Inc. – www.jarraff.com
John Deere Company – www.johndeere.com
Karl Kueblererling, Inc. – www.karkueblerleing.com
Kershaw – www.progressrail.com/kershaw
Knapheide Manufacturing Co. – www.knapheide.com
The Knife Source, LLC – www.knifesource.com
Larson’s Insurance Solution Agency Inc – www.larsoninsurance.com
Lebanon Turf – www.lebanonturf.com
Leonardi Manufacturing – www.leonarditreecare.com
Liberty Financial Group, Inc. – www.libertyffg.com
Logrite Tools – www.logrite.com
Man Lift, Mfg. Co. – www.manlifteengineering.com
Mauget Company – www.mauget.com
Minnesota Wanner Company – www.mnwanner.com
Mobile Oil Pitstop – www.oilpitstop.com
Morbark, Inc. – www.morbark.com
MyFleetDept.com – www.myfleetdept.com
Navistar, Inc. – www.navistar.com
NavyTrak, Inc. – www.navtrakgs.com
New England Ropes Corp. – www.newropes.com
New River Equipment – www.newriverequipment.com
NiftyLift, Inc – www.niftylift.com
New River Equipment – www.newriverequipment.com
NiftyLift, Inc – www.niftylift.com

Jason Morey, left, talks hardware with an attendee in the Bandit booth on the trade show floor.
Exhibitors...

...thank you for a great show!

Northeastern Arborist Supply – www.northeasternarborist.com
Northern Atlantic Financial, LLC – www.northernatlanticfinancial.com
Northern Tree Service, Inc. – www.northernree.com
OESCO, Inc. – www.oescoinc.com
Oregon Cutting Systems Group, Blount, Inc. www.oregonchain.com
Payeur Distributions – www.payeur.com
Petzl America – www.petzl.com
Plant Food Company, Inc. – www.plantfoodco.com
Plant Growth Management Systems: www.plantgrowthmanagementsystems.com
Preformed Line Products – www.preformed.com
Quadcro Equipment Inc. – www.quadcro.com
Quest Products Corporation – www.questproducts.us
Rainbow TreeCare Scientific Advancements (SciVance) www.treecarescience.com
Rayco Manufacturing, Inc. – www.raycomfg.com
RBG, Inc. – www.raymondbuckettguyes.com
RedMax – www.redmax.com
Riggy, Inc. – www.riggy.com
RopeArmour – www.ropearmour.com
Rose & Kiernan, Inc. – www.riksurance.com
Rotochopper, Inc. – www.rotochopper.com
Royal Truck & Equipment, Inc. – www.royaltruckequip.com
Ryan’s Equipment – www.ryansequip.com
Safe Tree Products – www.safetreeproducts.com
Salsco, Inc. – www.salsco.com
Samson – www.samsontreecom.com
SANDVIK – www.smc.sandvik.com
SavaTree – www.savatree.com
Shawmut Equipment Company, Inc. – www.shawmutequipment.com
Shelter Tree, Inc./Tree Care Products – www.sheltertree.com
SherrillTree – www.sherrilltree.com
Shigo and Trees, Associates LLC – www.shigaandtrees.com
Signature Fencing & Flooring Systems, LLC - DuraDeck Div. – www.signaturefencing.com
Simonds International Corp. – www.simondsinternational.com
Skako Lift, Inc. – www.skakoliftusa.com
Smith Truck Cranes – www.smithtruckcranes.com
Southco Industries, Inc. – www.southcoindustries.com
Spyder Manufacturing U.S.A. – www.spyderman.com
Stein USA LLC – www.stein-usa.com
Sterling Rope Company Inc – www.sterlingrope.com
STIHL Inc. – www.stihlus.com
SVE Portable Roadway Systems, Inc. – www.mudtraks.com
Switch-N-Go – www.switchngo.com
T. H. Glennon Co., Inc. – www.mulchcolorjet.com
Teletrac, Inc. – www.teletrac.net
Terex Utilities – www.terexutilities.com
Terry Tree Service LLC – www.terrytree.com

Teupen USA, Inc. – www.teupen.com
Timberland Truck & Equipment LLC – www.timberlandtrucks.com
Top Saw Tool LLC – www.buysaw.com
The Toro Company – www.toro.com
Townsend Tree Service Co., Inc. – www.townsendtree.com
Tracked Lifts, Inc. – www.trackedlifts.com
Tree & Landscape Equipment Trader – www.treetrader.com
Tree Care Industry Association – www.tcia.org
TREE Fund Tree Research/Educ Endowment Fund – www.treefund.org
Tree Health Management, Inc. – www.treehealth.com
Tree Service Canada – www.treeservicecanada.ca
Tree Service Marketing Pros – www.premieterreeservices.com
Tree Services Magazine – www.mooservermedia.com
Tree Tech Microinjection Systems www.treetech.net
True Wireless/Sprint – www.truewireless.com
U.S. Rigging Supply/Pelican Rope Works www.pelicanrope.com
USDA APHIS PPQ – www.aphis.usda.gov
USDA Forest Service – www.fs.fed.us
Utility Auctions, Inc. – www.utilityauctions.net
Vermeer Corporation – www.vermeer.com
VERSALIFT, TIME Mfg. Co. – www.versalift.com
Visit Baltimore – www.baltimore.org
Weaver Leather, LLC – www.weaverarborist.com
West Coast Shoe Company (WESCO) www.wescoboots.com
Western Finance & Lease – www.westernfinanceandlease.com
Wireless Matrix – www.wirelessmatrix.com
Yale Cordage, Inc. – www.yalecordage.com
Zenith Cutter Company – www.zenithcutter.com

There’s nothing intimidating about all of the great deals attendees got on the trade show floor!
Mechanical advantage is the amplification of input force gained by using a tool, device or machine system. These tools and techniques have been used by humans to achieve great feats of architecture, construction and transportation. Manipulating the force generated by the human body, increasing it and directing it through mechanical advantage (MA) is a useful art and science.

Sailors hefted great weights high into the rigging of sailing ships to harness the savage strength of the winds. The lumberman, since the age of saw and axe, used MA to achieve pull and lift to fell trees and move the logs. The modern arborist uses MA in many ways to stay safe, efficient and productive. Make no mistake, MA is a science, with rules, theories, formulas and computations. While these are important and form the skeleton of the science, it is the art this article will be concerned with.

An arborist can effectively use MA without an in depth knowledge of how and why it works. We can take advantage of the amplification and manipulation of force without being able to express it mathematically, much the way we can use and benefit from computers without understanding their inner workings and how they specifically do what they do on the microprocessor level. It is the art, or practical use of MA we will examine here through examples, tools and techniques; the art of taking the power generated on the job site and directing it to help complete our tasks with trees.

A word of warning. As with all things scientific and mathematical, a brief article can only speak in generalities and overlook the deeper technical aspects. Our goal is not to turn you into an expert, but to show a basic survey of how and why, as arborists, we can, do and should use MA.

**Terms**

Before we can begin our discussion we must first establish a common vocabulary. I will stick as close to the common definitions as possible. However, for the purposes of clarity and simplicity, I may alter some classic definitions as necessary. So for the purposes of this article, we will adhere to the following definitions:

- **Anchor**: a stable base or support capable of holding the applied weight and the amplification of it. Anchors generally do not move.

- **Pulley**: a device with a rounded sheave used to change the direction of rope.

- **Block**: an arborist-style pulley built to withstand heavy loads and shock loading. A block typically has heavy, extended cheek plates to protect against rope abrasion.

- **Sheave**: The rounded portion of a block or pulley on which the rope runs.

- **Load**: the weight a rigging system is holding or the amount of force applied to a system.

- **Incline Plane**: a tapered wedge or ramp used to lift a load vertically. By moving an object up an inclined plane rather than completely vertical, the amount of force required is reduced.

**Basic uses**

Arborists use MA daily and you may have never realized it! Every time you body-thrust into a tree, a two-to-one MA system allows you to only have to manage one-half your body weight (Figure 2). Lowering a limb out of a tree to avoid Mrs. Smith’s flower garden, even if you do not use a block, is generating mechanical advantage. Pounding a wedge into the back cut of a tree causing it to lift into the face cut and fall in the intended direction is MA.

**Known loads**

One of the major advantages of MA is the ability to calculate loads put on a tree or rigging system. For instance, you have a...
large tree to pull against back lean. You set a pull line high in the tree. A neighboring tree in line with the pull seems an appropriate anchor, but will it hold? Will the pull line take the strain? Will you be able to generate enough force to move the tree in the direction of fall? These are all excellent questions that can be addressed by roughly calculating the MA of your pulling system.

If you elect to use a 5-to-1 system you know that for every pound of force in you will receive 5 pounds out. On average, one person can pull 41 pounds consistently into such a system. (“Gripping Ability on Rope in Motion,” 1994 Kirk and Katie Mauthner). If you estimate you need more than 200 to 250 pounds of force, you will need more input force. You also know that a 5-to1 system will put five times the force on the moving object and four times that on the anchor. Proper inspection and good judgment will allow you to choose a suitable anchor(s).

MA allows the arborist to deal with known forces and known loads. This allows the construction and application of situation-appropriate and sustainable tension in a system. There are, of course, no guarantees, but planning and simple rough calculations are far more consistent and reliable than the out-right guesses or the “It worked last time” method!

### Compounding force

MA systems can be built to achieve increased force. They can also be combined to multiply force. This is often useful when the tools on hand are not enough to generate the force needed. For instance, back to our previous example of pulling a tree against back lean. On the truck you have a come-a-long. It is rated for 1,000 pounds of pull. You estimate needing at least 1,500 pounds to move the tree securely. Instead of a traditional pull-line tie off, you decide to rig a double whip-tackle system (Figure 3). The addition of one block and a twice the rope allows you to amplify your input force by two. Your 1,000 pounds becomes 2,000 pounds and is enough to move the tree.

### Rigging to advantage

There are at least two ends to any MA system. One is the load to be moved; the other is the anchor. Rigging to advantage refers to the concept of putting more force on the load than the anchor. A system with more parts of moving rope acting on the anchor than on the load is backward. Provided the anchor is stout, there is no real problem, it is just not efficient. Some of your input force is being left unused. In the case of questionable anchorage, this unnecessary and wasteful amplification may be the difference between success or failure.

### Trade offs and compromises

MA can make our work easier and allow us to complete tasks more efficiently. As it seems with most things in the universe, for all we gain we must return something, and so it is with MA. In the case of a felling wedge, when reducing the force of lifting the log or tree, we must do so at the expense of increasing the distance the object must travel. Therefore, to move the log up an inch we must move the wedge 2 inches. In our doubled-rope climbing systems, to gain 1 foot in height we must pass 2 feet of rope through our climbing hitch. In a 5-to-1 pulling system, we must pass five times the rope through to gain one-fifth that amount in movement. Often the benefits outweigh the increased movement. It is in this that the true advantage of mechanical advantage lies.

Tony Tresselt, CTSP, is director of safety and training for Arborist Enterprises, Inc. in Lancaster, Pennsylvania.
Man killed by cut limb

A homeowner died November 1, 2011, in Dennis Township, New Jersey, after a tree limb he was cutting on a tree in his yard fell on him. Frank Smith, 61, was on a ladder using a chain saw to remove part of a tree when the limb fell on him, according to NBC Channel 10 in Philadelphia.

Smith’s father, 88 years old, came home to find his son lying next to the tree, having fallen off the ladder.

Smith, a recently retired plumber, was cutting limbs on the 50-foot oak away from power lines when the accident occurred, according to a report in the Atlantic City Press.

Submitted by David L. Johnson, CTSP, regional forester, New Jersey Forest Service, Jackson, N.J.

Tree worker hurt in 45-foot plunge

A 33-year-old tree worker plunged 45 feet from a tree November 3, 2011, when the rope holding his harness was severed as he trimmed branches at a home in Eastchester, New York.

Amado Perez of New Rochelle suffered head and arm injuries and possible internal injuries. He was taken by ambulance to Westchester Medical Center in Valhalla. His condition was not immediately available.

The accident happened on Perez’s second day working for the New Rochelle company contracted for the work, although he has 14 years of experience in tree work, according to the owner of the company.

Perez was in a harness secured by one rope, and he was using a second rope to lower the cut branches. The ropes somehow came together, the friction between them severed the rope holding the harness, and Perez tumbled from the tree, according to the tree care company owner, as reported in The Journal News.

Perez landed on the lawn. He was conscious, alert and communicating when police and firefighters arrived.

Tree worker dies after fall

A tree worker died of head injuries after falling some 30 feet from a tree in Rockland Township, Pennsylvania, November 4, 2011. The accident happened after dark. Douglas R. Gehman, 52, of Rockland Township, was doing tree work in a bucket truck when part of the tree started sliding toward him and he fell.

He was unresponsive after falling to the ground about 6 p.m. Firefighters reported that someone was doing CPR on him until police and paramedics arrived and took him to Lehigh Valley Hospital near Allentown suffering from head injuries, where he was pronounced dead, according to the Reading Eagle.

Homeowner killed by cut tree

A Washington Valley Township, New Jersey, resident died November 7, 2011, after he was injured while using a chain saw to cut down a tree.

The 66-year-old man was cutting a tree with a chain saw. As the 40-foot tree fell, the victim’s lower leg became pinned between the stump and the cut portion of the tree. The victim was flown to Morristown Medical Center by emergency helicopter but later died from his injuries, according to the report in the Daily Record.

Man injured by cut tree

A 70-year-old Wellfleet, Massachusetts, man was flown to a Boston hospital after being injured by a falling tree at his home November 13, 2011. The man was cutting a roughly 40-foot-high tree when it fell onto his house. The man, working on getting the tree off the house, was then seriously injured when the tree snapped and landed on his lower body.

Friends were able to lift the tree off him by the time rescue crews arrived. The man was conscious but had suffered serious injuries that were not considered life threatening, according to the Cape Cod Times.

Homeowner killed cutting tree

A tree broke and fell on a man who was cutting it down November 13, 2011, in Claysville, Pennsylvania, killing the man. Charles Begley, 62, of Claysville, died at the scene in the woods near his home.

An autopsy found the cause of death to be blunt force trauma to the chest and abdomen, according to the report from WTAE-TV in Pittsburgh.

Tree worker rescued after electrocution

A tree trimmer in Santa Barbara, California,

(Continued on page 53)
In this new feature, a take-off of the Highlights Magazine children’s puzzles, our goal is to point out unsafe behaviors that can and have led to injuries or deaths in the tree care industry.

One month we will run the image and challenge readers to identify one or more safety violations depicted. The next month we’ll run the picture and identify all the violations. The intent is that these will be used individually, by crews for Tailgate safety sessions or in other training.

Email your name, title/job and company name along with the violation you find to editor@tcia.org. Each month we will draw a name from the list of those who submit the correct violations and award a prize to one winner. Extra Credit: Point out the Z133 Standard section numbers violated for a chance at a bonus prize.

Caution: This is a staged photo intended to show one or more ANSI, OSHA or other safety violations. Activities shown are NOT approved practices.

El Cuidado: Estas son fotos preparadas destinadas a mostrar uno o más ANSI, OSHA u otras infracciones de la seguridad. Las actividades mostradas NO SON aprobadas las prácticas.

Can you find the safety violations in this picture? (Hint: There are at least three.) Staged photo courtesy of John Ball, South Dakota State University.

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The success of a company often rests on the values and vision of its founder, or founders, and in the case of ValleyCrest, its success began with Burton and Stuart Sperber.

“Burt and Stuart set the tone regarding the values of the company and how we think of our customers and employees,” says Victor Bernardini, general manager of ValleyCrest Tree Care Services in Smyrna, Georgia. “They always put them first. The company is so successful because of their example. With their passing, everyone was saddened, but we were left with the priorities they helped establish for the company: safety, employees and customer service.”

Burt was only 19 years old when he saw the potential in ValleyCrest, a three-acre nursery for landscape plants in North Hollywood, California, and bought it for $700 in 1949. His father, Lewis, handled the retail sales until the nursery closed in 1955. Burt did landscaping and tree moving.

Today ValleyCrest Landscape Companies have more than 150 branches across the country and more than 10,000 employees. They do design, installation, maintenance and tree growing and moving. They’ve landscaped venues for the Olympics in Los Angeles and Atlanta, Walt Disney’s Animal Kingdom in Florida and casinos in Las Vegas, and have operations in the Bahamas, the Caribbean and the Middle East. Their clients include commercial real estate developers, public agencies, golf courses, office buildings, schools, hospitals, HOAs and residences.

ValleyCrest Tree Care Services began in 1985, as an outgrowth of the landscape maintenance division, and is growing steadily. Services include pruning, Plant Health Care, pest and disease diagnosis, cabling and bracing, lightning protection, removals and consulting – everything trees need once they’re in the ground.

“When I started working here seven and a half years ago, we had seven branches,” Bernardini says of the Tree Care Services division. Today there are 23 Tree Care Services branches and satellite offices across the country, in California, Florida, Washington, D.C., Phoenix and Boston.

ValleyCrest Tree Care Services achieved TCIA Accreditation in September 2011 for its 23 branches. (The Landscape Division is not accredited, as TCIA Accreditation does not apply to landscape companies.)

In 1961 Burt’s brother, Stuart, joined the company with a degree in ornamental horticulture from Cal Poly Pomona and established ValleyCrest Tree Company, basically a nursery specializing in growing and planting large specimen trees and moving large trees. Today, ValleyCrest Tree Company still exists separately from the ValleyCrest Tree Care Services division, now consisting of two tree nursery branches, one each in Northern and Southern California. (Valley Crest Tree Company is also not part of the TCIA accredited portion of the company.) The tree relocation division pioneered growing trees in boxes, another example of Burt’s vision.

“A ValleyCrest crew on a takedown. “One of the things we pride ourselves on is putting the safety of our employees first,” says Vic Bernardini.”
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The company provides its climbers and ground personnel with all their equipment to ensure that it is the highest standard.

norm for the landscape industry, according to the company’s website. The company became an equal opportunity employer in 1960, four years before it became mandatory. And in 1965, Burt was the first landscape contractor to develop a computerized cost-control system.

In 1980, Burt’s son Richard began working at the company while taking horticulture classes at Cal Poly in San Luis Obispo. In 2007, Richard inspired all the company managers to build an entire park in one day for an underprivileged community.

Stuart passed away in 2007. Burt became the chairman of the board of directors and Richard became president and CEO of all the ValleyCrest companies. In 2008, the National Safety Council named him as one of the CEOs in the nation who “get safety.”

In 2011, Burt passed away. But the legacy of the importance of safety, employees and customer service that he and Stuart began continues.

Safety

All the branches of ValleyCrest Tree Care Services have been accredited as part of a “continuous audit” Accreditation program. Six branches have already been audited, including the one in Smyrna in September 2011. Two branches will be audited each year on an ongoing basis.

Accreditation is designed to ensure that companies adhere to strict standards regarding safety, employees and customer service.

“One of the things we pride ourselves on is putting the safety of our employees first,” says Bernardini. “We follow a safety protocol that is among the most stringent in the nation – above and beyond Accreditation and OSHA. It’s a really consistently strong point of the company.”

“We went into it knowing it was the right thing to do,” Bernardini says of Accreditation. “We felt a little bit of trepidation, but we were really pleased with the Accreditation process. It validated for us that we were already doing a lot of the right things.” Another benefit, he says, is that it helps customers make more informed decisions about who is taking care of their trees.

Randy McDonald, the Accreditation auditor who undertook the site visits and who also consults with companies that want to become accredited, starts by looking for compliance with Accreditation standards, but that’s just the beginning.

“I look for intent and attitude,” he says, “a real sense of what the overall company is doing. Are you living the culture and the policies and procedures we’re offering? I’ve done more than 150 audits, and I was extremely impressed with ValleyCrest. Each branch took ownership of the importance of safety. This is a very unforgiving industry. Even on the best day, with the best weather, things happen.”

Safety plays a huge part in the company, says Eric Wilson, CTSP and a regional safety manager with ValleyCrest for seven years and who oversees 47 branches. “It isn’t only the right thing to do; its financial impact can play an incredible role in the company, as far as keeping down medical costs, workers’ comp and downtime. It’s a win/win situation.”

They’ve put together a safety program they’re very proud of, he says. “Without the support of the entire company, it wouldn’t be as successful. It starts at the top and works its way down through all levels of the organization.”

Training includes weekly tailgate meetings, monthly training sessions for all supervisory field management, and new employee orientation in such issues as PPE, equipment and public safety. Because crews spend so much time on the road driving heavy equipment, there are always concerns about traffic, road conditions and other drivers, Wilson says. ValleyCrest drivers’ training emphasizes defensive driving and awareness of their surroundings on the road.

The company provides all its climbers and ground personnel with all their equipment to ensure that it is the highest standard. New crew members wear a green safety vest for their first 90 days so experienced employees can be more alert to their actions.

In the evenings, they inspect vehicles and equipment. In the mornings, crews gather in the dispatch yards for briefings about each job that day. They discuss hazards they’ll encounter on the jobsites and how to plan for them, and how to secure the jobsites and make the public aware of what they’re doing. If it looks like rain, they review safe driving techniques in wet conditions, and if there will be a removal, they review removal techniques.

“I was struck by the efficiency of several of the offices, which had hundreds of employees getting into 20 or 30 trucks,” McDonald says. “It takes a tremendous amount of organization to do that. It was amazing.”

Every week, personnel from all levels, including supervisors, regional safety managers and upper management, take part in a conference call to discuss safety topics and any incidents that may have occurred the previous week.

All company vehicles have a “How’s My Driving?” sign with a toll-free number.
on them. “It has really been a good pro-
gram,” Wilson says. “It reminds employees
to be safe on the road. We get quite a few
positive calls. Each branch covers the neg-
ative ones.”

In 2003, the company began a truck-
giveaway program to reward employees
for working safely. Full-time field employ-
ees with at least one accident-free year who
are employed by a branch that meets or
exceeds the company’s threshold safety
standards enter a drawing each year. Five
of them win new trucks.

**Employees**

Practicing safety is only one way that
demonstrates the value that ValleyCrest
places on its employees.

“ValleyCrest really impressed me as a
large company, but intimate,” McDonald
says. “Each branch was very independent,
but also very personally committed to the
company. And within each branch, although upper management was very
hands on, the employees were also free to
act independently. Tree care guys are typi-
cally independent. If management is
supportive, it really brings out the best in
these individuals. Mistakes can happen,
but productivity, quality, safety and sales
go up.”

ValleyCrest does its best to instill this
sense of ownership in its employees,
Bernardini says. “There are benchmarks
for safety, a value system and a structure,
but at the end of the day, we tell them,
‘You’re in the market. You’re the one
who’s in the best position to come up with
ideas.’”

The company also offers competitive
salaries, health insurance, 401(k) pro-
grams, paid vacations, and it has a
compensation system to reward employees
for their part in the success of their branch.
If the branch qualifies for a bonus, every-
one, from the general manager to the field
personnel, gets a share.

**Customer service**

Close to 95 percent of ValleyCrest’s cus-
tomers are commercial, and most of those
are homeowner associations (HOAs) and
commercial offices. Just five percent are
residential. A large percentage of their new
customers come from referrals, Bernardini
says.

The Accreditation process has helped the
company with customer service, too.

“TCIA’s efforts to put in a set of stan-
dards that we have to live up to is
fabulous,” says Bernardini. “First, we do
what we say we’re going to do. We’re very
good at communication. We show up on
time, in clean uniforms. We take proper
safety measures and we make sure the job-
site is spotless when we leave. And then we
follow up to make sure the customer is sat-
ished. We don’t send an invoice until
then.”

But they don’t stop there. They have an
outside company conduct customer satis-
faction surveys every month, and on the
company’s website customers can post
reviews. ValleyCrest had been taking com-
ments for about 90 days and has had 30
reviews at the time of this writing. Twenty-
ine reviewers have given them a score ofive out of five and one gave them four out
of five.

“I’m very proud of the people I work
with,” Bernardini says. “I’ve never worked
with as many people who were all aligned
in pulling together. They’re family-orient-
ed and they take pride in what they’re
doing. They’re the best people I’ve ever
worked with.”
Your trucks serve two functions. They are transportation to and from the worksite for your crews, equipment and tools. And they are the work platform. Interestingly, in researching this article, we discovered that although the truck chassis is usually the most costly component of the work unit, it is the body, i.e. the platform’s function (crane, aerial lift, chipper body, etc.) that determines chassis selection.

For this article we talked with contributors to each type of truck market segment: a body manufacturer, truck/chassis maker and companies that custom-build trucks for tree care, one using new chassis, the other low-mileage used vehicles.

Altec Industries’ body division has seen many changes throughout its more than 80 years of building truck bodies, according to Justin Chandler, sales manager specializing in Altec Industry’s Body Division. “We are seeing trends toward lighter, under-CDL trucks. (A CDL, or a commercial driver’s license, is required to operate vehicles with a gross vehicle weight rating, or GVWR, over 26,000 pounds in commercial use),” says Chandler, “There is also an increasing popularity toward automatic transmission chassis.”

What type bodies or setups are tree care pros purchasing for their tree care businesses? “Altec’s AF and AFX Series of tree care bodies are setup specifically for the tree care industry,” says Chandler. These vehicles have integrated industry-leading security and safety built into each product. Additionally, we offer added paint protection systems for tree care professionals that demand unsurpassed protection against corrosion and fading.”

In November, Altec announced upgrades to the AF Series to include a secure, user-friendly hoist safety-prop lever, which provides a safer environment during maintenance by preventing the need to crawl under the truck to prop the dump body; an integrated locking system that anchors body doors at eight points with one operation; handling capacity up to 27.6-cubic yards, Altec’s ProTEC corrosion-protection paint system, LED light package and a three-year warranty.

Altec continues its expansion of what the company calls its “Green Fleet” technology, which includes the use of sustainable materials, such as aluminum. Altec says its Green Fleet initiative specializes in creating products to help reduce greenhouse gas emissions. “Sustainability has increasingly become a priority for our customers,” says Chandler. “Our all-aluminum truck bodies increase payload and reduce fuel consumption and emissions, making them a great solution for our customers and the environment.”

These bodies are up to 40 percent lighter than steel and about 15 percent less than glass/fiber composites, according to Chandler. Aluminum also means customers have the choice of stepping down to a lower GWV chassis, yet still get the job done.
done, notes Chandler.

When it comes to selecting a truck chassis, “Our customers determine our final selections,” says Chandler. Common issues for our customers include weight and the new emission requirements. This challenges us to provide the customer with current, quality information to guide them on their equipment and truck body selections. Everybody wants to get the most possible from their purchase.”

When asked how trucks have changed body offerings and vice versa, Chandler says, “Altec has been building bodies since 1929, and we have certainly seen changes year in and year out. For example, with our AF Series, we needed to reach the goal of a lighter package to avoid the ‘dreaded overweight DOT situation,’ while ensuring a secure and durable truck body. To keep up with the ever-changing chassis industry and customer demands, we have a dedicated engineering staff that works directly with the chassis manufacturers and our customer base.”

Freightliner, a division of Daimler Trucks North America, is a leading maker of medium, heavy-duty diesel and specialized chassis trucks. Mike Finney, vocational sales manager says his company is making strong inroads into the tree care market in recent years due to a stronger and more focused outreach to our industry.

“In terms of trends, we are seeing couple of different things. Customers are looking to us for more robust, longer-lasting and more reliable trucks. Typically we are selling to the tree care industry in the 19,000 to 33,000 GVW class. What I am seeing is tree companies going for the elevator lift, which adds another 10 feet to a device like a crane or bucket. Mounted behind the cab, an elevator will take a 55-foot aerial to 65 feet.”

Mostly what Finney sees for tree care are trucks with a chipper body, split dumps, 37- to 55-foot buckets with a dump body, all-wheel drive lift trucks and, of course, boom trucks.

“Most importantly in the tree care industry owners need a more robust chassis requirement and more heavy duty specs all around, such as suspensions, axles and frames.” With respect to the commercial driver’s license issue, “We can meet CDL for the owner on both sides, over and under. Most often, though, we are finding orders will exceed the CDL level with operators requiring a more heavy duty vehicle and body with greater payload. It all depends on the customer’s job requirements.”

Another issue, Finney says, is emissions...
compliance. “We feel we have the best solution and have been driving that home with customers with respect to our engine partner, which is Cummins in the range of trucks for tree care.” He points to SCR (selective catalytic reduction) technology, which uses a catalyst downstream of the cylinders. “When you have lot of running hours on stationary trucks, which tend to give off high heat, SCR allows the engine to run cooler and with fewer emissions,” he adds.

Finney says Freightliner hadn’t pursued the tree care industry heavily until a few years ago, but since “we truly opened that door, we are finding more and more interest, finding that customers are excited about alternative choices. The Freightliner M2 106 model is the model of choice for this industry, as tree care pros are drawn to its maneuverability and visibility, which is important when it comes to what they are doing in the trees, but also regarding debris and people on the ground. And with a lot of companies having crews to carry around, they like a big, comfortable cab for three, or an extended cab for larger crews.”

“Overall what buyers want is value, reliability and maneuverability plus safety. Typically, 90 percent of our users opt for the Cummins ISB engine rated from 230 to 270 horsepower. We also offer the Cummins ISC,” he adds. “We offer automatic transmissions, but in tree care

Altec’s AF forestry body features include a secure, user-friendly hoist safety-prop lever, which prevents the need to crawl under the truck for maintenance, and an optional curbside ladder box with pole pruner shelf.
Financial Considerations

(Continued from page 35)

business owner looking to expand with a strategic purchase, such as a truck for tree care, let’s say you are in an average 20 percent federal tax bracket. Add to that state tax, (figure 8 percent for a national average), plus the ubiquitous self-employment and related taxes and you are actually in a combined 40 percent tax bracket. So, your tax benefit, or ability to depreciate your new truck is $2,333 in write-off dollars annually.

Now, get this: in a “banner year” such as we had this year in some sections of the country, with tornados, hurricanes and freak snowstorms providing for an unexpected spike in revenue, you may want to look into options such as an accelerated write-off of the entire rig, or, alternatively, expense a large part (say 50 percent) and schedule depreciation on the remainder. This, our accounting source tells us, is all part of the federal tax code IRC Sec. 1709.

While you cannot double-dip on depreciation and write-offs, you can use these techniques to make strategic choices in high-bracket years to smooth out your cash and tax flows. (As with any good professional, our accountant advises you to consult with a competent and experienced professional with regard to these complicated but powerful techniques – do not go it alone.)

So, one could argue that our $75,000 truck, less $5,000 residual value, costs $5,833 annually, less a minimum average of $2,333 in depreciation, leaving us with an annual net cost of $3,500 or less than $300 a month.

The question to you on trucks (and other strategic equipment purchases) is how much work will $300 a month get you?

There are other advantages to such designs as well. You can chip at one job, and load the tail with stumps, for example. Recently, we did an 18-foot tandem axle truck with a knuckle boom crane behind the cab with and an 18-foot body, which allowed for chips and to load logs.”

Why used chassis? According to Holena, “Most tree guys are not interested in the age but the capability of a truck. With the state of the used truck market there is a glut of 4-, 5-, 6-year-old worn-out chassis. A lot of that has to do with emissions, etc., so finding an ‘05 chassis with respectable power and under 300,000 miles is difficult. Recently, we were able to come up with couple of dozen trucks that were used and maintained by a utility company. These were 10- to 12-year-old trucks with under 100,000 miles, heavier suspensions, higher horsepower and automatic transmissions. For a diesel truck, 100,000 miles is what we call proven, not used, and just broken in. Diesels have a life to 350,000 to 400,000 miles before needing a rebuild,” he says.

Continuing, Holena says, “Each truck goes through a lengthy inspection and recovery process. ‘Our owner or one of our mechanics looks at them, as well as at the source and prior purpose, so we know what
has been done to take care of the truck. We steam clean to get off all the layers of dirt, right down to the original metal. Each truck goes through a mechanical evaluation. We’re looking for engine blow-by, for ring wear, king pins, brakes, etc. We put into each truck as much as, or more than, we pay for them, and new hydraulic items, such as log grapple cranes, can quadruple our costs.”

“After that, we can do anything – shorten or lengthen a frame, put in a new PTO pump, dump hoist, knuckle boom crane – anything,” he adds. (The company uses Epsilon cranes and Palfinger loaders.)

“We build on spec and to order. With current state of forestry industry, right now we mostly build to order. In a pinch, someone can pick up one of our units that’s ready to go, but 80 percent of the time we build to a customer’s request.”

The math goes like this, Holena says: “If you look at a new 2012 chassis with chip body, you can expect to spend $75,000 to $85,000. At Royal, I just priced a 35,000 pound GVW chassis with under 100,000 miles with a brand new body and hoist at $37,600. It’s about half the price of new,” he maintains.

Regarding the future of the tree care truck and body, Holena said his company is looking at hook-lift technology that allows the user to change a body at will. (This is a technology used by the dumpster industry.
“This is catching on with municipalities. Most of their trucks are for seasonal use. So, they are looking to purchase a few hook lift-style trucks so they can swap out dumps and flatbeds for a salt spreader or tree spade as needed. We are at the leading edge of that wave,” he concludes.

Looking to the future, Freightliner’s Mike Finney says, “In development is the compressed natural gas truck. I see CNG expanding in its use as diesel prices rise. Our country has an abundance of natural gas resources. As infrastructure builds to support natural gas use, we see customers embracing the technology. Already, Freightliner has factory-supplied solutions. I also see hybrids expanding and getting more popular in this category with electric hybrids. We are right on the cusp now. Tree care is a value-driven industry, but as costs for new technology drop and the technology becomes more reliable, as fuel prices continue to rise and pressures increase to be friendlier to the environment, I think we will see new technologies gain momentum in the marketplace.”

**Terex HyPower Hybrid System Receives ARB Approval**

Terex Utilities has received approval from the Air Resources Board (ARB) for its Terex HyPower Hybrid System, a plug-in power take-off that uses stored energy from rechargeable batteries to power non-propulsion functions of the vehicle. This approval enables the HyPower system, which can be used on any heavy-duty, diesel-powered vehicle with a GVWR over 10,000 pounds, to meet the requirements set forth in title 13, California Code of Regulations section 2485.

The HyPower hybrid system is a different approach to the Plug-In Electric Hybrid Vehicle (PHEV), says Dennis Depazza, Terex Utilities director of business development & product management. The system is designed to reduce, or even eliminate, the use of fuel for the work done while the vehicle is sitting still. By using plug-in electric hybrid technology to operate the boom and accessories, the system reduces a whole range of pollution produced from diesel fuel and eliminates the noise from an idling engine normally used to run the hydraulic system.

“The HyPower system offers an average of 1,500 gallons in fuel savings and 13.37 metric tons of CO2 reductions per truck per year,” says Depazza.

The HyPower system recharges from the electrical grid using a standard 110V-15 amp outlet. The system is simple enough to be retrofitted onto existing vehicles, as well as durable enough to outlive its first vehicle and be used on another.

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TREE CARE INDUSTRY – JANUARY 2012 39
Safety, like a tree, is much more than it seems at first glance—and it’s easy for some to take this for granted. Beyond natural beauty and ambience, trees provide insulation from temperature extremes, oxygen production/waste reduction, protective environment for birds and beings, prevent soil erosion and more.

Similarly for some, safety used to be thought of in a limited way; that it was secondary to productivity and service, draining time and resources. Not surprisingly, managers gave it low priority. When safety systems were instituted, it was mainly for three reasons:

1) To reduce losses/workers’ compensation claims. For many companies, risks are an unavoidable part of the business, with many factors contributing to injury potential: Crew members may be in the field on uneven terrain, manually moving heavy equipment/logs/brush, exposed to the elements, often working without minute-by-minute supervision. And for those tree care companies with a fair amount of turnover, newer/unseasoned workers also seem to have more than their fair share of injuries.

According to Peter Gerstenberger, TCIA’s senior advisor for safety, compliance & standards, most prevalent lost-time injuries in the industry are:

- Strains and sprains (usually to the back, shoulders, neck, from lifting, using tools, being out of position, etc.) = 52 percent
- Falls from height (out of a tree or aerial bucket) = 18 percent
- Cuts/lacerations to hands/arms (from tools, branches) = 9 percent
- Struck by (branches, etc.) = 8 percent
- Slips and trips from same level or relatively low = 7 percent
- All other (motor vehicles, etc.) = 6 percent

2) To keep regulating agencies out of the company’s daily operations (i.e. “to be in compliance”)

3) To be responsible (as in, “because it’s the right thing to do.”)

But safety is much more. Wise executives know that times have changed and organizational safety goes far beyond these three; that, like trees, safety isn’t something to be planted once and then ignored. Best care leads to strongest company results; conversely, not giving the right preventive attention can lead to dead or damaged limbs and weakened roots.

Harvesting the fruits of safety

Just as a thriving tree can protect its surrounding soil and vegetation, a well-implemented safety strategy can anchor multiple company returns:

- Provides a marketing/competitive edge. This entails both defense and offense. Defensively, some tree care companies have found their customers increasingly demand a strong safety record. Andy Felix, president of Tree Tech Inc. in Foxboro, Massachusetts, and an incoming TCIA Board member, indicates that their college, utility and golf course clients often request Tree Tech’s rate and history of recordable injuries as well as “what we’re doing to promote safety.”

In fact, in some cases, tree care companies have been disallowed from even bidding on contracts because their safety results didn’t pass customers’ muster. This is especially true of companies with line clearance and/or municipal/governmental contracts.

On the side of offense, tree care companies can market their safety results and culture—both to get contracts as well as to attract desired employees.

Andy Ross, owner of RTEC Treecare & Environmental Solutions in Falls Church, Virginia, and a TCIA Board member, says, “We aim for a higher level of safety performance than even what our government customers require of their own employees.”

- Creates smoother flow of operations and service. High-level safety allows a tree care company to get maximum productive service from workers. Remember that not all injuries result in lost-time reports. Nagging pains from “minor injuries” in employees who show up for work—even when these aren’t reported and don’t result in lost time—can distract from best decision-making and reduce productivity and customer service.

- Brings people together. It’s hard to be “anti-trees”; similarly, in these times, almost everyone at least verbally agrees safety is important—perhaps the one element in organizations in which all are in accord (even if they disagree about how to best accomplish this). Having a common objective can serve as a nexus for improved management/employee/subcontractor/client relations.

- Heightens employee engagement. We’ve seen that, when done well, safety can energize, excite and spark loyalty, commitment and better communications in
all areas of a company.

- Reduces turnover of key staff. “Minor” injuries can play a part in those who leave work — sometimes not showing up without notice — due to ongoing pain or discomfort from cumulative trauma/injury. Additionally, strong company safety attention, procedures, equipment and training heighten workers’ perception that their employer is concerned with their well-being.

The good news is that promoting safety culture and performance doesn’t have to entail significant time or expense, just continuing to do things the right way in an ongoing manner. I’ve never seen a strong organizational culture that had a weak safety culture and vice versa. By leading stronger safety culture, you can in turn move your company to higher ground in performance, profitability and morale.

Arbor-culturing safety

In our experience with companies worldwide, we’ve found:

- Safety culture reflects overall company culture. Tree Tech’s Andy Felix believes, “The culture is so important” in safety, smooth operations and overall company health.

Organizations with strong safety cultures tend to be more stable and solid (customer service, profitability, work satisfaction). In fact, some companies, when it comes to acquiring other businesses, specifically look at the other’s safety performance, seeing this as an indicator of overall business strength.

- Among the three biggest and interrelated contributors to high-level and safe performance are: consistent management messages, training/transfer of skills to workers, and ability to direct attention, to focus on tasks and overcome complacency, stressors and distractions.

- There are four levels of safety culture — and it is possible to move up to a higher level of safety culture and performance relatively easily.

1. Forced — where managers see safety as not necessary, only done as minimally as possible to keep pressure off them. Safety is “done onto” workers, with emphasis on compliance-or-else. Performance is usually below industry average.

2. Protective — Safety is more valued by managers and seen as totally their responsibility, top-down, “done for” workers, who are seen as resistant (“Why don’t they just do as they’re told? This is only in their own interests?”) Performance tends to be at about industry average.

3. Involved — Here, managers see safety as an opportunity to involve workers and boost morale. Emphasis goes beyond injury prevention to “softer” benefits — retention, building trust, receptivity to change, engagement, more. This culture trains supervisors and discusses off-work safety. Training emphasizes judgment, problem-solving, and skills.

After significant improvements, attention/behavioral/statistical performance regrettably plateaus when the culture dwells on self-congratulations (i.e., shoulder injuries from patting themselves on the back). Managers worry about workers becoming “complacent” but often don’t see as leaders they’ve set the tone as being too self-satisfied. As one senior manager said, these companies have done a good job of “picking off the low-hanging fruit.” But there’s still produce left (to spoil?) on the tree.

Performance tends to be above industry average.

4. Leadership — are those where safety is “done by” workers, for themselves. Performance is global class — and continuously watched. People see safety as energizing, interesting and practical.

Self-regulation is the norm; people engage in safe actions even when they know no one’s watching. This culture focuses on self-monitoring more than external auditing. Motivation moves toward recognition, beyond external incentives. Managers often sponsor new initiatives. Safety committees are active and have decision power, training, and often a budget. Some employees become trained as catalysts of safety improvement (trainers, coaches, and reinforcement agents). There’s a strong focus on off-work safety, with personal protective equipment (such as eye protection) to take home.

This culture has significant internal drive to remain cutting-edge, pioneering new and effective initiatives and not resting on their laurels. Performance tends to be far above industry average.

Critical elements in nurturing safety

A. The Right Stock. Hire the best people (easier said than done) and also, from as early as possible, send all new hires the message that safety is one critical driver of your company’s success. RTEC’s Andy Ross indicates they have become much more selective in hiring than in year’s past; they now hire approximately one out of 50 applicants. This upfront due diligence saves time later by reducing turnover and preventing safety problems.

And start new workers off on the right footing. RTEC’s new employees are oriented with “a barrage of safety videos, training manuals — and all are field certified and verified on their safe and effective use of all vehicles, tools and equipment” prior to their crew work.

Don’t neglect company leadership on all levels. Provide all levels of leaders with the training and tools to actively and efficiently propel safety.

B. Supportive environment. Get your workers involved. Anil Mathur, the CEO of one of our most-successful clients (not in the tree care industry but whose workers perform outside, exposed to the elements, often doing heavy tasks and in restricted conditions) says, “We measure our success by the quality of our safety conversations.” Endeavor to make these two-way rather than lectures.

Don’t give in to the false premise you can totally engineer out all safety exposures. People still manage to trip crossing dry and even surfaces in balmy weather as well as injure their shoulder/back/knees when lifting relatively light loads. Strong, safety-focused systems, processes and actions are needed as well as helping place people in better control of their own personal safety.

Andy Ross contends, “A lot of Safety starts with awareness.” Communicate you expect workers to engage in a safety mindset and safe practices wherever they can. That you value their input on how to elevate safety — what do they need?

Above all, never salt the soil by shooting the messenger; that is, no matter how hard it might be, welcome less-than-congratulatory feedback (“If you really cared about safety, you’d hire more people to do this job”). Don’t allow yourself to get defensive. Tree Tech’s Andy Felix leads to-the-point, all-company safety meetings himself each Friday morning before field
work because “I see how important it is to give attention to safety.” He speaks highly about TCIA’s Tailgate Safety program manual as helping provide industry-specific thought-starters for these meetings.

Understand that strains and sprains come from more than just strenuous lifting; studies reveal these are often cumulative in nature, from numerous seemingly “insignificant” activities (like “straws that break a camel’s back”). Focus on small changes that leverage into significant improvements in soft-tissue strength, control and balance. Develop strategies that address seemingly minor exposures – lifting light loads, climbing low heights, traversing dry as well as wet grounds – before they result in an injury.

If you can do so, have one or more of your people trained as a Certified Treecare Safety Professional. This program was begun by TCIA in 2006 and there are now more than 900 credentialed professionals throughout the U.S. and Canada – with an additional 300+ people currently enrolled.

C. Feeding – Good Soil, Sun and Water. Provide needed resources to help safe actions grow. You already know the importance of workers using the right chain saws to limb a large tree; similarly, it’s as critical to give them the right safety tools to do their job. These range from fitting personal protective equipment to “soft tools” – training them in the right techniques to perform efficiently and safely.

Go beyond thinking that changes in awareness or motivation alone will somehow “fix” all safety problems. Without question, motivation affects safety, but it’s not enough by itself. Specific mental and physical skills are needed to prevent common industry injuries of strains/sprains, slips/trips/falls and hand injuries.

Experience has shown that the following mental and physical skills are critical for injury prevention:

Mental Skills:

- Personal stress control (not allowing excess physical or emotional attention to “wag the dog.”) Over-tension can lead to the soft-tissue danger zone, just as a taut cord is easier to cut than one that’s slacked. Further, unmanaged stress can upset physical balance.
- Team connection – doing tasks seamlessly with others. For example, employing small eye confirmations and verbal gestures can coordinate safer two-person lifting.
- Thinking forward, cumulatively and 24/7, as in “what can go wrong here,” and realizing that small levels of tension can build into nagging soft-tissue problems.
- Ability to better direct attention. According to TCIA’s Peter Gerstenberger, there tend to be more accidents on Mondays in the industry than other days of the week. While there might be many contributors to this, I suggest that attention (mind still on the weekend? Transitioning back to work-week?) might account for some of this. We’ve also seen this “Monday syndrome” in other industries as well.

You may have noticed that workers often get injured during actions they’ve previously done many times without incident. Also that many lacerations from saws are to the left hand. This is likely because 90 percent of the population is right-handed; in our experience, many are so focused on their dominant hand they are only minimally aware of the position of their left/off-hand. These are just some examples of attention-based issues affecting safety.

So upgrade attention skills such as scanning for best options (e.g., safest path), selecting where to focus, sustaining attention on priorities, switching back to an important task when distracted, and sequencing parts of a task for greatest efficiency and safety (e.g., securing load against the body, observing condition of surfaces, situating feet for best balance, etc.). Implement quick tailgate meetings before each job (“What is different in weather, terrain, etc. today that we have to watch and adjust for?”, etc.) that heightens attention to safe performance.

Physical Skills:

- Ability to maximize personal leverage and strength through best alignment, position and connected movement.
- Significantly improved balance and coordination
- Improving flexibility and range of motion
- Strategies for fatigue reduction
- Synchronizing breath with tasks (e.g., when bending down to pick up/lift, most people hold their breath, thereby increasing pressure on the lower back while significantly weakening balance. The right training can reduce this at-risk habit and enable greater lifting strength).
- Developing methods for practical recovery, employed as early as possible, to steer away from potential major problems; for example, should you begin to fall, how to reflexively regain vertical balance without straining muscles.

All the above are tangible, easily transferable skills, proven in numerous companies to significantly reduce soft-tissue injuries slips/trips/falls and hand injuries.

D. Protection from pests and disease. Especially watch for common “pests” of complacency (“won’t happen to me”), not valuing safety, needless rushing, giving in to distractions, etc.

E. Pruning. Treecare professionals understand what many others may not – that the right pruning can actually strengthen a tree and encourage its growth. And the same is true for safety (and other organizational) “programs.” Prune out the deadwood of interventions that are no longer effective (where it sounds like a broken record) and may, in fact, pose a hazard of misdirection/distraction, reduce credibility (not a good idea to continue to carry something that no longer gets attention or interest), or might supplant other strategies that might make otherwise grow to make a positive difference.

Be improvement-focused. Again, even if you’ve had past safety success, don’t let yourself rest on your laurels.

When safety is well-rooted in your company, when you engage in the right care, when safe actions become “a no brainer” and built into everything workers do, personal injuries in the tree care industry can be overcome and safety performance can exceed the highest expectations – which will enhance your reputation, smooth flow of operations and generate higher employee engagement and efficiency.

Robert Pater is managing director of Strategic Safety Associates and creator of the MoveSMART system for preventing strains/sprains, slips/trips/falls and hand injuries. He will make two presentations at the 2012 Winter Management Conference in Curacao in February. For more information or to register for WMC, visit www.tcia.org and click on the Meetings tab.
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By Tamsin Venn

Executive Profile

Nathan E. Dodds is president of Mauget Company and the son of co-founder Dale Dodds.

What is your latest product for tree care?

We are continually looking at new chemistries being developed by the agricultural chemical companies. We test them for tree injection technology for efficacy and causing little or no harm to the tree. We’re working on the registration of a new insecticide, and we just registered a new antibiotic to treat bacterial diseases in trees. Last year, we reformulated Imicide for improved water compatibility, faster distribution and improved efficacy. More of the liquid loadable products are coming on the market from competitors, so we are putting our chemicals from our Generation II micro-injection system into liter bottles for other companies’ devices. We still maintain our Gen II tree-injection system, as it is the least injurious and most natural way to infuse chemicals into a tree’s vascular system. It is the simplest system for a tree care professional to use.

The cross-border shipment of goods accelerated by the growth of a global economy has increased the import of foreign pests. It’s a constant concern, from USDA to regional municipalities, let alone the treecare and landscape market. These invasive species include the eucalyptus redgum lerp psyllid, emerald ash borer and Asian longhorned beetle. Mauget’s improved Imicide can be used in all three of those situations as a preventative treatment.

Does your company have a Mission Statement or Statement of Values that you promote and follow?

Our mission is to deliver the most advanced technology with the best chemistry for the protection of our urban forests and high value landscape trees, with the benefit of safeguarding the environment and inhabitants in it. We’ve had more than 53 years of marketing and developing this technology. Concern for the environment by EPA and municipalities and the litigations that have taken place with chemical trespass and groundwater contamination have spurred the insecticide industry to adopt better ways and safer chemicals. Our technology is a no brainer for safety.

What is greatest challenge your business is currently facing?

The economic conditions of the last few years have caused us to work a lot harder. Some of our major clients are municipalities and government agencies, as well as institutional grounds and golf courses, that have been challenged by cutbacks. Cities and golf courses will let the trees go. We believe we’re coming out of that.

Invasive insects are going to be a constant and growing challenge in this global environment, as these insects are brought over in plant material, fruits and packing material, then dispersed into our environment. With no viruses, weather conditions or predatory insects to keep them in check, they’ve got virgin territory that they can thrive in and grow exponentially.

What would you say most defines your corporate culture?

The relationships we have had with the plant health care industry, many for 30 to 40 years, have brought us to where we are today. The reliance on those relationships is paramount to how we operate our business. Product quality, representation of the products, and the fact we will stand behind our products – that is something that my father,
Dale Dodds, maintained while steering this company. It’s a relationship business.

**Does your company use Social Media for marketing?**

We’re being dragged kicking and screaming into this. I’m not a technophile, but I believe in Social Media. We’re on Facebook, Twitter, and industry publication websites with banner ads. We are now conducting webinars, and that has been very beneficial for us.

**If we interviewed some of your customers what would they say about you?**

Most of them, I would like to believe, would say that we are a reliable company that has stood by our products and the test of time; that we have not made false representations of our products or our delivery systems. They would also say that our products are priced competitively.

**Does your company do anything in particular to promote social and environmental responsibility?**

In our media advertising, we promote environmental responsibility. We are members of a number of industry organizations, such as ISA and TCIA. We provide support both in product and personnel. We do tree plantings and maintenance in parks and highly challenged municipal settings to help bring them back to good health.

**Why does your company support TCIA as the industry’s trade association?**

I think that TCIA has demonstrated the highest level of leadership for the professional arborist and the tree care industry. It has raised the perception of this industry from a chain saw and pickup truck and people who just take down trees to highly skilled professionals who truly protect and beautify our urban forests. TCIA has maintained very high standards, and not only in safeguarding the employees who work in this very dangerous industry.

**What TCIA programs is your company involved with?**

TCIA Associate Member since 1972. PACT (Partners Advancing Commercial Treecare) member. TC I EXPO participant. We loan out our facility for TCIA regional workshops.

**Closing comments?**

Mauget’s kind of technology will continue to flourish in use both by regulatory agencies as well as the tree care industry for decades to come. It is such a niche technology it will never really be large, but we’re always to be considered a big business in terms of responsibility. We’ll never be used in aerial or mechanical operations – we’re going to be treating one tree at a time. As our company promo says, “We believe it’s the right way to treat a tree.”
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TREE CARE INDUSTRY – JANUARY 2012
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Miscellaneous

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Great customer response on behalf of another

The following letter was sent in September to Edwin Adams, owner of Tazmanian Tree Devil, LLC, a fifth year TCIA member located in Plainfield, Connecticut, commending him for his assistance and service in the aftermath of Hurricane Irene, which struck the Northeast August 28, 2011.

Dear Edwin: I want to personally thank you for your professional and expeditious response to our request for assistance during the aftermath of Hurricane Irene. One of our largest and most important clients, Nationwide Insurance, made an emergency request on behalf of a policy holder located in Plainfield, Connecticut. The policy holder reported significant tree damage to their home and escalated their request to senior officials at Nationwide. Our company, HMI, manages a national network of tree care companies but we did not have coverage in the Plainfield area. We are PACT (Partners Advancing Commercial Treecare) members of the TCIA and were guided to you by the TCIA.

I contacted you with a request to conduct an urgent inspection of the property. You not only took my call in the midst of your own catastrophe response, but you were out at the property within the hour and were communicating with Nationwide catastrophe management personnel about the situation at the property. The customer care and outstanding service that you provided to us and Nationwide in the midst of a major weather event is one of those rare examples of what a tree care company should strive to achieve. We commend you not only for your professionalism but for the consideration you showed a person in need – these are the characteristics that set a company like Tazmanian Tree Devil apart from the rest and we are truly grateful.

I will be happy to act as a reference for you and your company – please feel free to have any potential customers contact me.

Doug Malawsky, executive VP & COO
HMI
Cary, North Carolina

Send letters and emails to: editor@tcia.org
Climber falls 70 feet and lives

A tree worker was injured when he fell nearly 70 feet while trimming a tree at a residence in Boulder, Colorado, November 28, 2011. A witness said the man was using a safety rope as he trimmed the top of the tree when he cut a limb that took the rope down. The man briefly dangled, suspended by part of the rope, before he plummeted to the ground, the witness told KMGH-TV Channel 7 News.

The man had been using an aerial bucket, but it was unclear if it played a role in the accident, according to new reports.

The man may have been trying to tie a safety line when he fell, according to a witness. The man was conscious, but in significant pain, when paramedics arrived on scene, according to a report in the Daily Camera.

The climber landed on a lawn, a source close to the investigation told TCIA, adding that the climber sustained a compound fractured arm, a broken pelvis, a collapsed lung and probably some broken ribs, but no obvious head, neck or spinal injuries.

Tree worker injured in struck-by

A tree company employee was injured while working in Crofton, Maryland, November 28, 2011. The 25-year-old man was part of a crew and was tending to ropes when he was struck by a limb. The man was alert when paramedics took him by ambulance to the Maryland Shock Trauma Center in Baltimore, according to a report in The Capital in Annapolis.

Worker injured in struck-by

A tree limb fell on a West Virginia Division of Highways worker in the Sissonville, W. Va., area November 28, 2011. The worker was cutting branches when he was hit by a falling limb. He was unconscious for a short time, but is expected to be OK, according to a WOWK-TV Channel 13 News report.

Man killed in struck-by

A 70-year-old Orangefield, Texas, man died November 29, 2011, after a tree fell on him while he was collecting firewood. Edwin Worthy was pronounced dead at the scene. Worthy was cutting a large tree when the top got hung up in another tree. The cut tree then broke loose and fell on Worthy, according to an NBC Channel 5/KXAS-TV report.
Several years ago I got a telephone call from a homeowner who said he was in the process of removing a large silver maple (*Acer saccharinum*) by himself. He was calling to inquire if I could stop by his house and give him some tree removal advice.

I immediately thought that I probably would not make any money on this call, but it sounded intriguing. I wanted to see how someone not used to removing a large tree would try to accomplish such a daunting task.

I stepped into my 1994 Ford Ranger pickup, moved the stick shift into gear and traversed surface streets over to this man’s house. I pulled in next to the curb in front of his property and walked into his backyard where I could hear a chain saw being revved in preparation for making a cut. I saw this man 23 feet up in the tree and I yelled at him as loud as I could to stop what he was doing immediately.

This do-it-yourselfer had cut 2-inch by 10-inch pieces of board and nailed them onto the entire tree to use as steps, like a young kid with multiple cool tree forts. He had 4-inch-wide trucker’s canvas strap wrapped around his waist and then around a limb, fastened together with a pair of vise grips. He had a regular men’s pants belt around his neck and through the back handle of his Homelite chain saw, to allow his hands to be free to facilitate climbing. He was using logging chain to lower limbs.

The moment I entered his backyard gate and yelled at him to stop, his head was directly below a 10-inch-diameter, 20-foot-long limb that he was going to cut with his chain saw. After he hit the stop switch on his saw I told him to position himself above the limb. He did so and made the cut, immediately realizing that the extremely heavy limb would have thumped him square on his noggin, likely doing tremendous amounts of damage.

This realization produced an instantaneous decision on his part to climb down from the tree, go into his house and come back out with his checkbook in hand. He proceeded to write me a check for the excellent “Tree Removal Advice” I had given him.

This man, however, possibly could have taken a heavy blow to his head without noticing because he was extraordinarily hard-headed in his thinking. Because he then placed his boots on his homemade steps to resume his work. He was now going to cut a 12-inch-diameter, 25-foot-long limb directly over his newly poured concrete patio. I told him if he didn’t lower the limb down he was going to put a crack in the concrete. This time he didn’t accept my great wisdom and – do I need to tell you? He put a large crack in his newly poured concrete patio!

I thought possibly I would be getting a second check to deposit into my bank account, but he was so mad I decided to make a quick exit.

So, my best tree removal advice to homeowners is: Call a professional!

*Steve Lambert is an ISA Certified Arborist, and owner/operator of All Around Tree Care in Davis, California.*
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