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Information is the currency with which you "buy" your clientele, says the author.

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Dave McIntyre uses a Hobbs block to remove a section of Catalpa during a workshop presented by Donald F. Blair in 1993 to the South German Arborist's Association. (Photo courtesy of Donald F. Blair)
Information is the currency of the future. This statement applies to everybody and every business, including the tree care business. The better you are able to inform and to communicate, the more likely you will be to have the opportunities needed for success.

Information is going to make the difference. If you don't communicate with your clients, someone else will.

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The well informed can "buy" better decisions than the less informed, yourself as well as your customers.

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TCI and TCI EXPO are providing resources which NAA is reinvesting in the tree care industry to make it better for all.

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Robert Felix, Publisher
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Arborist Blocks

By Donald F. Blair

Before World War II, when tree removal was done with handsaws, rigging was an important time and labor-saving necessity. Given a 14-inch diameter limb, 15 feet long, which would you prefer to do: chunk it down by cutting it into 10 lengths, 18 inches long; or rig it up and take it in one piece?

Just as children have a tendency to initially reject the values of their parents, so too arborists in the 1960s and 1970s turned their backs on the "old ways" in favor of cranes, aerial lifts and "chunking it down." In fact, by the mid-1970s many rigging skills had been lost or forgotten in the rush to get the work done. As more people entered arboriculture without formal or traditional training, even more skills have been lost, forgotten or gone undiscovered.

I was no exception. I remember a job we had to do once that involved clearing a downed tree from a creek. The banks were steep and the water was cold. My father, whose rigging experience dated back to 1911, had spent the better part of the previous evening laying out old wooden snatch blocks and heavy lengths of manila rope. In his mind he had an excellent plan for rigging up a block to a tree overhanging the bank. Using that tree as a gin, M.F. Blair planned on tying sections of the downed tree to the rope and yarding them up the bank with a truck. Greg and I were too green and too young to appreciate the wisdom. My Dad was too wise to fight us for too long and we were too dumb to know better. If we wanted to kill ourselves wading through that cold water and packing heavy limbs like pack mules up that steep, slippery bank, well, it was on our backs, not his.

After a few hours, his plan made an awful lot of sense. I think my interest in rigging blossomed in that muddy creek.

Operating a business in the San Francisco Bay Area poses some challenges that are not common in other parts of the country. Considering the fact that many of our largest trees are now living and dying in backyards, the options of a crane, aerial lift and "chunking down" are nonexistent. We have to take these trees on their own ground with what we can carry through a 30-inch gate.

Ed Hobbs, B&H Tree Service, Moraga, California, was the first arborist to apply modern technology to ancient rigging systems. My father’s wood blocks and manila rope looked like something the Egyptians used to build the pyramids (and probably they did). Beginning in the 1970s, Hobbs invented the lowering device, advanced tree saddles and arborist blocks out of space-age materials to complement modern synthetic rope. He was the first arborist to incorporate a “systems approach” to rigging in his inventions. All components of the system must be matched and balanced to work in concert with the others. This article is devoted to the block component of rigging. Articles in the past have addressed slings and lowering devices.

Arborist blocks considered

If rope can trace its origins back over 5600 years, blocks must be very nearly as ancient. Yachting blocks, for example, have undergone a revolution in design and highly specialized application. Not just
Shown in photo above is a comparison of 3/4-inch pin to a 1.56-inch diameter bushing, in accordance with Cordage Institute recommendations for 5/8-inch rope.

blocks anymore, they are spreacher blocks, two-line turning blocks, ratchet-sheave blocks, backstay adjusters, etc. Arborists will find that blocks can be extremely useful for a wide range of applications. They can make your rope run easier, thus reducing abrasion and the danger of heat fusion failure. They can be used to change the direction of guide ropes used in tree felling or to speed up a speed line. They've made it possible for highly skilled arborists to safely rig large redwoods and eucs down on themselves.

As an example, in 1991 Carroll Tree Service used three sets of heavy block and tackle rigged with 1400 feet of 1-inch double-braided polyester rope to lift a 90-foot hickory weighing 25,000 pounds off an apartment building in Baltimore.

Throughout the 100-year history of modern arboriculture, we've turned to other professions for many of our tools and techniques. We've borrowed and stolen without shame from logging, mountaineering, utility line construction, search and rescue, steeplejacks, furniture movers, window washers, paratroopers, miners and anyone else who climbs up or down something tall or deep.

The problem is that none of those "other guys" are arborists, so their equipment is not necessarily suitable for an arborist's use. Because trees are different from a church steeple or a well derrick, things that work well for "them" might not work as well for "us."

When it comes to blocks, think through what you're going to do. If you're rigging up a service line to haul gear into the tree, any decent pulley will work. If you're going to catch heavy pieces successfully under "slam dunk" conditions, you should fully understand the factors that affect strength and performance and make your selections accordingly.

Pulley or block?
The terms are interchangeable as far as this article is concerned. Early pulleys consisted of a sheave or grooved wheel mounted on an axle between two blocks of wood. Called pulley blocks, they've been abbreviated in both directions. The "tackle" in block and tackle refers to the line rigged between the pulley blocks to produce the mechanical advantage.

In block-and-tackle rigging, blocks are used to reverse the direction of rope in tackle. Blocks take their names from the purpose for which they are used, the places they occupy or from a particular shape or type of construction. According to the number of sheaves, blocks are designated as single, double or triple. Blocks used in the tackle to change the direction of the pull without affecting the mechanical advantage of the system are called leading blocks. This block can be placed at any convenient position.

The most common rigging blocks for tree care are snatch, tail-board and rescue. Regardless of style, they all share the same "body, heart and soul" - the body, sheave and bearings.

The body - Also known as the shell or cheekplates, the body shields the rope, bears the load, supports the sheave and provides an anchor for rigging the block. Traditional-style pulleys use wood shells reinforced with metal straps. Modern blocks are alloy or steel cheeked for strength and durability. In order to prevent line damage, the body of the block must extend beyond the radius created by
the rope passing over the sheave. Blocks not designed for tree work may not provide enough protection to prevent the rope from being shredded against the tree.

**The heart - the sheave** - The sheave has evolved over thousands of years to direct and share the load on a line. Although the whole purpose of a block is to reduce friction, a certain amount of friction is generated within the pulley itself. At design load levels, built-in friction can vary from 2 to 10% per sheave, depending upon the bearings. Built-in friction is generated at several bearing points: where the rope passes over the sheave; where the two sides of the sheave rub against the inside of the body; and where the hub or the sheave bears against the axle. Given a block in good working condition and with the correct diameter and perfect alignment of the line with the sheave (fair lead), the greatest amount of built-in friction is generated in the axle bearing. As explained in the section under bearings, the type of bearing affects the amount of friction. The most important qualities of the sheave are the shape, material and diameter.

**Shape** - Sheaves rated for use with 3-strand and braided-fiber ropes feature a semi-circular groove matched to the maximum size of the rope for which it's designed. Wire rope sheaves are V-shaped and are not suitable for use with synthetic rope. Never use wire rope in a fiber-rated sheave. Although not pertinent to tree work, it's interesting to know that the fiber characteristics of Kevlar are so unique that specialized, flat-bottomed sheaves had to be developed for use with Kevlar ropes.

**Material** - Traditional blocks used hardwood, cast iron, brass or bronze sheaves. The Museum of the United States Life-Saving Service in Ocean City, Maryland, has an interesting exhibit of artifacts recovered from shipwrecks. Among the artifacts are the remains of a pulley with a Lignum vitae sheave. Lignum vitae is one of the hardest woods on earth. Its use in pulley sheaves is recorded back to 1790 and its extremely dense characteristics make it popular to this day for use in sculptors' mallets.

Another block on display at the museum demonstrates how pulleys had progressed by 1865. In that year, a ship went down, rigged with blocks that had iron cheekplates and brass sheaves. The iron parts had pretty well disintegrated but the brass sheaves looked as good as new. The wooden block and Lignum vitae sheave were also remarkably intact, with the exception of extensive rust damage to the iron hook and side stra.

Most rescue pulley sheaves are aluminum, although some use steel, enabling the use of wire rope in an emergency. Besides these materials, yachting blocks also employ nylon, delrin, bronze and stainless steel, as appropriate to the application. Sheave material is an important factor in determining weight, cost and, most importantly, stability under load. Although the greatest concentration of load is on the axle and bearing, a poor lead or overloading on a light-duty material such as nylon can cause the sheave to distort, binding the sidewalls of the sheave against the body.

**Diameter** - The process that wears out a rope running over a sheave is called Cycles to Failure. Two of the most important factors that affect cycles to failure are the "load to rope tensile strength ratio" and the diameter of the sheave. Although pulleys are usually sold by their sheave size, the tread diameter is even
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The block selection chart has been created to provide at a glance an indication of the relationship that the bend ratio of the sheave has upon strength loss to the rope. As you can see, even before a knot is tied or a load is secured, nearly one-third of the strength of the rope can be cancelled out by the size of the sheave.

According to Richard Hildebrand at Yale Cordage, although further gains do occur beyond an 8:1 ratio, they are painfully small as the blocks grow increasingly large, heavy and expensive. As a matter of interest, wire rope manufacturers recommend a 20:1 ratio on wire rope sheaves. That would mean dragging a 15-inch block for 3/4-inch rope up into a tree, if fiber rope were held to the same standard.

Formulas are nice when they sit neatly upon the paper in quiet repose. It becomes a little more problematical if you're trying to wrestle a 40-pound, 8-inch block into place while standing on spurs 70 feet up because "the book says that's what I gotta use!"

As you can see from the chart, there is only a 10% spread of strength loss between an 8:1 and 4:1 bend ratio. By compensating your rigging, working loads and lines, blocks that provide a bend ratio of no less than 4:1 should provide adequate service in all but the most extreme situations. I'll take smaller pieces if it means I can use a block that weighs less than an anvil. Read the section on strength loss factors for information about cycles to failure and other factors that could save your life.

**Bushings - bearings**

Bushings are the simplest and cheapest axle bearing is called a bushing. In essence, it's a reinforced hole closely matched to the size of the axle. Bushings of such exotic blends as Nomex and Teflon (NTE) are common in sailing.

There are grooved bronze bushings with grease fittings and another type called "oilite" bushings. Greasable bushings are found in larger, heavy-duty industrial blocks. The grease fitting allows for relubrication.

An oilite bushing is created by impreg-
nating bronze filings with oil and under high pressure forcing this soft, oily "dough" into the shape of a sleeve or bushing. The bushing is pressed into place in the pulley shell, the sheave axle is pressed through the sleeve and everything is assembled. As a result of the oil impregnation, the bushing wicks oil to the surface and provides needed lubrication.

The major advantage that oilite and other bushings have over mechanical bearings is their cost. Oilite bushings are by far the cheapest and are probably adequate. Arborist blocks are not going to be subjected to extremely high revolutions per minute for any significant period of time. As far as bearings are concerned, rpm's are low. If you "let it run" as fast as physically possible, what's the point of the block in the first place? Presumably, you set your rigging to maintain some control over that which you are lowering.

The duration of loading and revolution is short. Quite often the time to the ground will be well under a minute. Low rpm's and the short duration of use means that an oilite bushing will rarely be pushed beyond its limits of performance. Although bushing pulleys are permanently lubricated, unlike bearings they are not permanently sealed, making them more susceptible to contamination from dirt and grit. If they do fail - and they can and will - they are less expensive to repair, if repair is possible. They are, at least, cheaper to replace.

**Mechanical bearings** - Ball, roller and needle or pin bearings are all used in block construction. Bearings reduce friction by reducing the surface area of contact with the axle and/or block sides. Compared to bushed sheaves, bearing-equipped blocks run freer at higher speeds. To see the difference for yourself, steady a block and give the sheave a spin. An oilite bushed sheave will drag itself to a stop long before the bearing-equipped sheave does.

Because they run freer when rigged in block-and-tackle systems, bearing pulleys have a superior mechanical advantage over bushing pulleys since they do not lose as much efficiency through friction loss. Bearing pulleys are permanently sealed against dirt and grit contamination and do not require additional lubrication.

Warning. Before you field strip your pulleys, you should know that many manufacturers neither recommend nor support the practice. Seattle Manufacturing Company, for example, will not rebuild or repair worn pulleys beyond their warranty obligations for liability reasons. Their rescue pulleys, for example, are assembled at the factory under strict tolerances. The axle nuts are treated with epoxy-based thread lock and torqued to factory specifications.

Under no circumstances should a pulley ever be dismantled for cleaning or repair without prior authorization from the manufacturer. This authorization may be in the form of instructions provided with the product at the time of purchase. If you have any questions about a specific pulley, contact the manufacturer or the dealer where you purchased the product.

**Types of blocks**

Playing with blocks isn't just for kids anymore. For many arborists, a vital part of the job is the precise removal of large trees in tight quarters without damaging delicate understory vegetation. And an important part of maintaining that precision is the use of an assortment of rigging blocks.
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Snatch block - Made with wood or steel bodies and a variety of latching mechanisms, snatch blocks are designed to drop open a cheek or side plate to enable rope placement at any point desired. Because they are heavy and awkward to rig, we used them only when we had to in a tree. Some arborists using certain kinds of snatch blocks doing slam dunk rigging have had the experience of losing the rope when the sidelatch jerked open. This is not a common occurrence, but has been documented. Snatch blocks are best used where they are above their subject load.

Tail-board block - Also known as drop side snatch blocks, tail-boards consist of pear-shaped cheeks and a cross-pin, normally used to secure a swivel hook, yoke or shackles fitting. When the cross-pin is unscrewed, the top of the block is opened to rope placement. Some also swivel sideways. When used without a fitting, the block is referred to as a tail-board style. In logging, tail-boards are anchored to stumps in certain kinds of log skidding and high lead work. Although designed specifically for in-tree removal, Hobbs blocks are close relatives to tail-board style blocks.

Good quality tail-board blocks are among your best choice for applications such as slam dunk rigging. They are heavy-duty and built to survive most of what they might encounter in tree work. They are available to 1-inch fiber rope sizes and larger, with a wide choice of roller bearing, needle bearing, oilite and greasable bushings. The application governs the selection. Just make sure that the block selected is suited to the job, e.g., cheekplates that shield the rope and fittings that won’t weaken a rigging rope.

Rescue pulley - This term describes a popular class of strong, lightweight pulley. Used by search and rescue technicians and rock climbers to position a rope properly and/or reduce abrasion, pulleys are also used in gear hauling systems and live rescue and retrieval. Side plates swivel open on the axle to allow rope placement at any desired point. Stainless steel side plates are highly resistant to corrosion and withstand impact abuse better than most other materials. Aluminum side plates are not as strong or durable but are highly resistant to corrosion. Rescue pulleys are available in 7/16-inch through 5/8-inch rope capacity. Sheave diameters are commonly available in 2-inch, 3-inch and 4-inch sizes, with tread diameters correspondingly smaller. They are available with bushings or bearings. Rescue pulleys are not heavy rigging blocks and should not be rigged or expected to perform as such. Any pulley is going to perform best when it can be rigged above and in vertical alignment with its subject load.

The following are just a few of many proven uses for rescue pulleys:
1. Micro pulleys (7/16-inch to 1/2-inch capacity) are great for hauling gear into the tree.
2. Two-inch-by-1/2-inch capacity pulleys haul gear and can serve in light limb rigging when they are rigged overhead and in vertical alignment.
3. Four-inch-by-5/8-inch capacity pulleys are the largest and strongest rescue pulleys available. I have had success with some of these blocks under moderate removal conditions where impact loading is minimized. Even though some have tensile strengths as high as 16,000 pounds, I don’t recommend them for heavy-duty tree removal or situations that might create severe shock loads. After all, they are rescue pulleys, not tree removal pulleys.

Strength loss factors
Like muggers, there are a number of natural laws at work that can rob significant strength from your rigging system. Failure to understand these strength loss factors could cause you to create a system that is far weaker than you think. Tensile strengths or safe working loads of individual parts may not apply when incorporated into a system. In keeping with Blair’s Weak Link Law, your pulleys, slings and connecting devices must all be rated far enough above the rope employed to ensure that the lowering line is the weakest link in the system. It may seem strange to plan for the failure of a system, but you have to. If any component fails before the lowering line, the design of the rigging system is at fault. Consider the possible result of a sling breaking while under load, catapulting a heavy block or shackle into a climber or structure, not to mention the damage that the log that broke the sling can do as it falls out of control.

Because of the tremendous forces generated by dynamic loading, you cannot have slings and blocks that are a little bit stronger than the lowering line; they have to be a lot stronger. Why not be safe? Has anyone ever complained about not having a rope, sling or block break in use?

Blocks. There are very few blocks properly designed for the sole purpose of heavy-duty tree removal. Many of the blocks used in tree removal are standard industrial blocks. There is absolutely nothing wrong with these blocks when they are used for their intended task and design. The problem is, they were not designed for the impact loading of tree removal.

Industrial blocks are designed for the static management of known loads under controlled conditions. Safe working load ratings are commonly given as 4:1 or 5:1. Because of the magnitude of shock loading that can occur in extreme removal, a safe working load rating of 10:1 may be insufficient. Lab tests of certain industrial blocks with 5:1 ratios have indicated that they are substantially weaker than the tensile strength of the ropes that they are supposedly rated for. In violation of

<table>
<thead>
<tr>
<th>BREAKING STRENGTH</th>
<th>WORKING LOAD</th>
<th>SAFETY FACTOR</th>
<th>NO. LIFTS BEFORE FAILURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>30,000 LBS.</td>
<td>5,000 LBS.</td>
<td>6:1</td>
<td>1,000</td>
</tr>
<tr>
<td>30,000 LBS.</td>
<td>6,000 LBS.</td>
<td>5:1</td>
<td>750</td>
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<tr>
<td>30,000 LBS.</td>
<td>7,500 LBS.</td>
<td>4:1</td>
<td>500</td>
</tr>
<tr>
<td>30,000 LBS.</td>
<td>10,000 LBS.</td>
<td>3:1</td>
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</tr>
<tr>
<td>30,000 LBS.</td>
<td>15,000 LBS.</td>
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<td>30,000 LBS.</td>
<td>20,000 LBS.</td>
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<td>30,000 LBS.</td>
<td>28,000 LBS.</td>
<td>1:1:1</td>
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The table above, from the Samson manual on winch line maintenance, illustrates the effect that load stress has on line life. The 30,000-pound test rope would be comparable to a 7/8-inch double-braided polyester.
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Blair's Weak Link Law, such a situation carries with it the potential for catastrophe. All I can suggest is for you to do your homework before you draw your checkbook.

The block itself can be a strength loss factor to the sling. Blocks used in tree removal are often lashed in place with rope. The strength of the rigging rope will be compromised if forced over too sharp a bending radius, reducing the number of fibers available to support the load. Cordage Institute specifications recommend a 2.5-x-diameter ratio of rope to termination. A 5/8-inch rigging rope can lose as much as 50% of its strength when forced over a 5/8-inch or 3/4-inch pin instead of a bushing with a minimum diameter of 1.56 inches. A 3/4-inch rigging rope requires a minimum 1.87 diameter bushing. Continued shock loading of a rigging rope under these conditions can also shorten effective service significantly. The strength loss in the rigging rope can create a situation in which the lowering line becomes stronger than the sling - a direct violation of Blair's Weak Link Law. Although the article on slings will go into considerable detail on the load forces that are exerted upon the anchorage, one point is so important to safety that it bears repetition. Think of the lowering line as having two legs. The "load" leg goes from the log to the pulley, while the "tension" leg goes from the block to the belaying point. Next, visualize a 250-pound log hanging straight down (0 degrees) from the block. With 250 pounds on the load leg, there will be 250 pounds on the tension leg until that log is safely on the ground. Add it all up, and you've got 500 pounds of static load being exerted on the tree, sling and block that you are rigged through.

Carabiners and shackles are popular connecting links in rigging systems. Because their use may create a tight bending radius, be aware of the effect they may have upon rope strength and plan your work accordingly.

Shock loading has an impact on rope life. Although this article is focused on blocks, safety concerns regarding the other components of the system must be considered. The table on Cycles to Failure illustrates the effect that reducing the safety factor can have on the working life of the rope. In short, if a 5/8-inch lowering line will just barely do the job, reach for a 3/4-inch rope.

Samson Ocean Systems' technical publication on winch line preventive maintenance makes some excellent points about shock loading that is valuable for arborists. The information contained in that manual has been very helpful in researching this section. Although the working loads quoted are from the manual and represent higher values than we might reasonably expect in tree removal, they represent important principles that are applicable. You might also be interested to know that Samson's Stable braid and Yale's Double Esterlon, both double braids that are offered to arborists, are winch lines.

Shock-loading of any line - synthetic, manila or wire - produces a drastically different set of physical properties and results as compared with normal loading. Shock-loading, most simply described, is a "jerking" or "snatching" of a line. A sudden change in tension - from a state of relaxation or low load to one of high load - may also be described as shock-loading.

A typical shock load on a line occurs when an object is suddenly lifted or...
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that reduce the danger and occurrence of shock-loading. If there is reason to believe that a line has been shock-loaded above its safe working load, it should be noted: if a number of these occur, the line should be rotated, inspected and downgraded or removed from service if necessary.

Shock loading has a bearing on block life. J.A. Brinell (1849-1925) worked out the standard scale of hardness of a metal, alloy or similar materials. The scale rating is called Brinell Hardness and is determined by the area of indentation produced by pressing a steel ball under a controlled pressure into the surface of the material being tested.

When a pulley is subjected to shock (impact) loading severe enough to damage the bearing race, the gouging that occurs is called “brinnelling.” Severe shock-loading can also cause bearing housings to crack. In theory, bushings are slightly stronger mechanically than a bearing. In practice, manufacturers of rescue pulleys (SMC and CMI) both certify that their bearing and bushing rescue pulleys are virtually identical in strength. My experience concurs.

In stress-to-failure testing of their rescue style pulleys, both SMC and CMI have verified that the carabiner holes in the side plates have typically pulled through or deformed before either a bearing or bushing failure. I have a stainless steel bearing pulley that was used as a yarding block in an emergency. The side plate holes turned nearly inside out under the strain and the bearing still turns perfectly.

The amount of shock actually delivered to the bearing is greatly affected by a number of factors, including the length and energy absorption qualities of the rope. The longer the rope is, the more fiber there will be to absorb initial shock loading. The type of sling used to secure the pulley in the tree will also play a role. To better illustrate the point, consider the fact that wire rope or chain does not have the energy absorption properties that a double-braided rope or nylon webbing slings has.

Tying it all together

I like synthetic rope for its handling characteristics. I like its feel, its properties and its durability, I even like the neat colors it comes in these days. I’m impressed but not in awe of ultimate tensile strengths. I respect the danger that a line parting under load represents far too much to take unnecessary chances.

Says Yale Cordage’s Hildebrand: “You never want to see, hear or be around a synthetic line parting as a true tensile failure!” I agree. I’m proud to say that the only rope I’ve ever broken in tree removal was a 7/8-inch single-braid. We did it while trying to pull a downed oak with a Caterpillar 977. The line began to sing as it drew from 7/8-inch to about 1/2-inch before it broke with explosive force. The line was 200 feet long and, like an enormous rubber band, it shot the full length of the line past the tree.

This past January I was reminded once again of the tremendous amount of energy that synthetic line can store up before failure. In order to pass my certification as a splicer of double braided rope, I had to submit a sample splice for destructive testing to verify that it met required standards for performance. The 1/2-inch double-braided line stored up over 10,000 pounds of energy before it failed with the explosive force and sound of a 30.06 rifle shot.

From what I’ve seen and heard from “new generation” arborists, I’m concerned that the high working loads that certain synthetic lines are capable of under controlled and ideal conditions are being viewed as a mandate to push them to the absolute limits. Tree work is far
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from the controlled and ideal working environment of the chemistry labs where these rope fibers are created. That's precisely why I love it so much.

When you study the Cycles to Failure chart, it becomes readily apparent that pushing a rope to its limits will greatly limit its life and, while we're on the subject, yours too - potentially. Please note that even when the rope was pushed right to the edge, it didn't fail on the first lift; it took a few. Let's consider that you overloaded a rope without breaking it. You brought it right to the edge once, twice, three times. The rope didn't break so you keep using it. Later, it seems to fail without warning on a job where the load was way below its safe working limits. If you forgot what you'd been doing with the rope the week before on the huge red oak, you'll probably think that the rope was nothing but a piece of junk. Don't blame the rope!

I was weaned on manila rope. Most of us were still climbing on it at the 1977 ISA Jamboree in Philadelphia. I was trained to apply a safety factor of 10 to all components of my rigging. Using that factor, I learned tree work with manila rope that was rated for 265-pound loads on 1/2-inch, 540 pounds on 3/4-inch and 900 pounds on heavy old 1-inch.

These days, if using double-braided polyester, Cordage Institute specifications for minimum break strengths would allow for a 900-pound load on 1/2-inch, 1710 pounds on 3/4-inch and 3618 pounds on 1-inch. I have a tendency to take manila-sized pieces with synthetic ropes. A philosophy like that will pay for itself in vastly extended rope life and safety.

Technical rigging is a lifelong challenge to master. General George Patton observed in his memoirs that about the time a person mastered the art of war, hostilities had ceased or the soldier had gotten too old to keep practicing his craft. Extreme tree removal is a lot like combat in that regard.

Words of advice

If you are just getting established in the profession and would accept a few words of advice tempered by experience...

Learn your craft. Have fun with rigging, but make safety your prime concern. Always do a visual inspection for hazards before beginning the climb. Investigate hollow sounding trunks and decay fruiting bodies as needed to ensure the ability of the tree to sustain the removal.

Never lose sight of the fact that your business survival is more certain if you concentrate on tree preservation. Remove when you have to, but endeavor to learn 10 times more about such preservation arts as pruning, cabling, bracing, fertilization and hazard tree evaluation. In competitive situations, you will be able to save important trees that your competitors would remove if you can do more than estimate the value of the cordwood in the ailing oak. Arboriculture is a lot more than urban logging. Thank God for that and may God bless all who labor for the trees. Big blocks and small lines to you all.

The author wishes to thank Dick Hildebrand, Susan Cook, Ed Hobbs, Rock Thompson, Bruce Baron, Yale Cordage and the Cordage Institute for their contributions to this article.

Donald F. Blair is the director of the M.F. Blair Institute of Arboriculture in Clear Spring, Maryland. An author and lecturer, he has been an arborist since 1971.
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- **Better Advertising and Public Relations:** An ongoing public awareness program including events such as the National Arborist Day at Arlington National Cemetery, means that the NAA logo on your advertising and stationery carries more weight with cautious homeowners and businesses. Plus, the NAA offers an excellent array of professionally developed brochures and marketing materials at a fraction of what they'd cost you to produce.

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OSHA Flexes Its Muscle

By Brian Barnard

Labor Secretary Robert Reich recently delivered citations totalling $7.5 million against Bridgestone/Firestone, Inc., tire plant. The citations claim the company violated OSHA’s lockout/tagout rule. The tire company says it will contest the fines.

The enormous fine is only the beginning. Reich asked the federal district court to order the company to comply immediately with the requirements, forcing the plant to close for two days. The judge temporarily lifted the restraining order.

OSHA typically goes to court to get a temporary restraining order against a firm if conditions exist that “could reasonably be expected to cause death or serious physical harm immediately.” However, the Bridgestone/Firestone case is the first in which OSHA went to court for a restraining order because, OSHA believed, the situation presented imminent or pending danger to employees.

OSHA head Joseph Dear was quoted as saying the agency will “use all the tools available” to protect workers from imminent danger.

General Motors also received fines totalling $2 million for repeat violations of OSHA’s lockout/tagout standard. OSHA inspected GM’s Oklahoma City, Oklahoma, plant after an employee’s death in 1991 and cited the company for 57 violations of OSHA standards.

This is the first time OSHA has issued the maximum $70,000 penalty for violations since increasing its fine structure in 1991.

The citations against GM included failing to train employees. Numerous skilled employees testified that they could not remember any training in written procedures in the company’s lockout/tagout procedures.

While the tree care industry is normally exempt from OSHA’s lockout/tagout standards, all industries will be affected by the agency’s approach to hazard abatement.

After the GM decision Reich said in a statement: “This Labor Department will not tolerate employers who put workers’ safety unnecessarily at risk.”

Brian Barnard is Government Affairs specialist for the National Arborist Association.

OSHA’s Recent & Future Actions

**Finalized OSHA Standards in 1994**
- Personal Protective Equipment - April 6, 1994
- Vertical Standard - January 31, 1994
- Hazard Communication Update - March 11, 1994
- Reporting of Fatalities or Multiple Hospitalizations - April 1, 1994

**Standards in Proposed Rule Stage**
- Abatement Verification - April 1994
- Respiratory Protection - November 1994
- OSHA 200, Injury Reporting - September 1994
- Ergonomics - September 1994
- OSHA Compliance Program Guidelines - March 1995

**Standards in Final Rule Stage**
- Walking & Working Surfaces/Fall Protection - June 1995
- 20649 Motor Vehicle Standard - December 1995

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TREE CARE INDUSTRY - JUNE 1994
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The alphabet soup that covers these changes are OSHA 1910.269, OSHA 1910.331 and ANSI Z133.1-1994.

OSHA 1910.269. Effective January 31, 1995, you must certify that all employees who come closer than 10 feet to energized wires have received electrical hazard training.

OSHA 1910.331. Effective in August, 1991, all employees who may come within 10 feet must be trained in electrical hazard awareness, and that training must be documented.

ANSI Z133.1-1994 outlines the required training subjects. Remember, an ANSI violation is an OSHA violation.

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Training may be expensive, but try costing out ignorance.
Recycling With Tub Grinders

By David Brown and Peter Gerstenberger

(This article examines one component of the recycling process: the tub grinder. Most of the information contained in this article is generic to all tubs; however, there is some emphasis on a new machine from Vermeer Manufacturing that was only recently released. At the end of this article, there is a list of tub grinder manufacturers who cater to the waste wood disposal market.)

Only 10 years ago many arborists practiced wood waste recycling without calling it that. People found creative ways to get rid of unwanted wood and chips or hauled them to the dump. As the dumps became landfills and started filling up, they became more expensive or restrictive.

In recent years, recycling has evolved from being the lesser of two evils - the greater evil being astronomical dumping costs - into a profitable business. As technology improves and new markets are created, it will likely become more profitable.

Kentucky contractor Con Robinson and his wife Anne provide just one example of a lucrative recycling business. The Robinsons have been recycling wood materials to produce compost, mulch, blended soil and other landscape and garden products. Their high-quality mulch and compost had earned a strong following among area landscapers, garden center operators and home owners. But as the flow of organic material coming into their 13-acre facility increased, it took too much time to regrind the material to make the compost their customers sought.

The Robinsons were able to keep up only by grinding most of the material into coarse mulch, rather than the composted products that are their best sellers. The composted wood mulch must be ground as many as four times to produce materials that are excellent substitutes for peat moss.

Now, a new Vermeer Brawny TG 400 tub grinder is helping them keep their business growing. Until the recent arrival of the new tub grinder, Con Robinson Contracting Co., Inc., used two grinding systems. A shearing machine was used to coarsely cut wood material, including large tree limbs, timber from demolition projects and industrial refuse such as pallets and crates. All subsequent processing was done with a tub grinder that was purchased four years ago.

Most larger recycling facilities use something other than a tub for the so-called primary reduction of debris. Although tubs can handle raw material, output is significantly reduced.

Says Robinson, "We were having to regrind so much that our one tub grinder was incapable of coming up with the desired finished product. Both the volume and the quality of grind were limited.'

By last fall Robinson decided that he needed more grinding capacity and he began to research available tub grinders. After trying out about six different brands with on-site demonstrations, he heard about a new machine from Vermeer that would soon be on the market. Soon after, his dealer brought the prototype to Robinson's facility for a demonstration.

Teeth are key

If one talks tub grinders with any recycling veteran, the conversation eventually turns to the teeth, or hammers. That is because dull hammers mean low productivity, and hammer replacement means additional expense and downtime. Therefore, ease of tooth replacement and sharpening are important.

"Con is especially pleased with the design of the teeth because of the ease with which they can be changed," Anne Robinson says. "That can be labor intensive and Vermeer has a tooth design that will cut that way down."

"Vermeer has applied rock technology to grinding wood," Robinson points out,
WHEN THIS TREE IS TALL ENOUGH TO NEED TRIMMING, THIS EQUIPMENT WILL STILL BE AROUND TO DO THE JOB.

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noting that the tub grinder uses the same carbide-tipped teeth used in rock cutting machinery. The mill features 20-pound cutter block hammers with replaceable rock bit teeth.

Anne Robinson, who is certified in composting by the State of Kentucky, says she is doubly pleased because the new grinder makes it “so much easier” to make the fine grind required for quality composted mulch.

“We are always concerned with our compost supply and the Vermeer grinder has the ability take material down to a fine grind that is compostable,” she explains. “This will assure a supply for my customers, so I’m thrilled with that.”

**Variety of materials**

The Robinsons market 20,000 to 30,000 cubic yards of soil and mulch products each year in the Lexington area. They have 17 employees and a fleet of 10 trucks. They also operate a crushing facility to recycle concrete, asphalt and other construction refuse.

As the financial officer in the business, Anne Robinson is pleased with the fact that the new tub grinder backs up two machines: It is rugged enough to stand in for the shear grinder as well as the older tub grinder.

She is also pleased that the new grinder uses about the same amount of fuel as the older one while turning out more work.

The typical grinding operation requires two yard employees - one to run the tub and one to transport material to it. Many of the larger tubs have optional grapple loaders so that one operator can load the tub and control the grinding. Most facili-

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1981 International 4x4 Diesel Asplundh LR-50 rebuilt 12/93 new DT466, new tires, mint cond. $27,500.

(6) 1986 GMC 7000 Gas Ariat lift of Conn. ALS50, 23,000 miles, show room cond. $32,000, also have Fords 1986 and 1987.

1984 International Chipper Dump Diesel 63,000 miles, new rubber, perfect $10,500.

1985-87 Woodchuck 12 Inch Drum Chippers with new 4 cyl. Diesel power units, new blades $6,900.
ties do not purchase that option because it is expensive and often a second operator is needed anyway.

The Vermeer unit is operated with a full-function wireless remote control. Hypothetically, one operator could load debris and operate the grinder.

**Steady growth**

According to Anne Robinson, the organics recycling business has been growing steadily, thanks in part to stricter environmental laws. The Kentucky Legislature is considering a statewide ban on organic materials in landfills and the City of Lexington has already enacted such legislation.

Besides wood refuse, the Robinsons accept straw, grass, leaves and brush. Bedding from the nearby Red Mile harness racing track and some of the area's world-famous horse farms also is processed and blended with wood mulch to aid the composting process.

Con Robinson explains that the smaller the wood material is ground, the quicker the composting process occurs. Adding straw from the stables puts bacteria into the blend and adding water helps speed the process along. Aeration when the material is periodically reground also accelerates the process and it takes about six months to completely compost the blended material.

Con Robinson produces blended topsoil using a Scarab brand composter to blend and shred soil and blend it with fully composted material and new mulch. With this process a product can be ready for market in six to eight weeks.

Despite the growing supply of recyclable organics, the Robinsons see no limit to their market. Anne Robinson points out that they can process more of the material into compost rather than mulch, which reduces it to about a third of its original volume. They now sell only in the local Lexington area, with a population of about 250,000. But Anne Robinson foresees expanding their market to as much as a 100-mile radius.

If you are considering going into the recycling business, check into local zoning laws, ordinances and restrictions. Usually, true composting operations are more highly regulated than are mulch or firewood businesses. For more information on equipment or to arrange a demonstration, contact these manufacturers:

- **Diamond Z Mfg.**
  208-467-6229

- **Haybuster Mfg.**
  701-252-4601

- **Innovator Mfg.**
  413-229-0080

- **Morbark E-Z Beever Co.**
  517-866-2381

- **Olathe Mfg. (Division of Toro Co.)**
  913-782-4396

- **Vermeer Mfg.**
  515-628-3141

- **W.H.O. Mfg.**
  719-336-7433

**A tub grinder's array of hammers. (Photo courtesy of W.H.O.)**

**The grapple loader works best when debris is already piled for disposal. (Photo courtesy of Haybuster Manufacturing)**
All About:

Hoists, Cranes And Lifts

Are hoists, cranes and lifts the same? Many people in the industry refer to them as the same. When defined in the context of tree care or landscape maintenance, they are devices that lift an object weighing more than a person or persons could safely handle. While they come in all sizes and configurations, small to medium-size truck-mounted devices are popular with arborist firms.

Regardless of which lift option is chosen, the result will be increased productivity and less chance of back injuries.

Hoists

The hoist is a hydraulic dumping mechanism that elevates a truck body to a 45-degree dumping angle, allowing the hauled product to slide from the body. Hydraulic dumping hoists are available in many different sizes and configurations, determined by the product that is to be dumped. In the tree care industry, truck bodies are typically nine to 16 feet long and haul a combination of chips and logs, mostly chips. Hoist sizes range from a NTEA Class C to Class F. Class C hoists can lift eight to 10 tons, depending on overhang and other factors.

Most of the dump hoists used in the tree industry are single hydraulic cylinders mounted in a rigid or scissor frame. The scissor frame allows the product to be loaded off-center in the body without tilting or leaning while it is being raised.

Cranes

Cranes vary greatly, depending upon the size and weight of the item to be lifted and how closely the truck can be posi-
tioned to the item. These factors must be considered to determine the right crane for the application. There are corner mount, knuckle boom and stick cranes ranging in size from small to absolutely enormous.

Corner mount cranes are usually mounted on the curbside rear corner of a forestry body or service body, and work well with multi-purpose forestry bodies. The most common in the tree business are from 1000- to 2500-pound capacity. These units are used to lift logs too large for chipping into the body. The cost of the crane determines what options are available. The smallest 1000-pound corner mount normally uses manual rotation with an electric-powered winch line. Hydraulic rotation, hydraulic winch, outriggers and other options can be added. Most users do not understand that the less expensive electric winch is not made for continuous use. If used continuously until that last log is loaded, the motor may become too hot and fail. A relatively inexpensive corner crane with a hydraulic winch will eliminate the continuous use problem.

Knuckle boom cranes, also called articulating cranes, are normally mounted between the cab and the body. Knuckle boom cranes range in size from 50,000-foot pounds (8300-pound capacity) to 138,000-foot pounds (19,000-pound capacity). The unique feature of knuckle boom cranes is that they can fold within themselves when in transit, but when in use can reach out hydraulically about 40 feet and lift a 3000-pound object. Options that are available for knuckle booms include remote controls, single-person baskets and grapples. Like the corner mounts, a popular arborist combination truck unit is an articulating crane with a...
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multi-purpose forestry body package. When the crane is not needed, the arborist has a chipper body. When the job requires log removal, the user simply removes the top to create a dump body.

Log loaders
A log loader has the same capabilities as a knuckle boom crane, but does not fold and stow within itself. Loaders normally have a long boom and use a general purpose grapple. They combine with a 14-foot to 19-foot dump body mounted on a 33,000 GVWR single-axle chassis cab. A body used only for logs should be extra sturdy but still within vehicle body weight limits. These considerations are a must for someone in recycling or logging.

Other lifts
A liftgate is another means of loading wood into the body. The brand and size of the gate is determined by the application. Capacities range from 500 pounds to 2500 pounds. The most popular units are 1500-pound rear-mount tuck-away gates or side lift gates. The side lift is used more to lift tools or equipment in the truck. A third type is the dump-thru lift gate. The gate serves as the tailgate in the closed position. The product will dump through the gate or the gate can be lowered to floor height and the product dumps over the gate. The dump-thru gate is mostly used on 1-ton trucks.

Technical assistance and illustrations for this article were provided by Richard Goforth of Southco Industries.
Show Key Employees That They Are Appreciated

By Richard G. Ensman Jr.

Shine the spotlight on those employees who make a big difference in your firm's success! Let your people know they make a difference and that you appreciate them.

If you want to shine the spotlight on outstanding employees, you can do it without hefty bonuses, "thank you" trips or expensive gifts. If you're interested in effective, low-cost employee recognition techniques, here's a summary of time-tested approaches to get you started:

**Bulletin board announcements** - Recognize the accomplishments of an employee in front of his peers and you'll build a sense of pride and loyalty that will last forever. A bulletin board announcement, perhaps coupled with a photograph of the employee, will do just that.

**Memos for the file** - Want to thank an employee for a job well done? Write a letter of appreciation and let your employee know that you're placing a copy in his/her personnel file.

**Newspaper and magazine releases** - Many newspapers and magazines will publish short news briefs about your employees. Suburban weeklies, business publications and industrial trade magazines are usually eager for information of this nature. Don't overlook the power of a two- or three-line write-up in the paper; most employees have never been mentioned in the press and will cherish even the smallest write-up. All it takes is a one-page news release, stating the employee's name and the facts surrounding his accomplishments.

**Symbolic incentives** - Do you have a stuffed animal that serves as the company mascot? A traveling trophy? A humorous wall display? Let your mascot or display serve as a symbolic token of appreciation for a job well done. Circulate it to an employee who has performed well and let him/her keep the symbolic gift for a limited period of time.

**Professional education** - As a token of gratitude for exceptional performance, consider sending a valued employee to a professional seminar or training course. You'll recognize your employee's accomplishments and provide him/her with skills that will enhance future performance.

**Ambassador service** - If an employee has served you and your firm well, let him/her serve as your "personal ambassador" from time to time. The chosen individual can attend ceremonial functions in your stead, speak to gatherings of employees and perhaps even represent your company at professional or trade shows.

**Simple gifts** - Small gifts such as coffee mugs and company sweatshirts are deeply appreciated by many employees. Buy imprinted goods in quantity; they can double as public relations giveaways. For non-imprinted or one-of-a-kind gifts, perhaps you can buy items from a friend or colleague in a non-competing firm at cost.

**Plaques** - While plaques are one of the most traditional ways of recognizing outstanding employee performance, they're still effective - especially when they're located in a prominent place.

**End-of-month recognition** - Consider recognizing one outstanding employee at the end of every month or every quarter. You can turn this occasion into an "event" by hosting a coffee hour for the employee to be recognized, or by adding his/her name to a "featured employee" display.

**Employee coaches** - Let your top employees act as "mentors" and "coaches" to new employees entering your department - or even to established employees seeking professional growth. The honor will not go unnoticed and the coaching experience will give your top performers new skills.

**Time away** - Does your outstanding employee have a subject he/she would like to learn more about? Is he/she interested in pursuing a special work-related project? Give your really good people "time away" from their routine duties and let them pursue these special interests. Well-rounded, appreciative employees will be the result, along with some potential improvements in the workplace.

**Luncheon recognitions** - Once a quarter, schedule a simple "thank you" luncheon where you recognize top performers. Better yet, invite your boss, the personnel director or top management to
attend along with you and your people.

Gifts for the family - To recognize a good employee, recognize his/her family. Offer a dinner out, a trip to an area amusement park or some other simple token of appreciation the whole family can enjoy.

Advertisements - While ads can be a bit on the costly side, don't hesitate to honor your people in paid newspaper or trade ads, or add an employee recognition tag line to your present advertisements.

Use these suggestions to begin thinking about ways you can recognize people who make a difference in your firm. You don't have to use all of these techniques; just as a single employee can make a unique contribution to your business, a single form of recognition can serve as a unique honor to the employee.

Richard G. Ensmann Jr. is a freelance author based in Rochester, New York. He specializes in business and management topics.
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July 12
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LIFTS, HOISTS, CRANES AND CHIPPERS

1. On a rotary drum or disc type tree or brush chipper not equipped with a mechanical infeed system, the infeed hopper must not be less than ______________ inches measured from the blades or knives over the center line of the hopper to ground level. This is designed to prevent operators from contacting the blades or knives of the machine during normal operations.
   a. 75
   b. 85
   c. 95
   d. 100

2. When operating hoisting equipment, operators need not remain at the controls when a load is suspended.
   a. True
   b. False

3. When workers are feeding a tree or brush chipper, they must not wear
   a. tight-fitting clothes
   b. loose-fitting clothes
   c. steel-toed boots
   d. protective eye wear

4. On log loaders, tree cranes and related hoists, how often should a visual inspection of wire ropes, gears, chain drives and other parts be made by the operator, in accordance with the manufacturer’s recommendations?
   a. Daily
   b. Weekly
   c. Biweekly
   d. Monthly

5. When operating tree or brush chippers, even the workers in the immediate vicinity must wear approved eye protection.
   a. True
   b. False

6. Before operating any aerial lift equipment, wheel chocks must be installed.
   a. True
   b. False

7. Brush chippers shall be fed from the “center” of the center line of the infeed hopper.
   a. True
   b. False

8. Safety chains should always be crossed and securely fastened before pulling any trailer to prevent the tongue of the trailer from dropping down if the hitch comes unfastened.
   a. True
   b. False

9. When feeding a tree or brush chipper, it is generally best to feed the chipper with the largest (butt) end of the branch first.
   a. True
   b. False

10. When operating a log loader, tree crane or related hoist, a durable and legible sign must be placed in a conspicuous location and contain the following wording or its equivalent: “Warning - Keep Clear of This Equipment When in Operation.”
    a. True
    b. False

11. When working around energized power lines, metal reinforced hydraulic hoses are the safest type of hose to use.
    a. True
    b. False

12. When disposing of rakings and small debris, use a push stick or another piece of brush to feed it into the brush chipper.
    a. True
    b. False

13. Operators of log and brush loaders must always check to make sure that the logs or brush are secured in such a fashion so as not to
    a. overhang the sides.
    b. obscure tail lights or brake lights.
    c. obscure vision.
    d. none of the above.
    e. all of the above.

14. The turning mechanism on log loaders and tree cranes can be used to pull a load or lift a load that is on an angle.
    a. True
    b. False

15. Even though an insulated aerial lift is safety tested every 6-12 months, it can still conduct electricity if enough dust or dirt is on the outside of the boom.
    a. True
    b. False

16. When trucks with obscured vision are to be backed up, what practice(s) should be done?
    a. Use a co-worker positioned out of the way but visible by the driver to assist in the backup.
    b. Make sure the area is completely clear of any objects or people, especially children.
    c. The driver should walk completely around the truck.
    d. None of the above.
    e. All of the above.

17. What are the three restrictions for qualified tree workers to be hoisted into position using a tree crane?

18. Qualified line clearance personnel operating tree cranes and working with the approval of the utility can work within 10 feet of an electrical conductor.
    a. True
    b. False

ANSWER KEY

1. b
2. b
3. b
4. a
5. a
6. a
7. b
8. a
CORRECTIONS

In the March issue of the “Test Your Knowledge” column (Weed Control in Trees), an error occurred in the numbering sequence of that exam. Please note that following Question #15, the next three questions should have been numbered 16, 17, and 18, but were instead inadvertently numbered as 20, 21 and 22. The answers to these misnumbered questions if properly numbered are correct, however.

In the April “Test Your Knowledge” column (Cabling and Bracing), several incorrect answers were printed. The correct answers are as follows:

Question 5. The correct answer could be “b” or “c” as originally written because countersinking washers “to the wood layer” and to “just below the cambium” are essentially the same. Do not countersink washers, however, down into the inner wood (xylem) layers as was originally intended for answer “a.”

Question 12. The correct answer should be “c,” “cabling the limbs together in combinations of 3; not “a,” “using double cables on each lag.”

Question 18. The correct answer should be “b,” “in direct line with the opposite lag or eyebolt.” When possible and “ideally,” the hardware should be installed perpendicular to the limb, especially for lags to take advantage of the perpendicular annual ring growth and subsequent holding power of that arrangement.

Question 19. The correct answer should be “c,” “the cable should be taut,” not “b,” “never pull the limbs closer together than they stand naturally.”

Question 21. The correct answer should be “c,” “triangular,” not “b,” “box or rotary.”
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Sometimes Foresight Is 20-20

By Gil Mitchell

One of the services my company provides is tree inventory and analysis, or TIA. There are three stages in our TIA program: identifying and numbering all the trees on site; recording data for each tree; and assembling and analyzing the data to come up with specific recommendations and priorities. The end result of a TIA is planning and budgeting for tree care. This story is about how a TIA successfully predicted a tree failure.

Last summer I was asked to give a proposal for a TIA to an up-scale community in southern San Jose. The community was built in phases, the first 13 years ago. The houses are nestled in more than 300 native oak trees of three species: Quercus agrifolia, lobata and douglasii. Over the years, two trees had fallen over and many were in various stages of decline. Before contacting me, the homeowners association had agreed that the oaks represented a high aesthetic and monetary value.

Prior to submitting my proposal, I walked the property to get an idea of what information would be pertinent to developing a plan for tree care. I found that although some trees were at their natural grade, most trees adjacent to either structures or streets experienced a cut or fill during construction and landscaping. Also, some trees had wounds and decay on their trunks and scaffold limbs. I concluded that the TIA should note potential problems but would not include analysis or suggestions for rectifying problems. For example, if I felt that trunk decay at the new grade might condemn a tree, I put a question mark in the Removal column, a “Yes” in the Root Crown Excavation column, and a “1” in the Priority column.

In May, I presented a proposal for a TIA at a homeowners association meeting. The proposal was accepted and the TIA was completed on July 7.

The association was so pleased with the TIA that they contracted with me to analyze all the “?” removals and to do the priority 1 root crown excavations. On October 8, I submitted my findings to the association’s landscape chairman. The last paragraph of my cover letter to the chairman read: “I must remind the Board of Directors that even though I have taken the time to evaluate some trees with regard to Hazard,” these evaluations are subjective. I cannot predict when or if a tree will fall over or limb will break. Additionally, there might be a hazard that might be unforeseen.”

There was one tree that I felt was an accident waiting to happen. The report read: “Valley Oak #89: 12 inches of soil fill on uphill side. Oak root fungus around entire root crown except for one buttress root. Wound from below ground line spirals up counter-clockwise and is closed five feet above ground line. Decayed area is soft and pliable five inches into stem. Remove ASAP.”

On October 9, the landscape committee reviewed my report and decided to removal Valley Oak #89. At approximately 1 a.m., October 10, after an evening of rainfall, Valley Oak #89 fell. The tree went over slowly and parallel to a house, so the house was not damaged.

The following week I met with the landscape committee chairman to discuss a 3-year budget for tree care. When he told me the news about the tree falling over, I could tell he was impressed with my foresight.

Little did he know that the TIA was responsible. Sometimes good timing is the result of hard work.

Gil Mitchell is with Able Tree Surgeons in San Jose, California. At the author’s request, TCI will be donating the honorarium for this article in the form of a pledge to the “Tour des Trees,” a fundraising effort to benefit the International Society of Arboriculture (ISA) Research Trust.

Do you have a story for From the Field? TCI will pay $100 for published articles. Submissions become the property of TCI and are subject to editing for grammar, style and length. Entries must include the name of a company and a contact person or they will not be considered for publication. Articles and photos must be received by the first day of the month for the following month’s issue.

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