Signs of Failure in Leaning Trees

Engineering a Tree Removal
Thinking about adding MACRO-INFUSION to your line of services?

Offering a complete set of EQUIPMENT* for $196.00
(Limit one per company while supplies last)

* This set of equipment includes macro-infusion bypass pump with pressure regulator and screen, 75 infusion tees and 110 feet of tubing, and 2 high helix drill bits.

Now is the Time!
Join the growing number of companies who profit from macro-infusing trees in under 1 hour.**

To order Equipment or for Information, References, Research, and Protocols call toll-free 1-877-ARBORIST or (612) 922-3810

** The average uptake for 90% of trees when done following protocol is between 30 – 60 minutes. Small and unhealthy trees can take longer.
High performance has never been so cleverly engineered!

Distinctively different, and uniquely RAYCO®, the RG 50 stump cutter enables the operator to bring BIG diesel power through a 36" garden gate! The RG 50’s low center of gravity permits safe operation in the 35" wide stance. For even greater stability on uneven terrain, dual wheels come standard.

Control and stability are RAYCO’s design mission. The RG 50 is self-propelled by independent drive wheels with a hydrostatic transmission. RAYCO’s “Quick Stop” cutter wheel is among many features insuring safety. It can stop the cutter wheel within three seconds with no harm to drive train components. The operator’s console gives a close-up view of the cutter wheel and safe visibility of the cutting action.

RAYCO® RG 50...
When you get serious about stump cutting!

SUPER TOOTH™
The single-piece design, constructed of high alloy steel, adds structural integrity to the Super Tooth eliminating tooth bending, twisting and breaking.

Call 1-800-392-2686
Please circle 57 on Reader Service Card
“There Is No Comfort Zone ...”

I recently had the opportunity to offer a presentation to association colleagues on the topic “The CEO as Market Leader.” The audience was primarily marketing directors for large, well-established associations around the country—many of them heavily encumbered by long-standing bureaucracies, out-of-date systems and a sluggish interest in change. The premise of our program was that if your CEO is not proactively focusing the business of the association from a market-driven perspective, the problems of the association were much greater than “how do I get my CEO to listen to my marketing plan?” As my colleague emphasized in closing his part of the presentation, “There is no comfort zone.”

How many of you have thought longingly of the day when you would achieve success at the top of the heap? Have you looked forward to easing back some and enjoying the continuing success of the family business? How many of you cringe at the thought of working just as hard (or even harder) today as during the days when your business was a bit of a dream in “start-up mode?” Whatever thoughts you had, even a couple of years ago, about what doing business would be like in the 21st century, the old models are cracking wide open ... and “There is NO comfort zone.”

Do you often think:

- “We’ll just get through this change, and then things will even back out again, and I will be able to breathe a little easier;” or
- “If I can just get that other crew going and that additional piece of equipment, I’ll be able to relax?”

The rules have changed with the speed of new business applications but, more importantly, with what customers expect. They are way past expecting good, consistent service—they want service as they define it. And the definition keeps changing. One popular book on the shelf right now is Who Keeps Moving My Cheese? It describes what you feel every day. Life really is getting faster and there is no reality but change.

Although none of us knows where our economy is going or what new technology in the field or on our desks will require us to learn yet another skill, what we do know is that lifelong learning is the only way to take a stab at keeping up with where the cheese went.

NAA is leading the way in helping you get a handle on your business environment. The industry’s cutting edge practices, excellence and innovation were never more evident than at the recent Excellence in Arboriculture Awards ceremony at the Winter Management Conference 2000 in Bermuda. Business management speakers were a major hit with the membership. We’re working hard to exceed your expectations. We’re working closely with the Business Management and Education Committees to step up to the plate and help you keep up with who has your cheese and where it is moving next.

NAA is your source for building whatever comfort zone a commercial tree care company can achieve at the beginning of the 21st century. If you’re only reading this magazine and not taking advantage of all the resources the National Arborist Association has to offer, you’re missing out on the people and expertise that will give you a shot at making it in the 21st century.

Psssstttt, your cheese went that way ... Where were you looking?
1996 - 1998
479% Sales Increase

RESULTS

HI-RANGER TREE TRIMMING AERIAL DEVICES

simple, available and cost effective

TEREX TELELECT

600 Oakwood Road • Watertown, SD 57201 • (605) 882-4000 • FAX (605) 882-1842

Please circle 68 on Reader Service Card
April
continued on page 6

Features

8 Signs of Failure in Leaning Trees
By Ed Hayes

24 Engineering a Tree Removal
By Mark J. Chisholm

32 Excellence in Arboriculture Award Winners

42 Top Insect Pests & Control Strategies
By Cliff Sadof

Departments

2 Outlook
By Cynthia Mills, CAE
Excellence in Arboriculture on display at NAA Winter Management Conference in Bermuda.

16 Washington in Review
By Peter Gerstenberger
Tree care industry has the ear of Congress as NAA representative testifies before a House committee.

18 Branch Office
By Wayne Outlaw
Employee references can be a double-edged sword for tree care company owners.

What are some of the warning signs of failure on leaning trees? When does a leaning tree become a failing tree? What are the risk assessment guidelines for leaning trees?
Real World. Real Solutions.

In the real world, you can't afford for your tree care equipment to take a day off. That's why Altec is committed to providing you with equipment solutions. Our complete line of aerial devices and wood chippers is highlighted by our newest machine - the Altec LRV55 Overcenter Aerial Device. It combines 60 feet of working height, smooth maneuverability, and low maintenance costs for unmatched performance in the industry. If you need real world solutions for your tree care equipment needs, call the company that builds them. 1-800-958-2555.

www.altec.com

Atlanta • Birmingham • Dallas • Denver • Indianapolis • Portland • West Palm Beach • Dixon and Pomona, CA
Plains, PA • Creedmoor, NC • Elizabethtown, KY • St. Joseph, MO • Millbury, MA • Milton, ON • Surrey, BC • Winnipeg, MB

Please circle 4 on Reader Service Card
April
continued from page 4

Departments

20 Cutting Edge
New products and news in the tree care industry

40 NAA Forum
Bermuda was the setting as excellence in business and tree care practices were the topics for the NAA's Winter Management Conference.

50 Utility Arboriculture
By George Klinger
A utility arborist reaches back to the '60s to recall his company's response to an ice storm that today's arborists will find familiar.

56 Industry Almanac
Important regional and national meetings and activities

59 Roots of Tree Care
By John Gunnell
The 1940s presented special challenges for arborists and their equipment.

64 Classified Advertising
Help wanted, services, businesses, new and used products for sale

74 Industry Input
Candid comments from our readers.

80 From the Field
By Terry Castellow
Learning from experience, an arborist warns fellow climbers to check their ropes carefully—even in the middle of a job.

24 Complex Tree Removals
The arborist of today reaps the rewards of technology. The freedom given by such things as false crotches and lowering devices helps to alleviate some of the climber's stress.

32 Honoring Excellence in Arboriculture
The industry honors excellence in tree care at a gala awards banquet. Read about the winning entries.

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 nonprofit National Arborist 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.
Introducing the MAT-Tree... the first new concept in thirty years of lift truck design.

- Innovative telescopic upper boom
- Amazing horizontal extension up to 41 feet
- Non-over center design for greater stability
- No chains or cables for boom actuation
- Working height up to 65 feet
- Platform capacity of 400 pounds
- Unique hydraulic platform leveling system
- Quality construction designed to last!
- Bearing ring with 3 ft. diameter, 360° rotation for smooth operation

A cut above the rest.

For More Information: Call (262) 524-8810 or Fax (262) 524-8882
A leaning American basswood with compressed and buckling bark on the downhill or compression side, lifting and loose patches of bark on the uphill or tension side, and a cavity opening at the base of the tree. There is only 2 inches of sound wood in the shell of this basswood, due to the central column of decay. There has to be a reason for these subtle signs of mechanical failure in this tree. It's the internal column of decay!

A massive European larch in Thunder Bay, Ontario with a thin shell of sound wood buckling on its compression side due to a central column of decay. A tree of this size would easily need 7 to 8 inches of sound wood in the outer shell to remain standing. It only had 3 inches, which explains why it had failed and leaned into its neighbor. Note the slight bulge in the stem, the only symptom of the internal column of decay.

Moving around the same tree to the right, see the bulge.
All trees lean. All branches lean. Trees must direct their branches and stems toward the light (phototropism), and when they do, they lean! At the same time, they must constantly fight gravity (negative geotropism) by pushing and pulling themselves into as much of a vertical position as possible. This is an adaptive growth response called reaction wood!

Leaning trees that become failing trees sometimes provide us with warning signs that become evident to the observant eye. What are some of the warning signs of failure on leaning trees? When does a leaning tree become a failing tree? What are the risk assessment guidelines for leaning trees?

1. At ground level, look for:
   Lifting of the root plate or root disruption, soil lifting, or cracks in the soil near the base. In most cases, this is partial wind-throw. In other cases, the tree has already failed and has, for the moment, paused on its way to the ground. Smaller trees that are only partially wind-thrown may re-anchor over time, become harp trees and eventually continue their journey toward the ground.

   For other causes or root-plate disruption, look for girdling roots or evidence of recent construction injury or other activities that would sever or weaken roots, resulting in a loss of anchoring support.

2. At the base of the tree, look for:
   Compression and buckling of the outer bark wood fibers on the down-
A tree with excessive lean. This tree is high risk in any kind of intensive-use area.

hill or compression side of the tree. In rare instances, you may also see tension cracks (horizontal or radial) in or through the outer bark on the uphill or tension side of the tree. In these trees the tension crack would be a very serious sign of impending tree failure. Look out! These trees would be very high risk and immediate action is necessary.

More common are "hairline" tension fissures, minor cracks or lifting, loose patches of outer bark on the uphill, tension side of the leaning tree.

Caution: Do not "over read" these signs of tree failure. The tree in question must be leaning in an unnatural way. These bio-mechanical warning signs of failure are found on failing trees!

It is also possible for the entire outer shell to buckle on the compression side of a tree with a central column of internal decay and a very thin outer shell of sound wood. A tree exhibiting these signs would be at very high risk for continuing its journey to the ground. Wood fibers buckle twice as easily as they tear apart, which is why most failures of leaning trees are from compression failures.

A Cut Above the Rest

When forestry professionals look for quality products, they look to Forestry Suppliers, Inc. For over fifty years, we’ve offered the products you need when you need them, backed with superior customer service and a knowledgeable technical support staff. As always, your complete satisfaction is guaranteed with each order.

We’ve packed the 608 pages of Catalog 51 with the latest, most innovative products to meet your needs. To request your FREE copy of Catalog 51, call us today or visit our web site.

Find out for yourself why our outstanding products and service make Forestry Suppliers, Inc. a cut above the rest!

Free Catalog!

Catalog Request
1-800-360-7788

Forestry Suppliers, Inc.
www.forestry-suppliers.com
### Specialized Trucks in Stock

**1987 Ford. Under CDL, 6.6 dsl, 5/2 sp, 12’ flat w/4.5-ton National Knuckleboom crane. 25’ side reach. $24,500**

**1995 Ford F8000 Cummins dsl 5/2 sp, 33 GVW 16’ steel flat. $24,500**

**'85 LN 8000, 3208 Cat, 5 spd/2spd, 31,800 GVW, 4-ton Hiab 650 A w/20’ flatbed. $13,900**

**1997 Ford LTS 8000. 7.8 dsl, 13 speed tandem with 6.5-ton Hiab 140 crane. 21-foot side reach, 22-foot bed. $29,500**

**1986 International 1954 DT466, 10speed tandem with 7-ton National knuckle boom. 25-foot side reach. $19,500**

**1981 Ford LNT90006-71 Detroit, 8 speed tandem with 4-ton Hiab Crane Model 950. $16,900**

**1990 Peterbilt 320 8.3 Cummins diesel auto with 5-ton Effer Knuckleboom crane. 18-foot dump body with high sides, liftgate. $39,500**

**1991 Ford F700 crew cab. V8. 5sp/2sp, under CDL. 16’ wood flatbed, lift-gate. $19,500**

**Rayco Stump Grinders Full Line Available**

**Morbark Chippers Full Line Available**

**See US at www.OPDYKES.com**

**1985 Ford F700 V8 auto. 64,000 miles. 16-foot stake liftgate and 3.5-ton Pitman Knuckleboom. 24-foot side reach. $15,500**

**1991 International 4900 5speed, 29,000 GVW. $13,900**

**'93 Int’l 4900, DTA 466 (210 hp), 5sp/2sp, 32,200 GVW, 18’ Steel Flat/Dump. $19,500**

**'89 F-800 Crew/Cab, 7.8L diesel (210 hp), Allison Auto, p/s, air brake, 35,000 GVW, 9’ Dump. $19,500**

**'83 Int’l 1654, 7.3L diesel (170 hp), 5 spd/2 spd, 4.5-ton Hiab, 25,000 GVW $14,500**

**1986 Mack MS200 diesel. 5sp/2sp with 4-ton Hiab crane. 22-foot side reach, 22-foot bed. $14,500**

**1990 Ford LN700 V8, 5sp, A/B 4-ton Hiab crane. 16-foot side reach. $8,900**

**1996 Rayco Hydrastumper Model T-175. 650 hours. Excellent condition. $89,500**

---

**Opdyke’s Truck & Equipment Sales**

3123 Bethlehem Pike • Hatfield, PA (Phila. Area) 19440

(215) 721-4444

Please circle 50 on Reader Service Card

TREE CARE INDUSTRY - APRIL 2000
Getting to the root of trees' nutrient needs since 1941.

THE DOGGETT CORPORATION
The Tree Fertilizer Company
800-448-1862
Visit Us At www.doggett.net

Call for more information on slow-release fertilizers, soil amendments, micro nutrients, organics, mycorrhizal spores and an index of research publications.

A leaning tree with soil lifting and evidence of previous construction activity.

3. On the lower stem, look for:

A crack completely through the center of the tree. This is a shear crack.

When a tree is forced to lean under a significant load (wind), it will be under compression on the lower or downhill side and under tension on the upper or uphill side. Where the two opposing forces meet in the center is what are called the neutral fibers. This is where there is the greatest opportunity for a shear crack or slippage to develop, splitting the tree in half. A tree with a shear crack through its center has failed and is very high risk. Immediate action is necessary. Each side will continue to slip, and the tree will fail like two pages sliding in a book.

Field guidelines for assessing risk of failure in leaning trees with targets

All the trees described below have a high risk of failure:

- Tree with excessive (30 to 40 percent) lean.
- Leaning tree with a crack through the center of the stem (shear crack).
- Leaning tree with a crack (horizontal or radial) on the upper (tension) side and/or buckling wood on the lower (compression) side.
- Leaning tree with recent root-lifting, soil movement or soil mounding (partial windthrow).
- Tree with more than 40 percent of its roots dead, decayed or severed (loss
STUMP CUTTERS

2500-4
- 25 Horsepower • Self Propelled • Full Hydraulic Control • 35” Width

3500
- 35 Horsepower • Compact Tow Behind • Large Cutting Dimensions

3500-4
- 35 Horsepower • 35” Width • Self Propelled

4400-4
- 44 Horsepower Diesel • Remote Control Available • Most Powerful Portable

7500
- 75 HP Diesel • 1 1/2” Thick 31” Diameter Cutterwheel • Suspension Available • Remote Control Available

Hurricane
- 125 Horsepower Diesel • 6’ Tongue Extension • Suspension Standard • Remote Control

J.P. Carlton builds the highest quality stump cutters available. For more information, or to arrange a demonstration call: (800) 243-9335.

Located at:
121 John Dodd Road • Spartanburg, South Carolina 29303

Competitive Rate Financing Available

800-243-9335 / 864-578-9335 / FAX 864-578-0210
of anchoring support).

- Girdling roots around more than 40 percent of the tree's circumference, causing a decrease in structural support.

What is excessive lean? It's whatever you think it is in relation to the target you are concerned about. These are only guidelines.

Potential to fail is a measure of risk. These guidelines are presented to provide information needed to evaluate the potential of a tree to fail. Common sense, experience and professional judgement are required of the trained arborist.

Ed Hayes is a Forest Health Specialist for the Minnesota DNR, Division of Forestry. He is a speaker and does training sessions on how to detect tree hazards. He may be reached at 2300 Silver Creek Road NE, Rochester, MN. 55906; E-mail: ed.hayes@dnr.state.mn.us

All trees lean; all branches lean. But since they are self-optimized to load by adaptive growth or reaction wood, in most leaning trees this is not a concern.

HAVE YOU SEEN THIS PERSON?*

*P.S. It's Dick Williston • 15+ Years Selling Trucks For The Tree Industry.

CALL NOW!!! 888-550-TRUK (8785)

VALLEY

STERLING TRUCKS OF CANTON
4824 CORPORATE ST. S.W. • CANTON, OH 44706
330-639-1100 • FAX: 330-639-1116

FORD TRUCK SALES, INC.
5715 CANAL RD. • CLEVELAND, OH 44125
216-524-2400 • FAX: 216-524-8527

WEB: WWW.STERLINGTRUCKUSA.COM • E-MAIL: VSC@STERLINGTRUCKUSA.COM

Please circle 73 on Reader Service Card
Our Trucks Work As Hard As You Do

Write your own success story with a low mileage chassis and NEW body from Royal Truck & Equipment. Call today.

Royal TRUCK & EQUIPMENT
Toll Free 1-800-283-4090

6910 Route 309 • Coopersburg, PA 18036
Phone (610) 282-4090 • Fax (610) 282-8966
www.royaltruckequip.com

Please circle 58 on Reader Service Card
Industry Has Ear of Congress

A packed hearing room listened intently as representatives of small business criticized regulatory agencies during a three-hour oversight hearing on the misuse of opinion letters.

Congress is investigating OSHA's, as well as other agencies', use of guidelines and letters of interpretation to effectively change regulations without any prior notice to, or input from, the industries affected. This alleged practice amounts to a complete end-run around the congressional process.

According to Rep. David M. McIntosh (R-Ind.), chairman of the House Government Reform Subcommittee on National Economic Growth, Natural Resources, and Regulatory Affairs, OSHA's "guidance documents expand an agency's power beyond the point where Congress said it should stop."

Out of hundreds of affected industries, commercial tree care was one of three invited to testify. Representing the National Arborist Association (NAA) was David Marren, vice president and division manager with The F.A. Bartlett Tree Expert Company. During his testimony, Marren stated that OSHA had twice attempted to change regulations impacting the tree care industry by letters of interpretation.

Each time, the NAA threatened OSHA with litigation if it didn't withdraw its letter of interpretation. Each time, OSHA relented.

The first instance involved OSHA's long-existing Logging Standard. OSHA issued a letter of interpretation that all tree felling activities were regulated under the standard, regardless of the end-use of the wood, thereby subjecting arborists to the standard.

The NAA threatened to sue OSHA for effectively changing the logging standard and OSHA responded over a year ago with a letter revoking its letter of interpretation. Marren noted before the committee that the agency left the letter on the OSHA Web site for over a year after it had been revoked. It disappeared one week before the hearings.

The second instance involved another attempt to make full-body harnesses mandatory for aerial lift operators working near conductors—even though its regulation flatly states body belts with lanyards comply. Again, the NAA threatened to sue OSHA for changing the rules without notice or opportunity for comment, and again OSHA responded by pulling its letter.

Henry Solano, the Labor Department's solicitor, rejected assertions that the department was engaging in inappropriate rulemaking and failing to comply with the Congressional Review Procedure Act. Specifically addressing advisory letters requested by the NAA on inappropriate use of the logging standard in tree care and an attempted imposition of a full-body harness mandate in aerial lifts, Solano explained that OSHA uses the advisory letter process to "respond to requests for opinions." He repeatedly insisted during the hearing that these types of documents do not create new law or change existing law, but instead are an important part of the department's responsibility to execute the laws that Congress passed.

Solano claimed the documents are not legally binding, nor are they used as a basis for issuing citations in enforcement situations. Through its testimony and written submission for the records, NAA supplied information that strongly suggests that the reality is different from what OSHA says it is.

It is an abuse of power for OSHA to end-run the Notice and Comment requirements imposed by Congress. Apparently, some within OSHA agree, since NAA's threats to sue were met by a withdrawal of the illegal letters of interpretation.

House GOP Tries to Fix a Tax Problem

A law enacted last year changed accounting rules, adversely affecting those selling businesses. The law requires the seller to pay capital gains taxes from a business sale in an immediate lump sum, even if the transaction involved installment payments that stretch over several years.

Small business lobbying groups, who say this measure was enacted to offset the cost of other tax legislation, has the unintended consequence of lowering business selling prices by as much as 20 percent.

Rep. Bill Archer, chairman of the House Ways and Means Committee, recently announced that a provision reversing last year's decision was being added to a package of small business tax breaks intended to accompany a bill raising the minimum wage by $1 an hour.

As with almost everything else in Congress, there is partisanship over this issue. House Democrats don't favor a complete reversal, and the Treasury Department advocates allowing businesses with up to $1 million in gross receipts to use the old rule.

Tree company owners are encouraged to register their opinions with their Congressional Representatives.

Peter Gerstenberger is vice president of business management, safety & education for the National Arborist Association.
Specifications:

A. General:
1. All G-60 Galvannealed Material (zinc coated, resists rust)
2. All Wiring in Conduit
3. Sealed Lexan Lens Lights Meet FMVSS 108 Specifications
4. Anti-Sail Mud Flaps
5. Hoist with Power Take Off
6. Trailer Light Connector, Six Pole
7. Pintle, Pin, or Pintle/Ball Combination Trailer Hitch with Tow Hooks
8. Bodies: Mounted, Undercoated, Chemically Degreased, Coal Tar Epoxy Coating inside Chip Box, Primed and Painted
9. Stainless Steel Hinge Pins with Grease Zerks
10. Weatherproofed Tool Boxes
11. Chipper Air Exhaust Vents

B. Overall Body Dimensions:
- Length: 168”
- Height: 72” (Inside)
- Width: 92”

C. Chip Box Material: (Galvannealed)
- Floor: 10-ga. plate
- Sides & Front: 12-ga. plate
- Top: 14-ga. plate
- Tailgate: 12-ga. plate with tubing frame (270° swing)
- Runners: 8” structural channel
- Cross Members: 3” structural channel
- Rear Vertical Support: formed 1/4” plate
- Rear Horizontal Support: 4” x 4” x 1/4” square tubing

D. Tool Boxes: (14-ga. Galvannealed)
1. Underbody Tool Boxes:
   - (two) 48” long x 20” high x 20” deep

2. “L” Cross Box:
   - 24” long x 92” wide x 26” high across chassis rails
   - Door: 24” long x 48” high; six rope hooks, stationary shelf and water cooler holder

3. Ladder Box: (inside chip box)
   - 143” long x 17” wide x 27” high

4. Pruner Box: (inside chip box)
   - 168” long x 17” wide x 12” high

5. Locks:
   - Slam, keyed with hidden theft resistant rods

E. Optional
1. Tool boxes and Step-Type Rear Bumper
   - Behind rear axle 34” long x 20” high x 20” deep
2. Cab Protector
3. Top Ladder Rack with Access Steps
4. Electric Trailer Brake Control
5. Wheel Chocks and Holder

NOTE: Chassis Cabs Available to complete the package 102” CA Chassis Cab required.
Employment References: A Double-Edged Sword

By Wayne Outlaw

References are a critical part of the employment process. If you cannot obtain job references, you are severely limited in your ability to identify top performers. If the candidate cannot secure a reference from former employers, this can limit his ability to obtain a good position.

Statistics consistently show that employers check references on 25 percent or less of the prospective job candidates. Of those who check references, they generally check only one or two. Considering this lack of verification of performance, is there any wonder applicants claim skills and experience they don’t have? It should be no surprise to employers to discover new employees are having the same type of problems at the current job that they had at previous jobs.

In today’s tight labor market, with employers in a hurry to snap up anyone who looks like a great tree climber, is it any wonder references aren’t checked? It takes a little time, but it can prevent hiring an employee who may become a time-consuming management problem.

By following some simple guidelines, business owners can reduce their concern about giving and checking references of the employee’s previous job performance. After all, past job performance is the best indicator of future job performance.

Fear of Litigation

Many companies don’t give references because of litigation fears. If they do, they only give the dates of employment and job title. They may feel this eliminates their risk. Unfortunately, if they have this policy and don’t follow it consistently by giving favorable references for specific individuals or specific types of positions, this too could be considered discriminatory.

A landmark case of a national insurance company points out that not giving references has its pitfalls. An employee with an excellent work history was terminated in a dispute over legitimate business expenses. Her supervisor asked her to re-submit her expense report with reduced expenses to correspond to the expense budget. She refused and the supervisor fired her for gross insubordination. The company decided not to give her any type of job reference.

As you can imagine, she had difficulty finding work in the insurance industry. As a result, she sued her former company and collected for defamation and lost wages. The court found that no reference could be construed as a negative reference.

Since it is important to be able to provide and obtain references, businesses must find ways to give references without exposing themselves to litigation.
Giving references

To stay out of the trouble, businesses should follow several key points.

- **Tell the truth.** The truth is a defense against defamation. An honest, specific evaluation of an employee's work history and an accurate appraisal of his ability can be defended. This puts a burden on employers to keep accurate performance data.
- **Ensure the information is given only to those with a need to know.**
- **Stick to factual statements about the former employee's actual job performance.**
- **Avoid generalities and subjective judgments.**
- **Limit references to the specific skills or attitudes needed for the job.**
- **Don't allow personal feelings to color references.**
- **Apply all policies consistently.**

In most states, employers who act in good faith have a "qualified privilege" to communicate an accurate appraisal of performance, even if it otherwise might be considered defamatory.

Getting references

Obtaining references requires just as much care as giving them. Here are several tips for reaching the right people to discuss past job performance of your favored candidate.

- **Obtain permission from candidates to check references.** It is best if permission is written or included as a question in the job application.
- **Ask for a number of names so you can avoid the handpicked references, such as close friends or former coworkers.**
- **Ask for names of at least three former supervisors, three former coworkers and, if supervision is involved, three former subordinates.**
- **Seek out people who know the actual job performance of a prospective employee in previous positions.**
- **If the job involves customer contact, ask for a list of customers and permission to contact them.**
- **To check references from a current employer, ask for names of those that are no longer employed with the company or would speak confidentially.** In today's businesses, there will most likely be individuals who have left the company who know the candidate's performance. If the prospective employee cannot provide names of those who know their work history, it should be a cause for concern. Generally, top performing individuals not only know who can describe their work performance, but will be willing to assist you in locating them. Remember no references or a lukewarm reference is a "red flag" and should be clarified before hiring.

In today's competitive environment, identifying and attracting top people is critical to the growth of businesses. It is critical that accurate references are given and obtained to make sound hiring decisions. Those you hire today are your future.

Wayne Outlaw is author of "Smart Staffing: How to Hire, Reward, and Keep Top People For Your Growing Company." He may be reached at http://outlawgroup.com.
The STIHL 023C chain saw has innovations for arborists and tree surgeons. STIHL Elastostart is a uniquely designed starter grip with a built-in shock absorber designed to reduce the kick associated with high-compression engines. In addition, a manual pump primer forces fuel through the carburetor and a decompression valve lowers the compression in the cylinder. When combined, they make the saw remarkably easy to start. The Quick Chain Adjuster (QCA) System allows the user to adjust the chain without tools. The operator simply twists the large lever in the center of the sprocket cover and adjusts the chain by pushing the adjustment wheel with his or her thumb. Of course, the saw must be shut off before the adjustment is made. The saw is equipped with a 14-inch lightweight laminated guide bar that weighs 40% less than its predecessor. The chain saw weighs 10.1 pounds and has a 2.45 cubic inch (40.2cc) engine and comes with a one-year consumer use warranty and a 90-day commercial use warranty. Full warranty details are available at authorized STIHL dealers. For more information, contact STIHL at (757) 486-9151 or visit their web site at www.stihlusa.com.

Vermeer's mid-size 50 hp (37kw) SC502A stump cutter with gearless drive system provides the efficiency of a mechanical drive without engine side load. The beltless system drives a 26-inch (66cm) cutting wheel and requires minimal maintenance compared to belt-drive systems. The raised rear deck increases chip capacity and gives better visibility. The 60-inch (152cm) tongue extension delivers five feet of cutting action before repositioning the tow vehicle. A four-cylinder Perkins 104-22 diesel engine is mounted in line with the drive train for a compact profile, only 62.5 inches (158.8 cm) wide. The narrow design places the air cleaner and radiator farther from dirt and debris and enhances maneuverability through confined areas. Optional wireless remote controls permit operation from up to 100 feet (30.5 m) away. The AutoSweep system maintains the rated engine speed by automatically adjusting the sweep rate of the cutter wheel, delivering maximum horsepower to cut up to zero at the inner edge, leaving a smooth ring for easy mulching, etc. It can cut perfect circular rings as small as 12 inches in diameter. It comes with sealed bearings for extended wear life and easy maintenance and features knobby tires for added traction. For information call (800) 679-8201 or visit their web site at www.turfco.com.

Turfco's 512 Sod Cutter is built for maneuverability and engineered to keep machine weight down while structurally designed to cut through the toughest soil conditions. The sod cutter is operator-friendly, with handle grip clutch control that stops the cutter instantly when the operator releases it and the operating instructions are right on the handlebar. It features an optional installer blade for putting in tree rings. The 12-inch angled blade cuts down to a three-inch depth at the outer edge, up to zero at the inner edge, leaving a smooth ring for easy mulching, etc. It can cut perfect circular rings as small as 12 inches in diameter. It comes with sealed bearings for extended wear life and easy maintenance and features knobby tires for added traction. For information call (800) 679-8201 or visit their web site at www.turfco.com.

Delavan Spray Technologies' roller pumps, designed for agricultural spraying and pest control, are compatible with most liquid fertilizers, herbicides, fungicides and pesticides. Close tolerance machining gives high efficiency over long duty cycles without expensive downtime. A choice of three body alloys meets various fluid requirements, a stainless steel shaft and rotor assembly, polypropylene rollers and Viton or florocarbon seals contribute to longevity. Flow ranges from 6.5 to 46 gpm; maximum pressure is 300 psi. Pumps may be used with gas or electric motors or 1 ¼-inch or 1 3/8-inch PTO drives. A full range of quick couplers and adapters are available. Where PTO or independent power is not available, Delavan offers a 12 VDC four-roller pump/motor package that runs off the vehicle's electrical system. It can deliver 6.8 gpm at 40 psi with only a 28 A current draw. For information call (800) 621-9357.

Bandit Industries' Model 280XP hydraulic feed, disc-style chipper is now equipped with a new hydraulic feed system that provides 60% more hydraulic pulling power than the previous version. Not only has the hydraulic pulling power been increased, but the bottom and top feed wheels both have new knife style teeth that more aggressively grip material being fed into the chipper. The improved hydraulic feed system can be found on all Bandit chippers produced after November 1, 1999. Model 280XP is also equipped with the easy-climb spring tensioning system, which provides zero spring pressure on the feed wheels at the pinch point with the spring pressure activating after the feed wheels open to approximately six inches. Spring tension or additional pressure increases as the feed wheels open up providing crushing power when the machine needs it most. For information, contact Bandit at (800) 952-0178 or (517) 561-2270.
A CUT ABOVE
For the finest brush cutters, point cut pruners, pole pruners and replacement poles, you can’t beat P-F technology.
Pruner blades are made of tough forged alloy tool steel, heat-treated for exceptionally long life.
Both blades cut – for easier operation and to avoid unnecessary damage to bark and cambium, while promoting quick healing.
Pruner poles have snug-fitting, locking sleeves that won’t snag leaves or branches.
P-F tools: a cut above the rest.
Get our catalog. Call 508-835-3766.

Levco’s newest model, the HD45A stump cutter, features a 25 hp Kohler Command engine and all hydraulic drive. It is hydrostatically self-propelled and fits through 36-inch fence gates. While turf tires are standard, it is available with optional super-lug tires as shown. Because it cuts up and down with the grain, it is easy on the operator. The axle automatically locks when cutting, so the operator has precise control. For more information, contact Levco Manufacturers, Inc. at (800) 524-9252 or e-mail at Levcoi@aol.com.

Dow AgroSciences’ Transline herbicide received full federal label registration from EPA for both broadcast and spot applications in forests giving greater flexibility than with previous Special Local Needs labels. It controls kudzu and thistles without harming desirable trees, tackles elderberry, knapweed, Canada thistle, musk and bull thistle in conifer and mixed hardwood plantings. Its selective nature allows many desirable plants to remain unaffected. There are no grazing restrictions, making it ideal for wildlife management and wild parklands. For information call Dow Agroscience at 800-263-1196 or visit www.dowagro.com.

Corona Clipper announces its new line of extendable handle garden tools. Each tool has a strong, lightweight aluminum handle that adjusts from 18 inches to 32 inches in length. Made of high carbon steel, tool heads are fully heat treated for durability. They feature a long-lasting black carbon dioxide coating that resists chips and rust – making them ideal for inside or outside use. The handles have a soft-textured ergonomic grip and a high-impact thermoplastic ferrule and a hanging ring to ensure easy storage. For more information, contact John Reisbeck at Corona Clipper, (800) 847-7863 or visit their website at www.coronaclipper.com.
New Growers Association

The Accelerator Growers Association (AGA), an agricultural cooperative of nursery tree growers, has been formed to utilize advanced horticultural technology to grow superior trees for the landscape industry. The AGA has been licensed exclusively to use and distribute The Accelerator Container Growing System, a patented container design, which prevents root girdling by air-root-pruning. The AGA has a membership made up of some of the foremost tree nurseries in Florida. Since its formation, the Board of Directors, under the direction of AGA Executive Director Terry Mock, has been meeting to establish policy for the cooperative. A fundamental goal of the AGA is to produce a higher quality tree to meet the new Florida Department of Agriculture Tree Grades and Standards. For more information contact Executive Director Terry Mock at (561) 683-3278.

Callbacks

Our article on mini lifts featured in March TCI included the PC266, manufactured by Polecat Industries. Its weight was listed as 9,700 pounds. That number is incorrect. The self-propelled, lightweight unit tips the scales at 2,480 pounds. We regret the error.

RESISTOGRAPH-F

Know Your Trees Better

Examine roadside trees, trees in parks and recreational areas, wooden poles, forests, timber structures such as bridges, framed buildings and playground equipment.

Easily operated, light weight and compact.

Phone/Fax: 888-514-8851
http://www.imlusa.com
E-Mail: sales@imlusa.com

IML Instrument Mechanic Labor, Inc.
3015 Canton Road, Suite 14
Marietta, GA 30066 USA

Please circle 36 on Reader Service Card

BRUSH CHIPPER KNIVES

HIGHEST QUALITY
BEST PRICES

- All Orders Ship Within 24 Hours
- Knives for All Models and Makes in Stock
- Industrial Quality Cutting Tools for 75 years

800-223-5202

Please circle 77 on Reader Service Card
Revised Standard Approved

The Accredited Standards Committee B 175 of the American National Standards Institute (ANSI) has received notification from the Board of Standards Review of the approval of the revised ANSI B 175.2 Standard for Hand-Held and Backpack Gasoline-Engine-Powered Blowers. The standard is voluntary and includes bystander sound-level test procedures and labeling provisions for the sound level of gasoline-powered hand-held and backpack blowers. The most recent revision to the ANSI B 175.2 Standard is intended to improve the accuracy and repeatability of the bystander sound level test procedures and to expand on the blower labeling provisions. This industry standard has been integral to efforts by state and local governments interested in managing blower sound levels. Copies of the ANSI B 175.2-2000 Standard can be ordered from Global Engineering Documents at 800-854-7179 or through Global's Web site at http://global.his.com.

He speaks your language.

Providing you with:
- Fast Reliable Service
- The Right Tools for the Job
- Expert Advice
- A Great (Free!) Catalog
- Professional Tools for the Tree-Care Industry: Hand Tools to Climbing Gear, Pruning Supplies to the Latest Diagnostic Equipment.

Call Now! 800-441-8381
or fax: 888-441-8382
Engineering a Tree Removal

By Mark J. Chisholm

In years past, rigging a tree for removal seemed to be less complex. Choosing the necessary gear usually meant no more than the right size rope and chain saw. In retrospect, it now appears as if those days were actually more difficult and a whole lot longer. Arborists were limited by such things as the size and strength of limbs and crotches, as well as where they extended from the trunk. The highest suitable rigging point was often less than desirable in terms of leverage and the drop zone it created. In many ways the tree determined how it would be rigged—as well as how difficult the task would turn out to be.

The arborist of today, though he or she has a wide range of hardware and equipment to sift through, also reaps the rewards of technology. The tree may still have a lot to do with the rigging plan, but the freedom given by such things as false crotches and lowering devices helps to alleviate some of the climber’s stress. Climbers can now create a false crotch in almost any part
of the tree and utilize the strength of the trunk without having to rely on the strength of branches and natural crotches. Winch-style lowering devices can hoist large limbs and add more control to the operation.

Despite all of this technology and technique, however, the ability to perform a tree removal with no more than a rope and climbing gear should be the foundation of all training in removal techniques. Sometimes the fastest and easiest way is the traditional method of natural crotch rigging. Besides, what would happen if you forgot your pulleys (blocks) or damaged one of the components during a removal? Would you still be able to complete the job safely and on time?

Since the advent of the arborist-rigging block, complex pulley systems have come to be a daily routine. How these systems affect the distribution of a load throughout a tree is a topic that warrants further research. To analyze these forces would require significant knowledge of physics and its application to arboriculture. We can, however, begin to set up guidelines on what might prove to be a better rigging solution for a given situation by looking at a few engineering concepts. You may recall the work of Dr. Peter Donzelli, who recently began conveying some of these concepts to the arboricultural community. These are the very same concepts needed to establish our guidelines.

The most basic of the ideas we must fully grasp is the fact that there is a definite difference between simply hanging an object from a line in a tree and hanging an object from a pulley that is anchored in the ground. In the first scenario, the tree will only see a force equal to that of the load, whereas the tree with the load hanging from a pulley may see twice the force of that load.

The easiest way to explain this is to say that in order to support a load of 50 pounds, we need 50 pounds of opposing force on the other end of the rope to keep the load from falling. Force always travels in a straight line and remains unchanged (unless additional force is applied from another source). Consequently, there is 50 pounds of force (lbf.) at the load end of the rope, which travels all the way to the anchored end where the same 50 lbf. is applied. If the rope is deflected through a block in a tree, we would have 50 lbf. pulling downward from the load side, and 50 lbf. pulling downward on our block from the anchor side. The resulting force on the block and its anchor would be 100 lbf., or twice the load (Fig. 1).
It is important to note that this is only the case in an ideal situation. That is if the pulley is 100 percent efficient (no friction), the ropes are hanging completely parallel (180 degrees) and the load is static. The load is said to be static when all of the forces balance and the load is still.

This is not to imply that the block will never see more than twice the force of the load on the line, especially during a dynamic situation. The forces applied at various points in the system will change when these variables change. In this article for purposes of simplicity, we will assume that ideal circumstances exist. So what does this mean to the arborist? Well, it means that if we drop a 1000-pound oak log into a block while working down trunk wood, when the forces balance, we could have 2000 pounds of force exerted on our block. The direction and influence of forces on objects are referred to as "vectors." Can we manipulate these vectors in our favor to lessen the possibility of excessive force in the tree? Absolutely!

Multiple-block rigging
Sometimes the one who creates a mess the fastest isn't the first one done. In many situations, it may be worthwhile to spend a few extra moments creating a multiple-block rigging system. By using more than one pulley, you can gain a great deal of efficiency and safety. The system will be able to support more of a load, enabling you to perform work faster and easier with more tolerance for error. The force will, in turn, be distributed between multiple points in
the tree while also doubling as a safety net in the event of equipment or tree failure at any single point. Add one more block on a whoopie sling that you can carry on your harness and you are able to relocate a drop zone or reduce a dangerous swing at any given moment. The direction of the forces may also be coerced into traveling along the vertical axis of the tree by deflecting greater or lesser rope angles at each place. This concept alone can dramatically expand your working load limit. And since branches are more strongly attached on the underside than the top, groups of pulleys can be arranged in a manner that will exploit this anatomical strength as well. All of these factors combine to equal a safer, easier and more efficient operation, which should be the primary objective on every job. The ground crew will also appreciate this courtesy.

Columnar strength
Forces are vectors, since they have a definite size and direction. The direction of a vector determines which way a force is acting. Since a rope can only support a load along its length, the rope indicates which way the force is acting. If we turn a rope through a pulley, the force is now acting in two directions—the direction of each leg of the rope. The resulting force on the pulley now depends on these two component forces and the angle the rope enters the pulley. These two component forces create a single force that would cause the pulley to move toward the middle of this angle if it were free to move, much in the way a bow and arrow works (Fig. 2).

Why is this important in tree rigging? Well, if we can manage to direct the force exerted on the block to act along the length of a tree leader, as opposed to across the grain horizontally, we utilize the natural columnar strength of the tree, which can give us a greater working load limit. Everyone should understand how a 2-inch diameter limb is much easier to break if we step on its middle instead of standing it upright and stepping on it end to end. It would be nearly impossible to break. We can mimic this in the tree by incorporating more than one block into our rigging.

**Block loading versus angle of deflection**
In order to calculate the load on a block, we need to determine two things:

1. The load on the rigging line and a block-loading factor. This loading factor is determined by the angle by which the rope is deflected by the block. The angle that we are referring to is not the angle between the two legs of rope, but the angle between an imaginary line drawn straight through the block from the load,
and the leg of rope entering the block from the friction device (Fig. 3).

The greater the angle created by the block, the greater the resultant force placed on that block. For example, a block that turns a rope 180 degrees will see a load equal to twice that of the load on the rope itself. Conversely, a line that enters the block at 0 degrees or runs straight through the block would create a resultant force of zero on that block. In the middle of the road, we have a 90-degree angle. The block-loading factor of a right angle would be 1.41 times the weight of the load (Fig. 4).

How can this be useful in our day-to-day operations? We can create lesser pulley angles on smaller rigging points or structurally compromised parts of the tree and use a second pulley to create a larger angle at a more beneficial spot to support more of the load. This can be very useful when dealing with co-dominant stems and other structural flaws. The rigging line itself can act as a temporary cabling system to lace the stems together (Fig. 5).

The resultant force will actually close the space between the two stems when loaded, instead of pulling them away from one another. This would be a much more efficient rigging plan because it may enable you to remove larger sections without the risk of failure from this defect. This can also be of use when the most ideal drop zone is created by a smaller lead than preferred for lowering. We could support the majority of the load at a stronger point in the tree and redirect it to a better area for lowering with a secondary block.
Negative impacts

If we are not careful with our design, the forces may be multiplied to the point of disaster. In terms of generating the least amount of force with our rigging, removing the false crotch altogether would be optimal. Instead, replace it with a friction device stationed in the canopy and lower directly from it. This way you are only subjecting the tree to a force equal to that of the load itself when examined statically. Since this is usually impractical, we need to look at other options.

The double-false crotch is one of the most unstable situations. By this I mean the practice of draping a pulley that is anchored to the end of a line over a natural crotch and running a lowering line through that pulley. To do this, we need to tie-off the end of the rope supporting the lowering block. We now have four legs of rope being supported by one limb or crotch. This scenario is dangerous because we have subjected that supporting crotch to a force equal to about four times that of the load. A weight of 500 pounds is now equivalent to a 2,000-pound load (Fig. 6).

A better possibility here would be to use the removable false crotch technique advocated by Robert Phillips, which uses a girth hitch in the tree to suspend the block and lowering line. There is no need to anchor the down leg, and, therefore, the load is not multiplied four times. It will see approximately half of the force of that in the other case.

The facts described in this article all point in one direction. To borrow a quote from Donald F. Blair in his book Arborist Equipment, "...the weakest link in our rigging system should be the lowering line." I also feel that, with the exception of the tree itself, the strongest link should be the block and the sling used for its attachment.

All of the descriptions leading to this indicate that the block will see more of a load than any other piece of equipment in the system, and, therefore, must be compensated for accordingly. Most blocks are also tested by a tensile pull and given a working load limit (WLL). This limit may need to be translated as half of that which is inscribed if you equate it to the size of the weighted object instead of the overall force on the block. In other words, a block labeled with a WLL of 2,000 pounds is interpreted as being able to withstand consistent loads of 2,000 pounds without failure. This does not mean that we should drop 2,000-pound pieces into that pulley on a daily basis and expect it to prevail. We must first consider the fact that the pulley will see a load equal to twice that of the rope, not to mention the possibility of a shock load. This 2,000 pound WLL really should be viewed as a 1,000 pound WLL, unless otherwise indicated by the manufacturer.

The design of the system is the key to its success. If the pulleys are in poor alignment with one another, the rope is not allowed to run cleanly through the block. Not only will there be added friction, the rope may also run across the side plates of the block. This can actually cut directly through your rigging line, leaving you subjected to the merciless laws of gravity. Many blocks are not meant to allow the rope to be used in this fashion and demand

ArborWare® Software Users...

- Manage General Tree Work, IPM, Plant Health Care, Pesticide Programs, Routine Maintenance, Landscape and Lawn Care programs
- Comply with EPA and state agency chemical usage reporting laws
- Track unlimited client transactions for order, invoice, A/R, plant inventory, work history, and more...
- Generate unlimited reports on demand: sales trends, job costing, commissions, taxes, balance sheet ...
- Design your own queries and reports with the flexible Report Builder
- Increase Sales by utilizing numerous Target Marketing methods to new and/or existing clients
- Export client data to popular word processing packages such as WordPerfect and MS Word, and other formats such as ASCII, Excel and others...
- Maintain equipment/fleet maintenance records and a whole lot more, safely and reliably for many years!

Don't Settle for Less ... Demand ArborWare®!

CREATIVE AUTOMATION SOLUTIONS • 1-800-49-ARBOR (492-7267)
Please circle 22 on Reader Service Card

TREE CARE INDUSTRY - APRIL 2000 29
a certain amount of respect by the user. Just as there is more than one way to skin a cat, there always seems to be more than one solution for the same end result when dealing with tree removals. That is why the best climbers look at each job individually and create a unique plan for the specific job. I believe the safest route is the one the operators feel the most comfortable with, otherwise they will be unable to perform with the necessary confidence. They are the ones committed once the cut is made and should have the final say—assuming, of course, a level of experience sufficient for the task. As is so often the case with any rigging system, there are some limitations to using a multiple-block rigging system. This article is meant to provide only broad guidelines and to relay some basic concepts concerning the uses of rigging blocks. Nothing can replace the need for competent training when personal safety is at risk.

In summary, it should be noted that, while most arborists are not engineering graduates or experts in the field of physics, the techniques we employ should be both practically oriented and scientifically sound so that we may complete our daily tasks safely and efficiently. I hope that you can find use for this information and benefit from it as I have.

Mark J. Chisholm, an owner of Aspen Tree Expert Company in Jackson, N.J., and 1997 International Tree Climbing Champion. Special thanks to Richard (Richey) Wright, executive director of Rescue Services for ESE Training Associates Inc., for all of his work and expertise to help maintain the accuracy and clarity of this article.

Figure 6

**ANCHORED LINE (TIED-OFF)**

**ANCHORED LINE (TIED-OFF)**

---

The Name you know ...
Braided Safety Blue High-Vee

... The line you Trust ...
Wire Core Flipline

... The key to Safety...

**NEW ENGLAND ROPES**

848 Airport Road, Fall River, MA 02720 Tel: (800) 333-6679 Fax: (508) 679-2363 www.neropes.com ISO 9001 Registered

Please circle 48 on Reader Service Card

---

TREES CARE INDUSTRY - APRIL 2000
Experience the Woodsman Difference

SIZE DOES MATTER

Whoever said size doesn’t matter has never seen a WOODSMAN in action! With 20% more feed and cutting width, Woodsman handles the toughest jobs with ease.

Full 2' Knife Cut

Please circle 75 on Reader Service Card

Woodsman
614 W. Fifth St. • Clare, MI 48617 • 1-800-953-5532
The Grand Award is the highest award bestowed by the Excellence in Arboriculture program.

**Company:** The F.A. Bartlett Tree Expert Company  
**Located:** Elmsford, New York  
**Category:** Commercial over $5,000  
**Project:** The Fifth Avenue Elms  
**Project Location:** New York, New York

The project consisted of pruning one hundred sixty-seven American elms along the sidewalk perimeter of Fifth Avenue and Central Park. The primary goal was to reduce the risk to vehicular and pedestrian traffic under the trees and to clear visual obstructions from the path of vehicular traffic. Also important to the project was maintaining tree health and vigor by the removal of decayed, diseased or weakly attached branches.

All the goals were accomplished. The sidewalk was made much safer by the removal of the large, hazardous dead branches. The street signs, lighting and traffic lights are now clearly visible to vehicles and bicyclists.

**Company:** Treeworks, Ltd.  
**Located:** Montpelier, Vermont  
**Category:** Residential under $5,000  
**Project:** Caudell Preservation Project  
**Project Location:** Montpelier, Vermont

This project involved the structural preservation of a severely decayed, yet physiologically healthy, apple tree. The homeowner considered the tree a "Natural Sculpture" and a primary component of the landscape design. A support system needed to be designed and installed that would improve the structural integrity of the tree, since its removal was absolutely forbidden.

The goal was to extend the life span of the apple tree that was considered crucial to the landscape of an upscale, residential property. The decay was substantial. When combined with the extreme angle of the trunk and weight distribution, an innovative, custom-made support system was needed.

Excellent stability was provided to an extremely serious condition as a result of this project. The innovative combination of the "V" shaped, dual-zone, natural-dampening cable connection combined through the "tie-brace" and shock-absorbing ridged U-brace, provided not only efficient and all-encompassing structural integrity, but was, as the client put it, "a sculpture all its own."
The 2000 Excellence in Arboriculture Awards ceremony, held at the NAA’s Winter Management Conference in Bermuda, showcased the profession’s finest examples of tree care.

Presented in partnership with Husqvarna Forest & Garden Company and Vermeer Manufacturing Company, the ceremony was highlighted by a multi-media video presentation which started with a feature on last year’s winners. All 2000 award winners were then profiled in a fast-paced visual display of truly superior tree care practices.

While selecting the 2000 winners, the panel of judges considered adherence to A300 standards, sensitivity to species characteristics, finished product compared to tree(s) prior to the start of the project, challenges involved in project and impact of the finished product on tree(s) and site. The 2000 judges for Excellence in Arboriculture were: Michael Zimmerman, Timothy Gamma, Jeffrey Ling, Dr. Harvey Holt, Dan Christie, and William Kruidenier. Judges for rigging entries were Robert Phillips, Sam Noonan, Ken Palmer and Donald F. Blair.

The National Arborist Association would like to express its great appreciation for the time spent by all the judges, members of the Excellence Committee and partners, Husqvarna and Vermeer, for making this program a great success. In order to bring next year’s winning entries before as many arborists as possible, the 2001 awards ceremonies will shift to TCI EXPO, which will be held in Columbus, Ohio from Nov. 1-3.

Please call 1-800-733-2622 for more details about Excellence 2001.

Company: Trees of Hawaii, Inc.
Located: Kauai, Kapolei, Hawaii
Category: Commercial over $5,000
Project: National Memorial Cemetery of the Pacific
Project Location: Honolulu, Hawaii

The National Memorial Cemetery of the Pacific is the gravesite for more than 41,000 veterans and their relatives. More than five million people visit the cemetery each year. The Chinese banyan trees that line the street leading to the monument were planted in the 1960s, and the Narra trees were planted about ten years later.

The goal of the project was crown containment of the Chinese banyans to create a uniform and formal effect. This would also increase the light penetration to the understory plantings and reduce the growth of mold on tombstones beneath the tree canopies.

The result of this project was a striking visual display leading to the featured monument that honors the war veterans. The Chinese banyans, with their clean, structured lines and well-defined canopies, create a formal appearance, synonymous with the upright, uniform look of the military and provide a fitting tribute to those who gave their lives in service to our country. The Narra trees, while less formal, contributed to the cemetery’s beauty with their naturally symmetrical canopies and cascading branches. The results speak for themselves.

Company: TruGreen LandCare Golden Bear Arborists
Located: Monrovia, California
Category: Technical Rigging
Project: Frontierland Removal
Project Location: Anaheim, California

This project involved the removal of a large Italian Stone Pine at the front gate of Disneyland’s Frontierland. This tree had a diameter of 52 inches and was more than 65-feet high with a canopy more than 70-feet wide. What made this project unique was the size of the tree, the amount of time available to complete the project, when the work needed to be performed, and the technical rigging used to bring the tree down without damaging the structures underneath.

The tree was taken down one limb at a time after the park was closed for the night, and clean up was completed before the park opened in the morning. By daybreak, the tree was gone and a decorative light post, a mere two feet from the base of the tree—in the same planter—as untouched. An extensive amount of manpower, planning and equipment was used during this project and the results were a huge success.

The tree was removed without causing a single scratch to any of the structures around the area and the clean up was completed before the park opened.

continued on page 34
Grand Award

Company: The F.A. Bartlett Tree Expert Company
Located: Yorktown, Virginia
Category: Commercial over $5,000
Project: College of William & Mary Ice Storm
Project Location: Williamsburg, Virginia

Following a Christmas Eve ice storm in 1998, the College of William and Mary in Williamsburg, Va., faced a seemingly impossible situation. With only two weeks left until students returned to the campus, the entire area was filled with hazardous trees.

The project involved the repair and pruning of trees damaged by the ice storm. Most of the trees on campus were damaged to some extent. The damage consisted primarily of broken limbs and leaders. Crown-restoration pruning was needed to remedy hazards and promote proper wound closure and re-growth. The key elements of the project included the need to provide for the safety of students and tourists during and after the project, preserving the historic trees on this 300-year-old campus and completing the majority of the work before classes resumed after the Christmas vacation.

As a result of this work, the campus reopened on schedule with minimal inconvenience to the staff and students. Crown-cleaning what remained of the trees helped to improve tree health and safety. The crews worked 1600 hours, pruned over 430 trees, and removed approximately 50 heavily damaged trees.

Most students and visitors returned to the campus never knowing that anything had happened. This project was a shining example of the tree care industry and its people at their very best.

Heritage Awards

The Heritage Award is given to a company for their pro bono maintenance of trees that are of historic interest or significance. The project must be of Grand Award quality to win. This year two companies received this award.

Company: TruGreen LandCare Golden Bear Arborists
Located: Monrovia, California
Category: Tree Maintenance
Project: Library Park – Prune and Brace
Project Location: Monrovia, California

This project involved a historic tree in Library Park in the City of Monrovia, California. According to city records, the tree, a Moreton Bay fig, was approximately 97 years old. What made this project important was that besides being a historic tree, an extremely large limb was resting on the roof of the public library building in the center of the park.

After much discussion, the decision was made to brace the limb instead of removing it, thus avoiding undo harm and stress to the tree. A crane was used to raise the limb off the roof, then the limb was braces and the tree pruned. In an attempt to minimize the impact to traffic around this busy park in the center of the city, all this took place on a sunny Saturday in August.

The successful pruning and bracing of this historic tree preserved its character for everyone to enjoy. The judges commented that this was a wonderful solution, preserving the integrity and beauty of this historic tree.

Company: Trees of Hawaii, Inc.
Located: Kauhi, Kapolei, Hawaii
Category: Tree Maintenance
Project: Indian Banyan at Kapiolani Park
Project Location: Honolulu, Hawaii

Kapiolani Park represents King Kalakaua’s first attempt to introduce Western culture to Hawaii. The park was the gathering place for all of the Hawaiian Islands and the parade grounds of the monarchy until its overthrow in 1893. Lowell Dillingham, as part of a summer project sponsored by the Honolulu Park Commission, planted the banyan trees in 1921. The park presently has hundreds of trees and is used for jogging, special events and general enjoyment.

In an effort to improve the health and aesthetics of trees in the community, Trees of Hawaii decided to “adopt” an Indian Banyan tree. This tree was selected for its pruning challenges and for its uniqueness, having a jogging/bike path through its pseudo trunk.

The goal of the project was to improve the health and aesthetics of the tree, increase safety for pedestrians and vehicular traffic by removing dead or obstructing branches, clear utility lines and facilitate the natural support of large, horizontal limbs.

As a result of the project, the tree was cleared from the power lines, cut back from the roadway, crown cleaned and thinned, and the horizontal limbs braced for future limb support. The project was a great success.
Awards of Distinction

An unprecedented seven entries qualified for Awards of Distinction this year.

Company: Hendricksen the Care of Trees
Located: Wheeling, Illinois
Category: Construction Site Tree Preservation
Project: Tetra Pak
Project Location: Vernon Hills, Illinois

The developer owned a majestic, wooded site and wanted to find a tenant interested in saving as much of the property's natural resources as possible.

The primary goal of this project was to construct the building on the site and make it look as if it had always been there.

The first task was to remove the undesirable, non-native brush from the building envelope and parking areas so the quality small trees could be identified for transplanting. The undesirable trees and underbrush were safely removed while preserving the desirable trees. Next, complete tree care was provided for the remaining trees on site, including fertilization, root pruning and crown cleaning.

The long-term goal of the project is to improve the surrounding area by removing the invasive materials and to plant native trees to increase bio-diversity, thus creating an environment where the people working and visiting the area feel good about their surroundings.

The judges commented, "this is what tree preservation is all about. I would enjoy working in the environment preserved and created through this project. Superbly done!"

Company: The Care of Trees
Located: Gaithersburg, Maryland
Category: Commercial over $5,000
Project: Rock Spring Office Park
Project Location: Bethesda, Maryland

The site was originally used for agriculture, then developed into a single owner-occupied office building. In 1995, the site was transformed into an office park with the construction of two additional buildings. Many of the trees on the site were removed to make way for new buildings, the parking garage and roadways. Several trees were preserved and needed special care during and after construction. Having the history of the trees and a client committed to ongoing tree care made the success of this project possible.

The goals of the owners and the management company were achieved by maintaining new and existing trees in a safe, healthy and aesthetically pleasing manner. This project shows how a long-term commitment to quality arboricultural care can enhance and improve trees.

Company: The Tree Doctor
Located: Shanes Park, Australia
Category: Tree Relocation
Project: North Sydney Olympic Pool
Project Location: Sydney, Australia

Builders were contracted to refurbish the North Sydney Olympic Pool and to build an additional pool on the site. A large, 35-year-old Hills weeping fig was in a prominent position adjacent to the Sydney Harbour Bridge, but unfortunately, this tree was located in what would be the deep end of the newly proposed pool. Many of the local residents were unhappy that this tree was to be removed. It was decided that the tree should be retained and relocated closer to the bridge, where it would not obstruct views.

The goals of this project were to transplant the tree to the new location and provide ongoing care on a weekly basis for the following year. The tree was successfully moved, on time and on budget. Three months after the relocation, the tree is in stable condition. There is a mass of new root development, and the tree, initially thinned by 25 percent, has already put on six inches of new growth.

Company: Arbor Care/HortScience
Located: San Carlos, California
Category: Construction Site Tree Preservation
Project: Sun Microsystems Agnews Campus
Project Location: Santa Clara, California

The goal of this project was to integrate a historic building and heritage trees into a modern campus setting. The city mandated that 70 percent of the existing tree inventory should be preserved during and after construction to preserve the integrity of the site. The goal was to implement a tree-protection zone and execute the specific tasks in the tree-protection plan.

The vast majority of trees on this site were historic and irreplaceable, the largest examples of these specimens found anywhere in the Santa Clara Valley. Their average height was 80 feet with a crown spread of 50 feet.

All trees tagged for preservation were successfully brought through the construction process and all the transplants were successful. Organic material collected on the site was recycled and used as mulch on site. Most importantly, all the work was completed in a safe and orderly manner.
Awards of Distinction

Company: Trees of Hawaii, Inc.
Located: Kauhi, Kapolei, Hawaii
Category: Commercial over $5,000
Project: Mahogany Trees on Kalakaua Avenue
Project Location: Honolulu, Hawaii

The Forestry Department of the Territory of Hawaii planted these mahogany trees along Kalakaua Avenue in 1912 as ornamental shade trees. The trees had only been pruned on an "as-needed" basis in the past, generally when complaints were received that the trees were blocking signs, generating debris or in this case, creating a hazard by the failure of large limbs. The Forestry Department's primary concern—recognizing the age and rarity of these trees—was to save and preserve as much of each tree as possible.

The primary goals of the project were to improve the health and structure of the trees, increase safety in this high-traffic location and to correct, as much as possible, past pruning mistakes.

As a result of this project, the trees are healthier, more defined and better looking. Trees of Hawaii is working with the city and a community organization to determine ways to preserve the trees into the future.

Company: TruGreen LandCare Golden Bear Arborists
Located: Monrovia, California
Category: Technical Rigging
Project: Mirage Removal
Project Location: Las Vegas, Nevada

This project involved removing 24 palms, ranging in height from 40 to 56 feet, from inside the atrium at the Mirage Hotel and Casino in Las Vegas, Nevada. Working between the hours of 1 a.m. and 8 a.m., crews had to take down the palms, piece by piece, in a very difficult environment. Preparation for each night's work involved laying tarp, carpet padding and plywood over the marble walkways at the entrance to the hotel and throughout the atrium before any cuts could be made. By 8 a.m. the following morning, the atrium area in the casino had to appear as if no work had been performed the night before. In order to accomplish this task, the extensive coordination between the horticulture staff at the Mirage and the commercial tree company had to be flawless.

The palms causing the problems with the atrium were systematically removed each night without incident to the environment inside the Mirage. The project was a complete success.

Arbor Day Award

The Arbor Day Award is given to a company for their pro bono maintenance of trees in connection with Arbor Day activities. As with the Heritage Award, the project submitted in this category must also be of Grand Award quality to win.

Company: Forest City Tree Protection Company
Located: South Euclid, Ohio
Category: Tree Maintenance
Project: Cleveland Botanical Garden
Project Location: Cleveland, Ohio

In 1983, the National Arborist Association, under the direction of its Arbor Day Committee Chairman, Paul McFarland, developed a program encouraging members to “Adopt A Tree For Arbor Day.” So inspired, in April 1983, Forest City Tree Protection Company started an annual tradition of celebrating Arbor Day at the Cleveland Botanical Garden by providing pro bono tree care services, including liquid root fertilization and pruning.

Typically, a three-person pruning crew provides a full day of pruning, focusing on plant material targeted for care by the Cleveland Botanical Garden staff. Another crew applies an average of 1,000 gallons of fertilizer to trees throughout the grounds. This was the company’s 17th consecutive year of involvement in an Arbor Day project at the Botanical Garden.

Elementary school children from Cleveland’s public schools have often been invited by the Cleveland Botanical Garden staff to attend and contribute written essays and/or pictures about the importance of trees. A tree is then planted on the Wade Oval, a park area adjacent to the Cleveland Botanical Garden. A representative of the company speaks to the children about the need for tree maintenance while our crews demonstrate tree pruning and fertilization.

For Arbor Day 1999, work focused on trees within and adjacent to the new Hershey’s Children’s Garden. Large, dead wood was removed from trees surrounding the garden to eliminate potential hazards to people and property. Established trees that were impacted by the construction activities, along with newly installed plantings, were fertilized at appropriate rates for trees under these conditions.

As a result of this project, the company and its employees have experienced the pleasure of giving something back, expressing their gratitude and appreciation to the community that sustains them in a manner that is uniquely reflective of who they are and what they are all about.
Tenby is a historic, walled, seaside town in west Wales. Twenty-three mature chestnut trees line the South Parade. The trees had become overgrown from neglect and the cobblestones were being lifted as a result of root growth, making walking difficult for pedestrians. The future of the trees was in doubt with ongoing calls for their removal. No one, including the local authorities, seemed to be able to make a decision.

The primary goal of the project was to save all 23 trees and satisfy everyone involved. Three main problems arose. First, the trees were growing against and hiding the 700-year-old wall along the South Parade, shading the seating below. Second, the tree crowns were overhanging the adjacent road and were being damaged by large vehicles and vice versa. Third, root growth had lifted the pavement cobbles, tripping up pedestrians.

Crown reduction and thinning were done to suit the growth habit of the tree species and to suit the requirements of the site. Correct pruning cuts were made at all times.

The town agreed that the trees and the cobblestone paving will be inspected regularly and any required repair work will be carried out promptly. Although there were many differing opinions at the beginning of the project, all parties were happy with the results.

Judges’ Awards

The Judges’ Award is given to projects the judges feel merit recognition, even though they fall outside the categories created for judging. This year, the judges have selected three projects.

Company: The F.A. Bartlett Tree Expert Company
Located: Charlottesville, Virginia
Category: Tree Maintenance
Project: Internship & Summer Employee Field Day
Project Location: Charlottesville, Virginia

The primary goal of this project was to provide a strong educational program to present the arboricultural industry as a viable, professional career option. The summer employees and interns received a well-rounded arboricultural work experience. The goals were to demonstrate a career path in a vibrant business while also providing training in A-300 standards, safe work practices, equipment maintenance and accepting responsibility. In addition, the interns were exposed to services like IPM.

The company felt this program addressed the needs of the industry with regard to employee development and sponsorship. The Field Day was well received by our participants as well as local office management.

In April 1998, Forest City Tree Protection Company was asked to recommend treatment for the tree selected as the Rockefeller Center Christmas Tree. The goal was to maximize the health, vigor, appearance and flexibility of the tree for its eventual “corsetting,” removal and transport to the Rockefeller Center in New York City.

The tree was cut down on Tuesday, Nov. 10, 1998, and transported to the Cleveland Hopkins Airport. The Torsilieri crew that tied up and removed the tree commented that the tree was “the most flexible and easiest tree to tie-up that they’d ever worked with.” The building up of the root system with mycorrhizal inoculants, humates and fertilizer allowed for maximum absorption of water from the soil.

On Wednesday, Nov. 11, the tree was loaded on the world’s largest cargo plane and flown to Kennedy Airport in New York. On Dec. 2, the "Christmas Tree" made its official debut on NBC during the nationally telecast lighting ceremony. Adorned with over 26,000 multi-colored lights strung on over five miles of wire, the tree was viewed by approximately 2,500,000 spectators during the holiday season.
**Honorable Mentions**

**Company: Treeworks Ltd.**  
Located: Montpelier, Vermont  
Category: Residential under $5,000  
Project: Standing Spar Support System  
Project Location: Salt Lake City, Utah

The goal of this project was to design a support system that would reduce the chance of losing the apricot tree to structural failure, and to do so in a professional, tasteful and effective manner. The entire system was designed from over 70 photos of the tree, which were then sent to an arborist in Salt Lake City, Utah, where the tree resides.

Because of the support system placed in the apricot tree, no damage whatsoever was sustained by this tree when a tornado hit Salt Lake City, even though surrounding trees were severely damaged.

**Company: Arbor Care**  
Located: Santa Ana, California  
Category: Commercial over $5,000  
Project: El Niguel Country Club  
Project Location: Laguna Niguel, California

The goal of the El Niguel Arbor Management Plan from the beginning was to address hazards and safety issues, encourage the development of a well-suited species mix, promote the health of the tree inventory as a whole, and maintenance pruning of specific trees as needed.

The project was initiated with an inventory and management plan for all the trees on the site. The health and value of the tree inventory has been increased by the selective removal of declining trees that were ill-suited to the cool, moist, coastal environment and sensitive to the harsh growing conditions on the golf course fairway. After these trees were removed, they were replaced with species that thrive in these conditions and complement the design intent of the country club.

**Company: Winkler Tree & Landscaping, Inc.**  
Located: LaGrange Park, Illinois  
Category: Residential over $5,000  
Project Location: Westchester, Illinois

Ashley Woods is an upscale townhome community, approximately 12 to 13 years old. The residents of this community desired a healthy and attractive landscape. The work consisted of pruning, chemical pest control and consultation on cultural practices to reduce pests. The project was a success, as the treescape has shown dramatic improvement.

**Company: Bio Tech Services**  
Located: Santa Clara, California  
Category: Commercial over $5,000  
Project: Danville Livery & Mercantile  
Project Location: Santa Clara, California

The goal of this project was to creatively manage and care for a diverse and extensively planted woody landscape in a shopping center/business park. Not only were the results of the project aesthetically pleasing to the client, they reduced the potential for storm damage during the winter months.
Tree care is a craft that requires a great deal from the user as well as from the equipment. The 335XPT arborist saw is light and balanced, and features our exclusive ArborGrip, a textured handle with thumb and throttle finger supports to give you a stronger grip for better control. The powerful engine housed in a compact saw body ensures unbeatable power-to-weight ratio which makes it possible to cut bigger and larger branches in narrow and difficult positions. Husqvarna also offers a full line of specially designed safety gear, and we are proud to sponsor ArborMaster training programs. To find your nearest Husqvarna Power Retailer, just call 1-800-HUSKY 62. For information about ArborMaster Training, call 1-800-487-5958, ext. 8-4513.

Husqvarna
Tough Name. Tough Equipment.®

Use of chain saws in trees should only be done by professionals with specific training.
©1999 Husqvarna
Deep-sea fishing was the best attended and most successful outing (for the anglers) at the conference.

An evening cruise and a variety of social events encouraged attendees to meet and discuss common challenges of running a tree care company.
From golfing during the day to a Nifty '50s Party at night, attendees stayed busy outside conference classrooms.


See you all next year in Sanibel Harbour Resort & Spa in Fort Myers, FL.

Winter Management 2000

(l-r) John Wright, Wright Tree Service, Inc., turns over the gavel to incoming Chairman of the Board, Jim Allard, Asplundh Tree Expert Company.

Professional speakers shared their insights and experiences on succession planning, marketing communications, ethics and building for the future.
Foliar sprays

Foliar sprays have several advantages: they are fast-acting, easy to apply and effective against many pests. Nothing is more gratifying to some homeowner than seeing caterpillars fall out of trees right after you’ve sprayed. The disadvantages are drift and conspicuous application.

Euonymus scale on stem. Males have white armor and females have brown. Note in the circled area that when scales are removed from twig, tissue beneath remains intact.

Top Insect Pests & Control Strategies

By Cliff Sadof

There are many ways to kill insects. As an arborist, you need to find the way that is most appropriate for your client and site. You can apply chemical controls as foliar sprays, trunk injections or soil injections. Alternatively, you can make use of biological controls.

Biological control

Biological control is the use of living organisms to kill pests. For some situations, this could mean releasing specific natural enemies of insects, such as parasitic wasps or nematodes to kill pests. This strategy, called augmentation, has great potential for use in the future. However, for many pests, the information required to successfully release natural enemies has not been developed. In these situations, a better place to start would be to learn how to conserve the natural enemies already in the landscape and put them to work against pests. Sometimes the easiest way to adopt this approach is to know when not to spray. It simply makes no sense to spray a tree after you examine the pests and find that there are enough natural enemies on the plant to take care of the problem.

Cottony maple scale outbreaks provide great opportunities to see biological control in action. Normally kept under control by a rich complex of lady beetles and parasitic wasps, outbreaks of this pest have been associated with mosquito-abatement programs. Communities that spray for mosquitoes on a regular basis kill the natural enemies of scales, causing local outbreaks. Researchers at Michigan State University looked at this and found that the intensity of scale outbreaks were very high in the center of mosquito abatement areas, and less of a problem further away from the center. As an arborist, one way to use biological control would be to talk with your clients and tell them that this problem has been made worse by the mosquito abatement program.

With proper knowledge, people in the community can make an educated choice. They can continue the mosquito abatement program and continue to have periodic outbreaks, or stop spraying and reduce the outbreaks. In the absence of exploring other mosquito control options, it is a choice of having honeydew and sooty mold on cars or having mosquito bites. As trained professionals, we can give the community the information they need to make the decisions. That is one way to incorporate biological control into your business.

Foliar sprays

Foliar sprays have several advantages: they are fast-acting, easy to apply and effective against many pests. Nothing is more gratifying to some homeowner than seeing caterpillars fall out of trees right after you’ve sprayed. The disadvantages are drift and conspicuous application.
On windy days, if you were to fire up a sprayer at about 400 psi to spray into a tall tree in the western part of Indiana, you could easily imagine covering the entire northern part of the state with the drift. Spray drift affects more than beneficial insects. When it lands on cars and people, it creates its own set of problems.

Like many other arborists, Tim Detzner at Purdue University reports they can no longer spray trees on campus. Even if they were just spraying water, the drops that fall onto people’s cars makes them crazy. People generally think a spray has to be poisonous, otherwise you would not be spraying it. It is hard to explain to someone about the safety of a Bacillus thuringiensis spray while it is still dripping from the trees overhead. Foliar sprays really suffer from a public perception problem.

**Tree injections**

What are the alternatives to spraying?

Trunk injections are effective against many pests, and there is no drift. Injections are less conspicuous and have less of an impact on beneficial insects, since the material is being put directly into the tree. Injections can be expensive, however. Since you can’t leave restricted-use materials unattended, you have to charge for your time while you monitor the material being taken up by the tree.

Wounds at the injection site can harm a tree’s health when they are not made correctly. The size of the wound, the frequency of the application and the chemistry of the material are all factors to consider with injections. Advances in technology have reduced the size of drill holes, lessening the impact on the tree. For example, the Tree Tech and Mauget systems keep the size of the holes fairly small. Arbor Systems has a new system
called a Wedgle, which is essentially a steel hypodermic needle with a flattened end. This system leaves a very small hole.

Before you start injecting trees, you should educate yourself on proper methods. You just don’t stick a drill bit in the tree and make a hole; you have to inject to the correct depth. According to Bill Chaney, a tree physiologist Purdue University, when it comes to injections, trees fall into two basic categories: ring-porous and diffuse-porous.

Ring-porous trees only take up the material through the xylem in the cambial area, which is the area where the trees are actively growing. Diffuse-porous and non-porous trees take up the material only in the xylem that is between three and four rings beyond the cambium. When you inject a ring-porous tree like an oak, you would want to inject at the current year’s growth. Ash, elm, honey locust, hickory, chestnut, hackberry and coffee trees are all examples of ring-porous trees. For diffuse-porous trees like pine, maple and willow, you want to inject three to four rings beyond the current growth. All conifers are non-porous.

Over the years I have not recommended injections because the published scientific literature suggests that wounds associated with injections can affect tree health. Despite this, after discussing this issue with many reputable arborists over the years, I realize that many trees survive and thrive after injection. There may certainly be a place for injections, especially for specimen trees in densely populated urban and suburban areas. The challenge that remains is to document how this can be done safely and economically. In the meantime, arborists need to consider effective alternatives, such as soil injections or soil drenches, where wounds are not an issue.

Soil injections and drenches

Soil injections are getting easier to apply. A tool called the Kioritz soil injector is like a pogo stick syringe. It has a three-liter plastic container and a handle on top that you can push down and deliver a dose of anywhere between one and five milliliters of solution. You simply put a slurry of material inside the injector, push the nozzle into the ground and press the pump handle. With this method of delivery, you’re not attracting much attention to yourself; no big truck with a noisy pump running. If there are two or three trees on a property, this is a fairly effective way of working.

The trick to effectively using soil injections is water. You have to irrigate before you apply the material and you need rainfall or irrigation afterwards. In states where Orthene (acephate) is labeled for this use, this is an excellent way to deliver it. One of the advantages to using this method, rather than a drench technique where you drench the bottom of the tree, is that the material is applied below the turf where the roots are. If you
THE LETHAL INJECTIONS INSECTS:

The Premier Micro-Injection System

for the fast control of

APHIDS .. SCALE INSECTS .. ADELGIDS .. MEALYBUGS ..
R. LERP PYSSLID .. E. LONGHORNED BORER ..
BRONZE BIRCH BORER .. ELM LEAF BEETLE ..
JAPANESE BEETLE .. WHITEFLIES .. LACEBUGS ..
THRIPS .. LEAFHOPPERS .. LEAFMINERS
FLATHEAD BORERS .. SPIDER MITES .. and many more ..

* BUT, SAFE TO THE ENVIRONMENT *

With MAUGET'S FULL SEASON PLUS insect control, you just about eliminate the need for re-treatment for at least one full season.

AS IF THAT'S NOT DEADLY ENOUGH,

MAUGET'S two unique COMBINATION products IMISOL & ABASOL combine either one of our long lasting effective insecticides, IMICIDE or ABACIDE with MAUGET'S time proven fungicide, FUNGISOL in the same Micro-Injection unit, controlling over 31 destructive diseases. ONE MICRO-INJECTION TREATMENT will do all that while saving time and expense.

NO SPRAY'S .. NO DRIFT .. SAFE ..
PREDATOR & ENVIRONMENT FRIENDLY ..
PREVENTATIVE .. NO HIGH PRESSURE DAMAGE ..
WEATHER PROOF .. COST EFFECTIVE..

MAUGET
800-TREES Rx
(800-873-3779)
877-TREE HLP
(877-873-3457)
(New toll free technical support Line)

INTEGRATING OUR UPGRADED DELIVERY SYSTEM WITH UP TO A $75.00 REBATE
www.mauget.com

Please circle 42 on Reader Service Card
are treating a tree that has no turf surrounding it, then you won’t have puddles developing on the soil surface. One of the problems with applying Merit (imidacloprid) in this manner, is that it is fairly slow acting. It takes about four to six weeks to get up into the trees, so you would have to adjust your timing appropriately.

Merit has been used as a soil injection for insects like lace bugs, which attack many woody plants. Data reported from the University of Maryland on a hawthorn lace bug that attacks both hawthorn and cotoneaster compare trunk injection and a Merit soil injection. They had 100 percent control of lace bugs for both methods with a fall or a spring application. Studies at Colorado State University have shown that Orthene, Merit and Metasystox-R were highly effective against leaf curl ash aphids one month after soil-injection treatments.

When you are managing sucking insects, it makes sense to put something in the vascular system to control them. Leaf miners feed between the upper and lower leaf surfaces. They tend to be more of a problem in the first flush of leaves, so you need to have the material in the leaves soon after they flush out. Getting that material up to the leaves at the right time is one of the challenges for soil-injection techniques.

Data taken at Longwood Gardens in Philadelphia found that in heavy clay soil, only a 75 percent reduction of birch leaf miners was achieved when Merit was applied in the spring. That was most likely because the material did not have enough time to get up into the leaves. When applied in October prior to leaf emergence, the material was in the soil in high enough amounts to effect control. If you have trees with bad leaf miner problems and you want to control them with soil injection, mark the areas in summer, then apply the material in the fall before the frost.

Limitations of soil injections and drenches

Let’s explore the limitations of these injection techniques using armored scales and soft scales as examples. The pine needle scale is an armored scale. The striped pine scale, which is closely related to the pine tortoise scale, is a soft scale that feeds on pines. Sometimes both infest the same trees. The striped pine scale is a honeydew producer that feeds differently from armored scales. Studies at Colorado State University indicate that when you apply Merit, you kill the striped pine scale (soft scale), but you don’t kill the pine needle scale (armored scale). The untreated trees had 47 striped pine scales compared to six for the Merit-treated trees, or 80 percent...
The ArborSystems injection system will significantly reduce the amount of time needed to treat trees for insects, diseases and micronutrient deficient symptoms. You will have the peace of mind that the trees have been treated in a safe and effective manner for the worker, the environment and the tree itself.

Now Available:
Insecticides, Micronutrients and Fungicides
- GREYHOUND Insecticide (AVID™) Controls Elm leaf beetles and lacebugs.
- POINTER™ Insecticide (Merit™) Controls aphids, scale insects, leafminers and many others.
- SHEPHERD™ Fungicide (ALAMO™) Suppresses selected diseases in trees.
- IRON NUTRIBOOSTERS™ Relieves symptoms of iron chlorosis in oaks and maples.
- IRON/MANGANESE NUTRIBOOSTERS™ Relieves symptoms of iron and manganese deficiency in trees.
- IRON/ZINC NUTRIBOOSTERS™ Relieves symptoms of iron and zinc deficiency in trees.
The pine needle scale, an armored scale, showed no difference from the untreated trees.

The question is why? It has to do with how the different types of scales feed. Essentially, armored scales are not killed by Merit because they do not get enough of the material to kill them. They are really small and they feed on few cells. In contrast, soft scales like the pine tortoise scale feed right in the phloem. They take in a lot of the fluids, and therefore take in a lot more Merit. Given this information, it is important to be able to tell the difference between hard and soft scales.

With a hard scale, there is no liquid excretion. Soft scales excrete honeydew because they are phloem feeders. Honeydew gets coated with a black substance called sooty mold, which can be a big mess. It makes the plant look unsightly and it can grow on people’s cars and picnic tables.

In 1998 at Longwood Gardens, I did a study to look at a foliar-applied insecticide versus drench materials. I was particularly interested in how well this works on groundcovers. I knew that oil works very well against scales if applied at the right time, but I always thought that groundcovers were a big challenge for oils. You have to get the correct penetration for oils in order to control the problem.

I wanted to know if the oil was killing the scales completely throughout the canopy. All foliar sprays were applied with a sprayer at 250 psi. When you are going after scales in groundcovers, you need a little pressure to get it in there. If you want to kill scales by smothering them, they have to meet the oil.

We applied 4 percent horticultural oil just before the pachysandra was breaking bud, which was late March in Philadelphia. You want to apply your dormant oil just before plants break bud. Then a 2 percent summer rate was applied on May 24, which was about 10 days after the first crawlers were found.

How do you inspect for crawlers? One way would be to tape the leaves and look for them on a sheet of paper. A better way, especially for trees, is to take double-sided sticky tape and wrap it around a branch on a few scale-infested trees near your main operation. Every week remove the tape and put it on a piece of paper, then apply new tape. Look at the tape on the piece of paper under a hand lens or dissecting scope. When you start seeing small eggs with legs stuck on the tape, you know the crawlers are active and you can go after that scale.

Merit was also applied on March 27, because it needs a four- to six-week lead-time. I was expecting these scales to be crawling around in May, and I wanted to give Merit plenty of time to get up into that plant. Orthene was applied as a foliar spray when the crawlers were crawling around on May 24.

As I suspected, most of the scales were on the middle and basal portion of the plants. After applying the 4 percent dormant oil, we had about a two-thirds reduction in the number of live scales. The control was consistent throughout. I was very pleased to see that we could get such good control in a groundcover.

We found that after applying the second summer spray, we had amazing reductions (99 percent) in the oil plots, and about a two-thirds reduction with the Orthene spray. Merit was not effective at all against the armored scales. If anything there was an increase.

Summary
What are the important points from this information? Foliar spray alternatives can be effective with correct application technique and timing. If you time application correctly, you can achieve excellent control with soil injection techniques. If you are injecting trees properly, then you can get effective control as well. It all depends on how mobile a certain material is through the plant tissue. If the material is mobile enough so that the scales can get it, it will probably kill them. Armored scale is the hardest for a systemic to control because of how it feeds. The development of lightweight, portable soil injectors, like the Kioritz, gives arborists another effective method for pesticide application. Soil type will play a roll, but if the soil is irrigated before and afterward, it may be less of an issue. As far as scales are concerned, oils and biologicals are still the best material that we have for armored scales.

Dr. Cliff Sadof is associate professor of entomology at Purdue University. He may be reached by e-mail at: Cliff_Sadof@entm.purdue.edu.
Running your business means walking a fine line. You have to eliminate insect pests, but you have to do it without harming beneficial insects, plants or your workers. The answer? Conserve* SC turf and ornamental insect control. Nothing's better at controlling tough insect pests. And since it's derived from a naturally occurring organism, Conserve also controls your worries about plant damage and beneficials. Conserve. It's not a synthetic. It's not a biological. It's business insurance.

www.dowagro.com/turf  1-800-255-3726
Always read and follow label directions.
*Trademark of Dow AgroSciences LLC

Please circle 28 on Reader Service Card
A Utility Arborist's Ice Storm Story

By George Klinger

The call came at 6:00 a.m., Dec. 15. Dutch Lange, our Asplundh Tree General Foreman, said, “Get your crew together, grab your bags. We’re going up north on storm damage ... and bring warm clothing.”

Little did I know I was about to begin an odyssey that

The Ice Storm Phenomena

Ice storms cause considerable damage every year to trees in urban and natural areas. Ice accumulates when supercooled rain freezes on contact with surfaces, such as tree branches, that are at or below the freezing point. This generally occurs when a winter warm front passes through an area after the ground-level temperature reaches or falls below freezing. Rain falls through layers of cooler air without freezing, becoming supercooled. Periodically, other climatic events also result in ice storms.

Accumulations of ice can increase the branch weight of trees by 30 times or more. Ice formation generally ranges from a trace to one inch in additional stem diameter. Accumulations between one-quarter and one-half inch can cause small branches and weak limbs to break, while one-half to one-inch accumulations can cause larger branches to break, resulting in extensive tree damage. Branch failure occurs when loading from the weight of ice exceeds wood resistance, or when constant loading further stresses a weakened area in a branch. Strong winds substantially increase the potential for damage.

Trees and ice storm susceptibility

A number of characteristics increase a tree species' susceptibility to ice storms: decaying or dead branches, increased surface area of lateral branches, broad and unbalanced crowns. This weak connection enhances a tree’s susceptibility to breakage under ice-loading conditions. For example, Bradford pear branches often break during ice storms where there is included bark in branch junctions. In contrast, the “Aristocrat” pear has few branches with included bark and sustains less damage during ice storms.

Decaying or dead branches are already weakened and have a high probability of breaking when loaded with ice. The surface area of lateral branches increases as the number of branches and the broadness of the crown increase. With an increased surface area, more ice can accumulate on lateral branches; the greater ice load results in greater branch failure. Contrary to popular belief, the wood strength of sound branches matters less than the ability of a tree to withstand breakage at branch junctions and the presence of fine branching or a broad crown that enhances ice accumulation.

Placement and pruning

Proper tree placement and pruning on a regular cycle will reduce property damage and decrease a tree’s susceptibility to ice storms. Locating trees where they can do the least damage can reduce property damage from trees broken by ice accumulation. Trees should not be planted in locations where their growth will interfere with above-ground utilities. Branches that grow into power lines and fail during ice storms create power outages and safety hazards. Professional arborists can also install cables and braces to increase a tree’s tolerance to ice accumulation in situations where individual trees must be stabilized to prevent failure.

After storm damage has occurred, hazardous trees and branches require immediate removal to ensure safety and prevent additional property damage. Trees that can be saved should have broken branches properly pruned to the branch collar. Leaving stubs and flush-cut pruning results in weakly attached sprouts and future insect and disease problems. Loose bark should be cut back only to where it is solidly attached to the tree. A split fork can be repaired through cabling and bracing.

Where severe ice storms occur, disaster plans should be developed to assist in recovery. Guidelines are available from the Forest Service that on planning for and mitigating the impact of natural disasters in urban forests. The impact of ice storms can be minimized through planning, tree selection and tree maintenance. Assistance in planning and carrying out programs to lessen the impact of future ice storms is available from governmental and private agencies concerned with urban and community forestry. Concerted action over many years is needed to minimize ice storm damage. Sustained efforts will undoubtedly reduce fatalities, injuries, monetary losses, tree damage and cleanup costs to individuals and communities in regions where ice storms occur.

Note: Grateful thanks for information provided from “Trees and Ice Storms” Publication of the Department of Forestry, University of Illinois at Urbana - Champaign.
would encompass nine long days and nights in upstate New York. Since going to work for Asplundh, I had often heard tales from my coworkers of trips they had taken to do storm work. Each story seemed to start with, “Remember the time …” usually followed by gales of laughter as they shared their memories. Finally, I thought, I’m going to have some stories of my own. I was very excited.

Our trip started in a steady rain that continued the entire journey. As we wound our way along in a truck that was not designed for highway travel, it was hard to imagine what lay ahead. Dutch, a veteran of quite a few hurricane and ice storm-damage trips, tried to answer questions but ended up saying, “Every trip is different; you just have to deal with whatever comes up.”

After hours of bouncing along without even the comfort of a radio, the crew’s enthusiasm began to wane. Like a child on vacation, my top climber, Roy Sands remarked, “Are we there yet?” It was well past dark when we entered Schenectady County. The Northway had been closed to all but emergency traffic, giving the highway an eerie feeling of desertion. But still, there was no evidence of the devastation we would soon witness.

Almost as if Mother Nature had drawn a line at the Schenectady County line, the damage of the ice storm became evident. Everywhere, trees hung heavy under the weight of an ice coating an inch or more thick. Bent over double under the weight, some had snapped, reaching out into the road. In our headlights, it resembled a fantasyland of crystal designed by a mad scientist.

Upon reaching our destination just south of Saratoga, we were greeted by total confusion. Hundreds of trucks were lined up as the drivers awaited instructions. Crews from as far west as Illinois...
Asplundh crews at work in devastation wrought by ice storm that hit Schenectady County

As we talked to local residents, it didn't take long to realize how fortunate we were. With no power, the stress was beginning to take its toll. The numerous offers of hot coffee, snacks and a shot of "warmer-upper" were made, but their expressions told the real story. Hope was beginning to be replaced with frustration. They thanked us for our efforts, but their disappointment clearly showed when we told them we had no idea when the power would be back on.

and as far south as the Carolinas had been called to try to deal with the mass destruction. Tree trimmers, linemen from electric utilities and telephone company repairmen had all converged on this area after the emergency storm-damage call had gone out.

Reaching our destination in Balston Spa, we set up and began to work. It immediately became evident just how dangerous this whole situation was as the sound of ice-laden branches crashing to the ground filled the air. Over and over the warning conveyed by our storm utility supervisor was, "Watch out overhead! Don't stand under any trees. Be careful at all times and consider everything hot and energized."

After several hours of clearing ice-laden branches from the power lines, the order was given to stop for the night. I couldn't help but feel a sense of relief as we packed away our equipment and headed out of town for a hot meal and a few hours sleep. We had left New Jersey 20 hours before.

Branches continued to crash to the ground as our feeble efforts continued. Without warning, branches five or six inches in diameter would snap, undoing all the work we had struggled to accomplish. As the day dragged into night, utter confusion was slowly replaced by organized chaos as the efforts of the hundreds of utility arborists and electric power company crews began to come together. But still, there was no light at the end of this very long tunnel.

Our second full day brought sunny skies and a feeling of hope, although a brisk wind off Lake Saratoga brought down even more branches, making a bad situation worse. The sunny skies encouraged people to come outdoors, few realizing how much danger they were putting themselves in as they videotaped and photographed the weight of the ice. Some had been ripped off the sides of the houses. Others lay pressed to the ground under the weight of branches that had come crashing down. "I've never seen storm damage this bad," was the comment heard over and over from the line supervisor from Mohawk Power Company.

Mother Nature wasn't done yet. Steady rain had fallen throughout the night and continued as we struggled to deal with the damage. To keep things interesting, she even threw in a little thunder and lightning before the morning was through.

Branches continued to crash to the ground as our feeble efforts continued. Without warning, branches five or six inches in diameter would snap, undoing all the work we had struggled to accomplish. As the day dragged into night, utter confusion was slowly replaced by organized chaos as the efforts of the hundreds of utility arborists and electric power company crews began to come together. But still, there was no light at the end of this very long tunnel.

Our second full day brought sunny skies and a feeling of hope, although a brisk wind off Lake Saratoga brought down even more branches, making a bad situation worse. The sunny skies encouraged people to come outdoors, few realizing how much danger they were putting themselves in as they videotaped and photographed the
damage. Repeated warnings were shrugged off as they stood in small groups and discussed how this storm compared with the ice storm of '55.

Up well before dawn, working way past sunset, the 16-hour days we endured began to take their toll. Our efforts seemed fruitless as we began to realize the extent of this storm’s wrath. Finally, on day five, we left the city of Balston Spa as we began to concentrate our efforts in the small outlying towns.

In each area we went to, the same questions were asked:

"When do you think the power will be back on?"

"Is this the worst storm you have ever seen?"

Farmers would plead that they needed electricity badly to pump water to keep their livestock alive.

Then the weather took a definite turn. Bitter cold and snow replaced what had been relatively mild temperatures. Our equipment seemed to balk and protest. Thoughts of home, Christmas and our own warm beds began to creep in, though few were willing to say anything out loud.

As we talked to local residents, it didn’t take long to realize how fortunate we were. With no power, the stress was beginning to take its toll. The numerous offers of hot coffee, snacks and a shot of “warmer-upper” were made, but their expressions told the real story. Hope was beginning to be replaced with frustration. They thanked us for our efforts, but their disappointment clearly showed when we told them we had no idea when the power would be back on.

The days began to blend one into another. The weather continued to be a factor as temperatures seldom rose above freezing and often hovered in the single digits. Finally, after nine grueling days, we had cleared the electric wires and power was restored to most major areas.

We bid farewell and began our long trip home to be with our families for Christmas. As we headed south on the Northway (Route 87), I couldn’t help but think of how different it all looked. Though still dark, just like the night we arrived, the ice had long since melted. A light snow was falling and wind swept it across the road. During the trip home, I had flashbacks of all that I had seen and experienced since our arrival. I felt good for all the people we had helped, but my heart went out to those who were still without power or heat during this ice storm.

This particular ice storm hit the Saratoga Springs area of New York State during December 1964.

George J. Klinger is the Director of Loss Control with TreePro, a member of the National Arborist Association’s Safety Committee and a member of ANSI Z-133.1 since 1981. TreePro is an Associate Member of the NAA and other tree care organizations. TreePro has arborist safety guidelines and itemized checklists to assist clients in controlling losses and reducing claims and injuries.
We provide
the industry’s
MOST POWERFUL
TRAINING
PROGRAMS

Please circle 45 on Reader Service Card
Video Series

Basic Training for Tree Climbers

Rigging for Removal

Call 1-800-733-2622
Web site: www.natlarb.com

National Arborist Association
Dedicated to the Advancement of Commercial Tree Care Businesses
**Events & Seminars**

**April 5, 2000**  
Pruning Urban Trees for Safety, Health and Aesthetics to Reduce Liability, Reduce Cost and Improve Tree Quality  
University of California, Riverside  
Contact: (909) 787-5804

**April 8-11, 2000**  
ISA - Southern Chapter  
58th Annual Conference & Trade Show  
Radisson Hotel  
Charleston, SC  
Contact: (336) 789-4747

**April 14, 2000**  
Woody Plant Workshop: Flowering Cherries  
The Scott Arboretum  
Swathmore, PA  
Contact: (610) 328-8025

**April 25, 2000**  
Roadside & Right-of-Way Vegetation Mgt.  
Cook College, New Brunswick, NJ  
Contact: Karen Plumley (732) 932-9271

**April 27-29, 2000**  
Spring Workshop/Tree Climbing Championship  
Maple Ave. Park, Dallas, TX  
Contact: Mike Richardson (214) 495-2810

**April 29, 2000**  
ISA - WC Annual Conference  
Innovative Approaches to Tree Care  
Maui, Hawaii  
Contact: (916) 641-2990

**April 29 - May 1, 2000**  
Turf & Ornamental Communicators Association (TOCA)  
11th Annual Meeting  
Royal Sonesta Hotel  
Cambridge, MA  
Contact: (617) 758-6340

**May 5, 2000**  
8th Annual Educational Seminar and Exam Preparation Course  
NJ Society of Certified Tree Experts  
Contact: Gary Lovallo (888) 873-3034

**May 13, 2000**  
Latest Climbing Techniques and Equipment  
Moore's River Park  
Lansing, MI  
Contact: Ann Ashby (517) 482-5530

**May 17-19, 2000**  
ISA - Pacific Northwest Chapter  
PNW Community Trees Conference  
Anchorage, AK  
Contact: (503) 874-8263

**May 25, 2000**  
Young Tree Pruning/Training/Maintenance  
MSU Union, East Lansing, MI  
Contact: Ann Ashby (517) 482-5530

**May 25-26, 2000**  
ISA - Penn-Del Chapter  
Tree Appraisal Workshop  
Penn State - Mount Alto  
Contact: Scott Diffenderfer (717) 264-6105

**June, 2000**  
Tree Management to Prevent Storm Damage  
Four Locations: Marquette, Gaylord, Grand Rapids, Detroit, MI  
Contact: Ann Ashby (517) 482-5530

**June 3, 2000**  
8th Annual Educational Seminar and Exam Preparation Course  
NJ Society of Certified Tree Experts  
Contact: Gary Lovallo (888) 873-3034

**June 11-13, 2000**  
The Ecology of Urban Soils: Designing & Managing Soils for the Living Landscape  
Radisson Hotel, St. Paul, MN  
Contact: Cindy Ash (651) 454-7250

**June 16, 2000**  
ISA Certified Arborist Exam  
Austin, TX  
Contact: Pat Wentworth (512) 451-7363

**June 22-23, 2000**  
Tree Autopsy and Dissection Lab  
Dr. Al Shigo  
Portsmouth, NH  
Contact: NE Shade Tree (603) 436-4804

**July 22-24, 2000**  
International Lawn, Garden & Power Equipment Expo  
Kentucky Exposition Center  
Louisville, KY  
Contact: (800) 558-8767

**July 27-28, 2000**  
Interstate Professional Applicators Assoc. Summer Board Meeting  
Double Tree Inn  
Pasco, WA  
Contact: IPAA (360) 886-9076

**July 28, 2000**  
ISA Certified Arborist Exam  
Fort Worth, TX  
Contact: Pat Wentworth (512) 451-7363

**July 28, 2000**  
Conference on Woody Plants  
Swathmore College, PA  
Contact: Longwood Gardens (610) 388-1000
August 23, 2000
Michigan Turfgrass Foundation
Michigan Turfgrass Field Day
Michigan State University
Contact: Kay Patrick (517) 321-1660

September 12-13, 2000
MFPA Summer Meeting
Camp Brighton, MI
Contact: Ann Ashby (517) 482-5530

September 22, 2000
ISA Certified Arborist Exam
Waco, TX
Contact: Pat Wentworth (512) 451-7363

September 25-27, 2000
ISA - Pacific Northwest Chapter
21st Annual Training Conference
Boise, Idaho
Contact: Paul Ries (503) 874-8263

October 1-4, 2000
Great Lakes; Great Trees
Society of Municipal Arborists Conference
Holiday Inn South, Lansing, MI
Contact: Ann Ashby (517) 482-5530

October 12-13, 2000
A New Tree Biology, by the Book,
presented by Dr. Al Shigo
Portsmouth, NH
Contact: NE Shade Tree (603) 436-4804

October 6-8, 2000
Student Society of Arboriculture
Fifth Annual Conference
Northeast Iowa Community College
Contact: Tim Walsh: twalsh@uwsp.edu

October 19, 2000
Tree Evaluation Workshop
Grand Rapids, MI
Contact: Ann Ashby (517) 482-5530

November 2000
Body Language of Trees
Dr. Claus Mattheck, German physicist
Ypsilanti, MI
Contact: Ann Ashby (517) 482-5530

November 9-11, 2000
National Arborist Association
TCI EXPO 2000
Charlotte Convention Center
Contact: Carol Crossland (603) 673-3311

Send information on your event to:
Tree Care Industry,
3 Perimeter Road, Unit 1,
Manchester, NH 03103
Fax: 603-672-2613;
E-mail: Garvin@natlarb.com

The Corona RS 7130 Pruning Saw sinks its
teeth more deeply into every pull stroke – for cleaner, smoother, faster
cutting with far less effort. Each whetstone-ground tooth on the 13” replaceable
blade is set deeper into the blade than competitive saws, and is precisely sharp-
ened on 3 sides, giving it a razor sharp edge. Then, unique impulse hardening
ensures that they hold their edge far longer. The Corona RS 7130. Cleaner,
smoother, faster cuts. A serious pruning saw – for serious pruning professionals.
National Arborist Association presents

TCL EXPO 2000

November 9-11
Charlotte Convention Center
Charlotte, NC

WORLD’S LARGEST

tree care expo

Phone: 800-733-2622
Web: www.natlarb.com

Coming soon!
This 1940 REO Speed Wagon with a dump body was operated by the City Engineering Department of Lansing, Mich. During the war, trucks like this one were often pressed into service for public works tree care projects like cleaning up fallen branches or storm-toppled trees. After Pearl Harbor, private tree care businesses found it difficult to hire workers or buy new vehicles and equipment.

For America’s tree care industry, the nation’s entry into World War II was a case of very bad timing. Between the start of the 20th century and the Great Depression, millions of acres of land throughout the United States had been denuded, particularly in the great Southern pine region. Then, in the early ’30s, forest industries in the South started to reverse the trend by initiating the large-scale growing of seedlings in forest nurseries. Since many arborists at the time were hybrid professionals—working as arborists for some of the year and engaged in nursery or logging activities for some of the year—their needed work became less of a national priority.

Conservationists nationwide had started replanting large deforested areas. The involvement of professional arborists raised their efforts to new levels. In Louisiana, for example, a new

A Millennium of Tree Care Trucks: The 1940s

By John Gunnell
pine forest of more than 60,000 acres was established by the Great Southern Lumber Company on lands that had been completely cut over between 1908 and 1938. (This would ultimately become the largest replanted softwood forest in the world).

Unfortunately, war was about to slow the movement toward tree care and the production of equipment needed to do the job. Even before Pearl Harbor, steps had been taken to cut the production of motor vehicles. In October 1941, the auto-industry trade magazine *Motor* reported, "Restrictions imposed on the building of light trucks with a rated capacity of less than 1-1/2 tons are the same as on passenger cars. Orders already issued call for a curtailment of 26-1/2 percent in the four months from Aug. 1 to Dec. 1. Actual production cuts are likely to be even sharper however, since no priority rating has been given to these vehicles and it will be exceedingly difficult to obtain materials."

The drafting of young men and cutbacks in light truck manufacturing—along with the rationing of everything from tree care tools to gasoline—resulted from America's growing involvement in the war and, as previously mentioned, were ill-timed for arborists.

As an example of bad timing, the same issue of *Motor* magazine cited above carried a long feature article written by Thomas H. MacDonald, the commissioner of the National Public Roads Administration, about the future development of a high-speed inter-state highway system. In it MacDonald wrote, "As it is conceived today by highway planners, the new construction in its most complete form in the more congested, non-mountainous rural areas, will be projected down attractively-landscaped, state-owned rights of way."

Had World War II not interrupted plans to build these roads during the early 1940s, many tree care professionals would have been working busily on massive, state-financed clearing, trimming and landscaping projects, rather than fighting in foxholes in Europe and Asia.

As the war worsened, the highway-building plans were put on hold along with numerous private-sector efforts to plant trees and beautify the urban landscape. The War Production Board ordered a complete halt to motor car production and light-truck assemblies during the second week of February 1942. Gasoline purchases were strictly monitored and only 8,500,000 "B" ration cards were issued to motorists nationwide whose driving needs were classified as "essential." This meant that...
they were allowed enough fuel to drive only a certain number of miles per month: 325 in the East, 475 in the Midwest and 400 in the West. (In mid-1945, with the war winding down, the mileage was raised to 650 per month in all regions).

In most cities and towns, the Parks or Public Works Departments qualified as essential users and their employees largely took on the responsibility of planting and caring for trees when it was absolutely necessary. Naturally, trucks and gasoline were not made available for landscaping private property, but city employees would usually handle jobs like pruning trees that intruded on roadways, removing fallen limbs, cleaning up storm damage, maintaining public parks and golf courses, etc.

People certainly didn’t lose interest in trees during the war years. In 1941, Ripley’s “Believe it or Not” pictured the “Sliding Tree”—a 60-foot-tall cottonwood that slid off a river bank near Abilene, Kan., and remained standing upright in the middle of the Smoky Hill River. And the next year, the Milicent Library in Fairhaven, Conn., had an exhibition of tree roots that resembled...
These 1 1/2-ton Model 2R17 Studebaker flatbed trucks were operated by the City of Dayton (Ohio) Parks Department. They are brand-new 1949 models that have been fitted with large swing-arm booms that would be a great help for many tree-moving and planting operations.

Unfortunately, America's wartime culture was temporary and by the time things started getting back to normal, there was a huge pent-up demand for every imaginable product and service. Because there was a severe shortage of light trucks, the government permitted manufacturers to start building "interim" models in 1945. On July 13 of that year, Laughlin Chevrolet of New Bedford, Mass., ran an advertisement in The Standard Times that said, "Now available. New Chevrolet Trucks. 1/2-Ton Pickups. 1 1/2-ton Chassis and cab. We will gladly aid you in preparing your priority."

While truck production obviously got underway quickly, labor strikes and parts shortages slowed down the assembly lines in 1946 and 1947. As a result, trucks built in these years sold for premium prices and still went largely to high-priority buyers. This meant that most new trucks suitable for tree care work continued going to municipalities. Private tree surgeons and nursery operators had to make due with pre-war models or war-surplus trucks until late in 1948, when the number of vehicles being produced began to catch up with the backlog of orders.

By 1949, things were suddenly getting back to normal. New trucks were readily available at regular list price and millions of America's brave servicemen and women had been rehired and trained to reenter the workplace. The postwar years would take the tree care industry to higher levels of success, thanks to a strengthened national spirit, a booming economy and technological advances in vehicles and equipment brought on by wartime research and development efforts.

John Gunnell is a freelance writer in Iola, Wisc.
The New Line of Morbark Chippers is Taking the Industry by Storm!

MODEL 2060-D
Cyclone

MODEL 2090-D
Lightning

MODEL 2012-D
Storm

MODEL 2100-D
Thunder

MODEL 2050
Clipper

MODEL 2070
Twister

MODEL 13
Tornado

MODEL 2400
Hurricane

Morbark, Inc.
8507 S. Winn Rd.
P.O. Box 1000
Winn, MI 48896
(800)365-9010
(517)866-2381
Fax: (517)866-2280

Web: http://www.morbark.com/
E-mail: morbark@worldnet.att.net

Please circle 44 on Reader Service Card
HELP WANTED

TREE CARE PROFESSIONAL WANTED:

Established tree care company in Seattle, WA seeks experienced arborist/climber for fine pruning and removals. Certification a plus. Fax resume to 206-522-7262 or call 206-523-6166.

Certified pesticide applicator needed to work with a tree care company in the metropolitan DC area. Great benefits and salary. For more information, please call Chris Smith at (301) 948-5885.

IRA Wickes/Arborists Rockland County based firm for over 70 years seeks qualified individuals with experience. Arborists / Sales Reps, Office Staff, Crew Leaders, Climbers, Spray Techs (IPM, PHC, LAWN). Great benefit package includes 401(k) matching, advancement opportunities, E.O.E. Check us out on the web at irawicks.com. E-mail your resume to info@irawicks.com. Fax us at (914) 354-3475 or snail mail us at Ira Wickes / Arborists, 11 McNamara Rd., Spring Valley, NY 10977.


The Specialist in innovative forestry related equipment for over 49 years

Payeur Strikes again!

Distributors of the already known nationwide
THE FORESTER and MÉTAVIC log loader/trailers

VERSATILITY - INDEPENDENCE

5379, King Street East, Ascot Corner (Sherbrooke), QC J0B 1A0
Telephone: (819) 821-2015
Fax: (819) 820-0490
E-mail: payeur@videotron.ca
www.payeur.com

Please circle 51on Reader Service Card
The Davey Tree Expert Company has immediate openings in tree, shrub and lawn care, grounds maintenance and vegetation management. We provide on-the-job training, competitive pay and benefits, and offer opportunities for advancement.

Hiring: Experienced Tree Climbers needed with pickup truck and own equipment. $250 per day. Guaranteed year-round work in warm, friendly Baton Rouge, LA. Management opportunity available immediately. Call 225-683-3800 Mon-Fri 8 to 9 am. Sat 10 to 12 am.

Exciting Career Opportunity for Tree Trimming Personnel

DeAngelo Brothers, Inc., is a vegetation management company with five (5) regional U.S. offices servicing railroads, utilities, industries and State departments of transportation for the last twenty years. There is an immediate need for the following positions:

- Climbers-Class I and II
- Foreman and Bucket Operators
- Tractor Operators

CDL License, experience in arboriculture, urban forestry or related fields a plus. We offer excellent starting wages, company benefits, excellent working conditions and the opportunity for year-round work. For a confidential interview, mail or fax your resume to: DeAngelo Brothers, Inc., 100 N. Conahan Dr., Hazleton, PA. Attn: Charlie Sizer. Phone: 800-360-9333; Fax: 570-459-5500.

EOE / AAP / M-F

continued on page 66

LOWEST PRICES ON THE MARKET
G & A EQUIPMENT, INC. 1-800-856-8261
KNOXVILLE, TN Visit Us At: www.gandaequipment.com

60' w.h. TECO, 1992-1993, 4 to choose from starting at $27,500

55-foot w.h. Altec buckets. 5 to choose from. Starting at $18,500

53-foot w.h. Hi-Ranger. 1987 diesel. $22,900

1991 Aerial Lift of CT diesel. 6 speed. $38,800

1991 F-700, V-8 Gas, 26,000 actual miles. 16-foot Chip Box. $19,500

57-foot w.h. Overcenter Altec Material Handlers, diesels. Starting at $29,000

1984 Ford F-800 knuckleboom truck, diesel, nice. $12,800

1991 Topkick, V-8 Gas, 54,000 miles. $19,500

55-foot w.h. Altec, 1984 Ford, diesel. $16,500

Please circle 33 on Reader Service Card

Careers that grow with you.

The Davey Tree Expert Company has immediate openings in tree, shrub and lawn care, grounds maintenance and vegetation management. We provide on-the-job training, competitive pay and benefits, and offer opportunities for advancement.

To join our team contact:
Personnel Department – TCI
1500 North Mantua Street
Kent, Ohio 44240
1-800-445-TREE ext. 252

Please circle 24 on Reader Service Card
EXPERIENCED TREE CLIMBER

Full service tree care co. in central NH seeking motivated and experienced tree climber. Drivers license a must! Applicant will have a min. of 5 yrs. climbing exp. and work well with others. Excellent pay and benefits for right applicant. Great opportunity with NAA and ISA member company. Send resume to Collins Tree Service, Inc., PO Box 16388 Hookset, NH 03106 or email to: collinstree@mediaone.net or call 603-485-4761

Chemical Sales Representative - Come join one of the largest Vegetation Management Companies in the United States. DeAngelo Brothers, Inc. has immediate openings for Chemical Sales Representatives throughout the U.S. Responsibilities include direct marketing of DBI's full product line of chemicals and related equipment throughout a regional territory. Horticulture or related degree desired, with a working knowledge of Vegetation Management Chemicals. (Minimum two years experience.) Qualified applicants must have strong interpersonal communication skills. The candidate chosen will work out of a DBI Regional Office and must enjoy travel. We offer an excellent salary and benefits package, including 401(k) and company-paid medical coverage. For confidential consideration, please forward resume, including salary history and geographic preference in cover letter. Send or fax resume to: DeAngelo Bros., Inc. Attn: Charlie Sizer, 100 N. Conahan Dr., Hazelton, PA 18201 Fax: 570-459-5500. EOE/AAP/M-F
A World Class Company

Arbor-Nomics, Inc. is a rapidly growing company based in Atlanta, GA. We offer benefits and training with an opportunity for advancement. We are presently seeking a:

Climber/Foreman

Successful candidate will supervise 3-5 crewmembers & must have experience managing tree removal, pruning, associated equipment, and ground people. No DUI’s, No felonies, or drugs. MVR Req’d. Call (770) 447-6037 x1 or fax resume to (770) 448-4804, or mail to 585 Langford Lane, Norcross, GA 30071

Tree Climber/Crew Leader

Experienced, CDC, Washington DC Area. Will assist in relocation. High pay, benefits, heavy equipment operation experience a plus. Mulhernon Tree Experts (301) 562-2677

District Foreman - We are looking for a special individual with a passion for trees, a proficiency in tree-climbing, leadership qualities and the right attitude to lead our production crews. The Care of Trees is a recognized industry leader in excellent client service offered by our professional tree care experts. This position is in the metropolitan DC area. If you are interested, please apply to Ron Rubin at (703) 471-1427. E-mail at rubin@careoftrees.com or to Chris Smith at (301)948-5885. E-mail at csmith@careoftrees.com

Established Tree Service Company seeking experienced climbers and arboriculture-related persons. Daily work consists of supervising ground crew for small, growing tree service. Located north of Boston. Year-round, full-time employment. Send resume to Westford Tree Service, PO Box 1081, Westford, MA 01886 or call 978-692-8050.

Expanding Chicagoland area tree care company has great opportunities for qualified applicants. Positions open for sales, tree climber, foreman and PHC technicians. Experience in arboriculture, BS Hort., forestry or related green industry preferred. However, will train enthusiastic and hard working people. Possibility for internships. We offer competitive wages and benefits including medical and paid holidays/vacations. We have cake!

Autumn Tree Care Experts, Inc.
2091 Johns Court, Glenview, IL 60025
Office 847/729-1963; Fax 847/729-1966
E-mail: autumntreecare@ameritech.net

Home of the Indy 500 and Brickyard 400
Professional Tree Care Company in Indianapolis, this is highly respected and well established with over 26 years of service. Has year round work with overtime pay. Top wages, benefits include medical, paid holidays, vacations, life insurance. Our company is looking for highly qualified bucket operator/climber with minimum of 5 years commercial and residential experience. Company will help relocate successful candidate. Contact Phil or Stephanie Ping 1-317-298-8482.

We Want You!
Arborists, Plant Healthcare, Crew Leaders, Climbers
Career team players. Work year round. Relocation assistance, excellent compensation, retirement & benefits package. Fax, E-mail or send resume to:
Arborguard
PO Box 477
Avondale Estates, GA 30002
Phone: 404-299-5555 Fax: 404-294-0090
E-mail: sprowhitt@arborguard.com
Web: www.arborguard.com

DO YOU LOVE WHAT YOU DO?

If so, we need people like you.

At Almstead Tree Company, we’ve built our reputation for professionalism and quality over 35 years.

Become part of the experience.

We offer excellent pay, great benefits, and opportunities in NY, NJ & CT.

Good people are always rewarded.

Please forward your resume to:
Kevin Rooney, Regional Manager
58 Beechwood Ave., New Rochelle NY 10801
Phone: 800-427-1900
Fax: 914-576-5448 Email: atc@bestweb.net
Visit our award-winning website at www.almstead.com

Please circle 3 on Reader Service Card

Stump Cutters

Established 1954—over 45 years

Buy from the Original Manufacturer

800 421-5985

Border City Tool & Manufacturing Co.

Please circle 14 on Reader Service Card
EXCITING CAREER OPPORTUNITIES FOR SERVICE INDUSTRY MANAGERS

Come Join One of the Largest Vegetation Management Companies in the United States

DeAngelo Brothers, Inc. is experiencing tremendous growth throughout the country, creating the following openings:

- **Branch Managers**
  - Various locations throughout the USA
  - Immediate openings in VA & New England

Responsible for managing day-to-day operations, including the supervision of field personnel. Business/Horticultural degree desired with a minimum of 2 years experience working in the green industry.

Qualified applicants must have proven leadership abilities, strong customer relations and interpersonal skills. We offer excellent salary, bonus, and benefits packages, including 401(k) and company paid medical coverage. For career opportunity and confidential consideration, send or fax resume to: DeAngelo Brothers, Inc., Attention: Paul D. DeAngelo, 100 North Conahan Drive, Hazleton, PA 18201. Phone: 800-360-9333; Fax: 570-459-5500. EOE/AAP M-F.

For career opportunities and confidential consideration send or fax resume, include geographic preferences and willingness to relocate to: Debra Hyde; PO Box 6488; Jackson, MS 39282. Phone 800-222-8038. Fax 601-372-8611.

Tennessee and North Carolina. For career opportunities and confidential consideration send or fax resume, include geographic preferences and willingness to relocate to: Debra Hyde; P0 Box 6488; Jackson, MS 39282.

FINANCING FOR NEW AND USED TRUCKS AND EQUIPMENT

**CAG corporation**

**GIVES YOU THE FINANCING POWER**

**SEASONALLY DISCOUNTED PAYMENTS HELP YOU THROUGH THE SLOW MONTHS.**

**UNMATCHED FLEXIBILITY LETS YOU BUY FROM A PRIVATE SELLER OR DEALER.**

**LONGER TERMS MEANS LOWER MONTHLY PAYMENTS.**

If you're in the market for new or used trucks and equipment, contact CAG Corporation. We offer competitive pricing, convenient financing options, and unparalleled service. Call 1-800-932-CASH for your no obligation application today. We lend for new and used trucks and equipment.

1-800-932-CASH

Ask for Brian, Marcus or Michael

CAG corporation

100 Dickinson Dr., Suite 114
Chadds Ford, PA 19317
(610) 558-3800 • Fax (610) 558-1949
www.cagcorp.com

Why choose SavATree?

**CUTTING EDGE**

SavATree utilizes the latest arboricultural techniques, state of the art equipment, exclusive products and fully customized solutions to provide tree, shrub and lawn care to residential and commercial properties throughout the northeast.

To be on the cutting edge, call SavATree.

Phone: (800) 666-4873, ext.153
Fax: (914) 666-5843
Visit our website!

SavATREE®

www.savatree.com

Please circle 59 on Reader Service Card

continued on page 70

FOR SALE

USED EQUIPMENT FROM BANDIT INDUSTRIES, INC.

Brush Bandit Chippers
(1) Mighty Bandit II, Kohler 23 hp; (4) Model 65, Wisconsin 30 hp; (1) Model 90W, Wisconsin 37 hp; (1) Model 90W, Deutz 41 hp; (1) Model 90W, John Deere 80 hp; (1) Model 90, Perkins 50 hp; (1) Model 95, GM 76 hp; (1) Model 100, Wisconsin V465; (1) Model 100, Ford Gas, 6 cyl; (1) Model 200+ Cummins 100 hp; (1) Model 200+ Cummins 76 hp; (4) Model 250, Cummins 116 hp; (1) Model 250, Perkins 102 hp; (1) Model 280, Cummins 116 hp; (1) Model 1290 Drum; (1) Model 1690 Drum; (1) Model 1200, Cummins 177 hp; (2) Model 1254, Cummins 200 hp; (1) Model 1890, Cummins 200 hp

Bandit Whole Tree Chippers
(1) Model 1400 Tree, Cummins 200 hp; (2) Model 1400Track, Cummins 250 hp; (1) Model 1850 Track, Cummins 250 hp; (1) Model 1900 Tree, CAT 3406TA 425 hp

Stump Grinders
(1) Model 3680 Beast

Vermeer
(2) Model 1250, Perkins 80 hp; (1) Model 1600, Ford 6 cyl.; (1) Tub grinder, 3406E CAT 400 hp

Morbark
(1) Model 7, W-2 1250 Wisconsin 35 hp; (1) Model 10, John Deere 56 hp; (1) Model 10 E-Z, John Deere 50 hp; (1) Model 16, Cummins 250 hp; (1) Model 16, Cummins 194 hp; (1) Model 17, Turbo Perkins 102 hp; (1) Model 100, Onan 24 hp; (1) Model 2070, Deutz 40 hp; (1) Eeger Beever, Wisconsin gas; (1) Eeger Beever, Ford 2.3L; (1) Eeger Beever, Cummins; (1) Eeger Beever, Hercules

Miscellaneous
(2) Chipmore 12-inch; (1) Promak, Kohler 23 hp; (1) Duratech Whirlwind, CAT 3056; (2) Asplundh 12-inch drum, Ford 6 cyl; (1) Asplundh 12-inch drum, Perkins 80 hp; (1) Asplundh 16-inch drum, Ford 6 cyl; (2) Asplundh 16-inch drum, Ford V-8; (1) Wayne 12-inch drum, Chrysler 6 cyl; (1) Willibald M2A-2500S; (1) Woodchuck WC-17, CMC 120 hp; (4) Mitts & Merrill drum, 6 cyl; (1) Trelan M-18, Deutz 250 hp; (1) Innovator 8-foot tub, Cummins 6BTA 177 hp; (1) Jenz

Bandit Industries, Inc. 6750 Millbrook Road, Remus, MI 49340. Phone (800) 952-0178 or (517) 561-2270. Fax: (517) 561-2375.
Forestry Equipment of Sheby, NC
704.487.7245 Day • 704.481.3194 Evenings • 704.482.4685 Fax

Used and Rebuilt
Drum Chippers Available

60' Working Height
ALTEC
LR III-55
1992 GMC TopKick
366 Fuel Injected Engine with Kubota Pony Engine.

55' Working Height
Aerial Lift of Conn AL-50
1991 GMC TopKick
CAT 3116 Diesel
Automatic Transmission

1992 Ford F700 12' Chip Body with Tool Boxes and ManCab; 6.6 Diesel

55' Working Height
Asplundh LR-50 1991
Ford F700 429 Gas with
3 Cyl. Kubota Pony Engine
5 Speed Transmission

NEW!
60' Working Height
Altec LR III-55
1999 International 4700 DT-466 Diesel

55' Working Height
Aerial Lift of Conn AL-50
1992 Ford F700 6.6 Diesel
6 Speed Transmission

NEW!
60' Working Height
Hi-Ranger XT-55
1999 International 4700 DT-466; Air Brakes

Forestry Equipment of Sheby, NC
704.487.7245 Day • 704.481.3194 Evenings • 704.482.4685 Fax

Please circle 31 on Reader Service Card
**TCI MAGAZINE CLASSIFIEDS**

**The Tree Industry's Marketplace**

1-800-733-2622

---

**Big Tree Mover**

Imported Newman Transplanting Trailer, handles up to 12-inch diam., $2900. Must move this winter. Photos & info. (207) 594-4210. Trees by Jorgensen, Inc., 137 Dublin Road, So. Thomaston, ME 04858

---

**For Sale**


---

1998 Rayco - 120 DXH, 1200+ hours, Excellent condition. Also Hodge 25hp self-propelled, low hours ($3000). Rayco 120 DXH & RG50 Demos. Call Wayne at 601-371-8733. Matthew 16:26

---

**For Sale**

1987 Ford F-700, 6.6 Liter Diesel, 5-speed, flatbed, 70-foot aerial bucket truck. Excellent condition. $34,000. Box 206 Pine River, MN 56474 or call (218) 587-4638.

---

**Bucket Truck, 1997, 60-ft reach**, Versalift, VO-55 rear mntd, Ig. toolboxes, mntd on 1997 INTL, DT 466-230 hp, auto, airbrakes, cust. cab, CDL cheater, 26k GVW. New $95K. Asking $80K/bo, 603-352-8330

---

1999 Brush Bandit 1850 Whole tree chipper, 350 Hrs., Cab with heat, heavy duty loader. Paint and machine are Mint condition. $70,000. 1993 721 Hydro ax with mower and 22-inch saw head, cab with air and heat. Machine is in very good condition. $94,500. Call 440-647-4353.

---

**Alexander Equipment** - the only used equipment source offering a full satisfaction guarantee! We have a huge selection of used chippers and stump grinders...fully serviced and ready to work! See our complete inventory list on the web at www.alexequip.com or call Matt or Steve at 630-663-1400.

---

**When You Build The World's Best Stump Grinder . . . You Power It With a Kohler**

**KOHLER engines**

![Kohler Engine](DOSKO INDUSTRIES, INC.
1324 Rialto Ave.
San Bernardino, CA 92410
(909) 885-0988
FAX (909) 381-4743)

---

**Hydraulic knuckleboom trucks** with dumping flatbeds, Ford, International, 1988 to 1991, single axle, CDL or non-CDL. We can custom design and build sides, tailgates, chip boxes or continuous-rotation grapples. Call us for any specialty truck needs. Atlantic Fabricating, Inc., Jack or Paul, Sayreville, NJ. (732) 938-5779. www.atlanticboom.com

---

Can your stump cutter operate for $3 an hour and go anywhere? Ours can. The Alpine Magnum weighs just 88 lbs., can operate near fences, walkways, buildings, and sidehills. It can clear brush, dig shallow trenches and maneuver over soft ground without making tire tracks. Call or write: Alpine Machine, 7910 Thornbury St. S.W., Olympia, WA 98512-2368. (360) 357-5116.

---

Ropes, Ropes, Ropes
All types and brands of professional climbing and lowering arborist ropes at warehouse prices. Call for current price list. Free shipping. Visa, MC, AX. Small Ad - Big Savings 1-800-873-3203.

Hardware and software by an arborist for the arborist. For more information about the industry’s best selling package, call or write Arbor Computer Systems, 117 Weston Road, Westport, CT 06880. Phone: 203-226-4335.

Bucket Truck with chip dump box. 45-foot working height, 1979 GMC. Power by 3208 CAT. 12-inch Asplundh chipper is mounted at the rear. $14,500. Call Luc at 613-453-1112 (Toronto, Canada)

Hardware and software by an arborist for the arborist. For more information about the industry’s best selling package, call or write Arbor Computer Systems, 117 Weston Road, Westport, CT 06880. Phone: 203-226-4335.

Bucket Truck with chip dump box. 45-foot working height, 1979 GMC. Power by 3208 CAT. 12-inch Asplundh chipper is mounted at the rear. $14,500. Call Luc at 613-453-1112 (Toronto, Canada)

Used Bandit Chippers
6 model 250-XP, various engines, $15,000 - $20,000. 1 model 250, $16,500. 3 model 200, $12,000 to $16,000. Vermeer model 1230, $9,500.

Blade Equipment, Inc.
800-736-5060


For Sale–Greenville, SC tree care co. est. 14 yrs ago. Both commercial and residential year-round work, tremendous growth potential, excellent reputation and very loyal customer base located in rapid growth area. Send inquiries to 110 Ford Rd., Greer, SC 29651

Sale of a Business
Tree care company, active in North-Rhine Westfalia/Rhineland-Palatinate (Germany). Well-established operations, high profitability, for sale short-term or long-term. Purchase price: o.n.o. (if needed, commercial property to be sold as well). Mail inquiries to Box WS, TCI, PO Box 1094, Amherst, NH 03031-1094.

For Sale—Well established tree care business in Seattle, WA. Regular residential and commercial clientele. Truck, chipper and other equipment included. Excellent opportunity with potential for growth. Send inquire to Box LW, TCI, PO Box 1094, Amherst, NH 03031-1094.

Established tree care business for 36 years on Maryland’s Eastern Shore. Long-term contracts and good work force in place. Year-round work with good growth opportunity. Possible owner financing. Box PL, TCI, PO Box 1094, Amherst, NH 03031.

Tree Care Business For Sale
Established and profitable business located in Maui, Hawaii. Year-round work with opportunity for growth. Excellent reputation. Incl. truck, chipper and misc. equipment. For info call (808) 871-4701.

Please circle 66 on Reader Service Card

TREE CARE INDUSTRY - APRIL 2000

continued on page 72
Established tree service in Charlotte, NC. Success has come to this tree surgeon through a 15 year track record. The work load is split 90% residential and 10% commercial. All equipment to do the job included in the sale. Present owner willing to stay on as a salesman/estimator. Call Bob (704) 676-0940.

Tree Service Company for sale serving the suburbs of Detroit, including some of the highest income areas in the USA. The assets include a wide range of late model trucks and equipment that meet OSHA standards, reliable and working every day. Strong IPM and tree surgery program and a strong management team. Business may be sold separately or with building and property. Owner will act as support unit upon request. Interest parties can request further information may mail at Box PS, TCI, PO Box 1094, Amherst, NH 03031-1094

**SERVICES**

ArborWare, The Business Solution for Arborist, Landscape and Lawn Care Professionals includes complete Customer Management: Estimates, Proposals, Work Orders, Invoices, Statements, and Accounts Receivables. Also includes: Customer Property Inventory, PHC and Pest Disease control, chemical application and DOA reporting, maintenance and generation of Renewal Contracts, scheduling/routing of Crews and Sales Reps, Vehicle Maintenance and DOT reporting, Job Costing, Marketing and Management Reporting, comprehensive User Manual, and more ... Call 1-800-49-ARBOR (2-7267) for more information.

ArborGold Software
Manage your customer's from the minute they call. Specialized software just for Arborists. Proposals, Invoicing, Work Orders and much more! For more information call Tree Management Systems, Inc. today at 800-933-1955 or download a free demo at www.turftree.com

Classified ad rates:
$60 per inch
($50 NAA members),
1-inch minimum.
Payable in advance.
Ad deadline is the 20th of the month, two months prior to publication.
Send ad and payment to:
TCI, PO Box 1094, Amherst, NH 03031
Employee Safety
the key to any successful organization

4 Pocket-sized booklets
"How to" avoid four HAZARDS that cause the highest number of fatalities in the tree care industry.
- Safe tree felling
- Preventing falls
- Preventing struck-by's
- Preventing electrocution

NAA Pocket Guide
Preventing Electrocution

NAA Pocket Guide
Preventing Struck-by's

NAA Pocket Guide
Preventing Falls

NAA Pocket Guide
Safe Tree Felling

Buy all four guides ... and receive a copy of
A Climber's Guide to Hazard Trees ... FREE

Available in Spanish Español
Want to place an order?
Call: 800-733-2622 or 603-673-3311
Web site: www.natlarb.com

These four hazards are chief concerns of OSHA inspectors

Please circle 46 on Reader Service Card
More on Cobra System

Thank you for printing the excellent article on the use of Cobra support systems. It was good to see the use of a technique that does not damage the tree get such a thorough treatment.

It could be mentioned, however, that pruning options exist that can manage codominant stems, either instead of or in conjunction with artificial support. Crown thinning to reduce wind load will always lessen the stress on a narrow fork. Crown reduction, where conditions call for it, achieves the same goal. But reducing the height of both codominant stems is not always desirable, or necessary. A third pruning technique, called “subordination pruning” by Way Hoyt of the Arborist Supply House, is very useful in treating potential failure from codominant stems.

The stem that is least important to the tree’s overall form is severely reduced, or subordinated. The goal is to train that stem to a side branch or branches that can assume apical dominance. Even if they are less than one-third the diameter of the parent stem, subordination pruning can often result in a stable and well-formed tree. This alternative to artificial support has worked well for me, and I recommend that it also be considered when dealing with the problem of codominant stems.

Guy Meilleur
Better Tree Care Associates
Apex, NC

February Made the Grade

I just finished reading your February TCI magazine. Congratulations on such a fine series of articles. I appreciate your efforts to inform the tree care industry. I know the amount of effort necessary to put so much information together. I greatly appreciate your work to inform your readers.

Oscar P. Stone
Marlboro, VT

Trees & People

I believe I am writing for many of your tree comrades who believe that trees were actually created by someone. They didn’t just happen to evolve.

Every once in a while, one of the modern fathers of our craft shares some information and then expounds personal philosophies and theories of evolution. In his article in TCI, The Science of Tree Cultivation..., Dr. Shigo writes sarcastically “humans feel they are at the top line for living systems.” Yes, there are some of us who hold such a selfish notion because we also believe that man and woman were created in the image of God. That all of nature, trees included, were given into our stewardship to care for. You may well say the sun, photosynthesis, cells dividing and vessels conducting do all that. But I submit these processes were all designed and set in motion by an intelligent person. Where do you think your own analytical thinking system came from?

We are on a level higher than a tree, not because we write books as Dr. Shigo stated. We have the knowledge and capacity to help or to hurt, to grow or to cut, to plant or to reap, to care for trees or not to care at all. We humans have the privilege to learn yet the option to stay ignorant (example: Topping).

continued on page 76

GET RESULTS FASTER USING AIR-SPADE®
Excavate plant roots in minutes, without root damage. Used by Arborists and Landscapers throughout the world for:

- Root Collar Excavation
- Soil Aeration and Vertical Mulching
- Root Pruning
- Soil Compaction Relief
- Root Structure Analysis
- Safely Locating Buried Utilities

For more information:
Concept Engineering Group
888-55-SAFEX (7-2339)
E-mail: ceg@air-spade.com
www.air-spade.com

Please circle 20 on Reader Service Card

Please circle 25 on Reader Service Card
SURVIVAL OF THE FITTEST

The Natural Selection when you’re up against hostile environments, unexpected hazards and you need constant readiness. Under these conditions, only the strong survive. Track down a RACINE product. You’ll discover a prevailing species of efficient, heavy-duty, low pressure hydraulic tooling and evolutionary designs specifically for the job at hand.

Witness the Power. Versatility, Stamina. Watch for RACINE tool’s Nimble, Lean, Fast and Quieter characteristics. Wonder at their long life expectancy... just what you’d expect in such a prime specimen.

For RACINE products call: 1-800-763-3843.
Dr. Shigo wrote trees have defense as their “theme” and we have brains as our “theme,” but we know that defense systems are set throughout humans as they are throughout the structures of a tree. Of course trees don’t “fear or run away from fire or flood as do us humans” for their skin is thick and they are firmly planted in the ground. According to the Bible, the righteous will not be as most humans, but will be as a tree because in God they will have the traits of a tree. I think it strange that the respected researcher wrote, “humans have brains for our theme.” A brain is an organ. A theme is a purpose. And hopefully our theme will carry over to the benefit of people and trees.

A very serious and privileged job it is to care for trees. If nothing else, start with some acknowledgement and thanks.

W. Phillip Berwick III
The Living Tree Care Company
Hillsboro, MO

Knowledge Over Looks

I found one of Lew Bloch’s criteria for the professional consulting arborist, that he dress, perhaps, “in a nice sweater, slacks, and shoes,” rather than a “plaid shirt, coveralls and dusty boots,” to be off the point, shallow, and ridiculous. If a person has a long history of loving and touching trees, has worked for years to increase his knowledge of tree identification, ‘behavior,’ and biology, has a good feeling for landscape aesthetics, is prompt, enthusiastic, and displays the proper respect towards his client, he’s “professional” enough for me even if he shows up in a loincloth and mirrored sunglasses. Clients care that their arborist show good judgement, scientific knowledge and the intuitive ability to help them make difficult decisions about trees that may have been growing on their property for generations. I seriously doubt whether anyone has rejected a truly professional arborist’s advice because her sweater just wasn’t really that nice.

Ken Radeloff
No Bull Landscaping
Glenmoore, PA

Send comments and letters to:
Tree Care Industry, 3 Perimeter Road, Unit 1,
Manchester, NH 03103
Fax: 603-672-2613
E-mail: Garvin@natlarb.com
Wolf Claw
Tree Climbing Boot Harness

The Wolf Claw™ climbing harness comes complete with standard length gaffs, tip covers, boot harness with 2-1/2" - 6" extension, and tote bag. 1 year Mfg. warranty. Pair.

Item No. Description WILD ASS SALE
WC 1001 Wolf Claw Ratchet Type $279.95
WC 1003 Wolf Claw Strap Type $279.95

Henry, our Wild Ass donkey, thought that Y2K was the end... and he's in jail now. If you buy, he'll get out of trouble and you'll save lots of money. Read the full story on page 2 of our (free) "Wild Ass" sale catalog.

President

SAMSON® Arbor-Plex
1/2" Climbing Rope

OK. Here is the deal. We buy Samson Rope, particularly 1/2" Arbor-plex, in huge quantities and pass the savings on to you. Stock up now while supplies last.

SAMSON® is the name you can trust for rope. All their rope is manufactured to their highly recognized Quality Assurance Program to meet some of the most demanding requirements. We carry a full-line of arborist rope and equipment.

Item No. Description WILD ASS SALE
21000R 1/2" Arbor-Plex 600ft Roll (51 lbs) $219.95

Bailey's WoodsmanPRO™ Chain Saw Chaps

Bailey's is proud to offer this new, economical protective chain saw chap with test proven protection. We carry other chap styles as well as a full line of safety products.

Meets New FED-OSHA Requirements
And are U.L. Approved

Item Number Size Per Pair Per Doz
132 ORG RG 28" pad, 32" overall lgth $37.95 $35.95
132 ORG LG 30" pad, 34" overall lgth $38.95 $36.95
132 ORG XL 32" pad, 36" overall lgth $39.95 $37.95
132 ORG 2X 36" pad, 40" overall lgth $41.95 $39.95

World's Largest Mail Order Woodsman Supplies Company — Selling at Discounted Prices.

ORDER TOLL FREE 1-800-322-4539
www.baileys-online.com

SOURCE CODE T8C2W4

Please circle 8 on Reader Service Card
Big Al Fontaine sat up, shocked and astounded by the announcement on the morning news.

"That’s right Bill, it occurred last night just after midnight here at the maximum security prison for men. It appears that one of the inmates (who shall remain nameless) climbed to the roof of the 15-story main building and attempted to lower himself from the precipice with what appears to be a rope fashioned from bed sheets. Prison authorities have informed us that when the suspected escapee reached the ninth floor, his cotton sheets suddenly gave way, tragically ending his bid for freedom. His body is still lying in the exercise yard down below! We will have more for you as further details are released. Live at the scene... Back to you in the studio..."

Big Al finished his morning coffee, switched off the television, and headed out to meet his number one man, Max Bunyan, at the jobsite. With this “incident” still fresh in his mind, Al thought this would be a good time to turn the misfortunes of the impact-destined prisoner into an educational opportunity at this morning’s weekly safety meeting. How so? It just so happens that the prisoner could have prevented his own untimely demise had he been aware of ANSI Z133.1 and the standards it contains.

Specifically, climbing line SHALL be:

1. **Minimum 1/2-inch or 12 mm in diameter:** This one is critical for you and me, due to the fact that 1/2-inch is easy to hold on to (ergonomics). Both footlocking and body-thrusting would get a lot tougher with a climbing line that is hard to hang on to. The shock absorption and abrasion resistance of a 1/2-inch line has been addressed as well. In addition, this diameter is consistent with OSHA regulations in the Vertical Standard, 1910.269.

2. **Minimum tensile strength 5,400 pounds:** Taking into account the 10 percent safe working load, the wear and tear - and of course, let’s not forget about knots. This allows climbers to work comfortably on the end of a rope, provided all other safety measures are taken, with out fear of the rope unraveling or breaking, and dropping its precious (living and breathing) cargo to the ground.

3. **Constructed of approved synthetic material:** Sure, cotton feels good to wear, hemp fiber is becoming trendy, and there are ropes made with these natural fibers. Keep in mind that natural fiber ropes cannot be reliably duplicated. One never knows when that bad load of cotton or hemp shows up from the fields. Thus, we follow the ever-important standard of using reliable man-made stuff. Common materials such as polyester, polypropylene, technora, kevlar, etc., are just a few examples of these.

Evidently, our unnamed felon was unaware of the ANSI standards, and now it’s a tad too late to replace his knotted bed sheets with a climbing line that meets the ANSI requirements. However, there’s still time for the rest of us to take advantage of the stronger, lighter, more affordable products that improvements in technology have made available for our industry.

---

**For the Next Millennium— All Of Your Arborist Needs**

Please circle 13 on Reader Service Card
Please tell these advertisers where you saw their ad.
They appreciate your patronage.

<table>
<thead>
<tr>
<th>Reader Service No.</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ADI Pruning Tools by TOL Inc.</td>
<td>12</td>
</tr>
<tr>
<td>2. Aerial Lift, Inc.</td>
<td>Back Cover</td>
</tr>
<tr>
<td>3. Almstead Tree Company Inc.</td>
<td>67</td>
</tr>
<tr>
<td>4. Altec Industries Inc</td>
<td>5</td>
</tr>
<tr>
<td>5. American Arborist Supplies, Inc.</td>
<td>23</td>
</tr>
<tr>
<td>6. ArborSystems LLC</td>
<td>47</td>
</tr>
<tr>
<td>7. Arborwear Inc.</td>
<td>26</td>
</tr>
<tr>
<td>8. Bailey's</td>
<td>77</td>
</tr>
<tr>
<td>9. Bandit Industries, Inc.</td>
<td>Inside Back Cover</td>
</tr>
<tr>
<td>10. Bartlett Manufacturing Company</td>
<td>44</td>
</tr>
<tr>
<td>11. Bartlett Tree Experts</td>
<td>66</td>
</tr>
<tr>
<td>12. Bishop Company</td>
<td>46</td>
</tr>
<tr>
<td>13. Bishop Company</td>
<td>78</td>
</tr>
<tr>
<td>14. Border City Tool &amp; Manufacturing Company</td>
<td>67</td>
</tr>
<tr>
<td>15. Brute Manufacturing Corporation</td>
<td>61</td>
</tr>
<tr>
<td>16. CAG, Inc.</td>
<td>68</td>
</tr>
<tr>
<td>17. J.P. Carlton Company, Div. DAF, Inc.</td>
<td>13</td>
</tr>
<tr>
<td>18. CEI</td>
<td>16</td>
</tr>
<tr>
<td>19. Coke's Tree Surgery Inc.</td>
<td>53</td>
</tr>
<tr>
<td>20. Concept Engineering Group, Inc. (CEG)</td>
<td>74</td>
</tr>
<tr>
<td>21. Corona Clipper</td>
<td>57</td>
</tr>
<tr>
<td>22. Creative Automation Solutions</td>
<td>29</td>
</tr>
<tr>
<td>23. Cummins Michigan, Inc.</td>
<td>79</td>
</tr>
<tr>
<td>24. The Davey Tree Expert Company</td>
<td>65</td>
</tr>
<tr>
<td>25. DICA Marketing Co.</td>
<td>74</td>
</tr>
<tr>
<td>26. The Doggett Corporation</td>
<td>12</td>
</tr>
<tr>
<td>27. Doskocil Industries, Inc.</td>
<td>70</td>
</tr>
<tr>
<td>28. Dow Agrosciences</td>
<td>49</td>
</tr>
<tr>
<td>29. Fanno Saw Works</td>
<td>62</td>
</tr>
<tr>
<td>30. FCJ/Racine</td>
<td>75</td>
</tr>
<tr>
<td>31. Forestry Equipment of Shelby, Inc.</td>
<td>69</td>
</tr>
<tr>
<td>32. Forestry Suppliers, Inc.</td>
<td>10</td>
</tr>
<tr>
<td>33. G &amp; A Equipment Inc.</td>
<td>65</td>
</tr>
<tr>
<td>34. Good Tree Care Company</td>
<td>25</td>
</tr>
<tr>
<td>35. Husqvarna Forest &amp; Garden Co.</td>
<td>39</td>
</tr>
<tr>
<td>36. IML - Instrument Mechanic Labor, Inc.</td>
<td>22</td>
</tr>
<tr>
<td>37. Jameson Corporation</td>
<td>61</td>
</tr>
<tr>
<td>38. Labonville, Inc.</td>
<td>27</td>
</tr>
<tr>
<td>39. Leonardi Teeth/Simonds Industries Inc.</td>
<td>80</td>
</tr>
<tr>
<td>40. Lewis Utility Truck Sales, Inc.</td>
<td>27</td>
</tr>
<tr>
<td>41. MAT-3, Inc.</td>
<td>7</td>
</tr>
<tr>
<td>42. The J. J. Maugt Company</td>
<td>45</td>
</tr>
<tr>
<td>43. Miller Machine Works</td>
<td>57</td>
</tr>
<tr>
<td>44. Morbark, Inc.</td>
<td>63</td>
</tr>
<tr>
<td>45. NAA - Rigging &amp; Basic Training</td>
<td>54-55</td>
</tr>
<tr>
<td>46. NAA - Pocket Guides</td>
<td>73</td>
</tr>
<tr>
<td>47. National Equipment Company, LLC</td>
<td>72</td>
</tr>
<tr>
<td>48. New England Ropes, Inc.</td>
<td>30</td>
</tr>
<tr>
<td>49. Northeastern Associates</td>
<td>60</td>
</tr>
<tr>
<td>50. Opdyke, Inc.</td>
<td>11</td>
</tr>
<tr>
<td>51. Payeur Distribution Inc.</td>
<td>64</td>
</tr>
<tr>
<td>52. Pete Mainka Enterprises, Inc.</td>
<td>60</td>
</tr>
<tr>
<td>53. Polecat Industries, Inc.</td>
<td>66</td>
</tr>
<tr>
<td>54. Porter-Ferguson</td>
<td>21</td>
</tr>
<tr>
<td>55. Rainbow TreeCare-Scientific Adv</td>
<td>Inside Front Cover</td>
</tr>
<tr>
<td>56. Rapco Manufacturing, Inc.</td>
<td>48</td>
</tr>
<tr>
<td>57. Rayco Manufacturing, Inc.</td>
<td>1</td>
</tr>
<tr>
<td>58. Royal Truck &amp; Equipment Inc.</td>
<td>15</td>
</tr>
<tr>
<td>59. SavATree</td>
<td>68</td>
</tr>
<tr>
<td>60. Schodorf Truck Body &amp; Equip. Company</td>
<td>44</td>
</tr>
<tr>
<td>61. SelfHEAL, Inc./Oral Ivy</td>
<td>26</td>
</tr>
<tr>
<td>62. Sherrill, Inc.</td>
<td>28</td>
</tr>
<tr>
<td>63. Southco Industries</td>
<td>17</td>
</tr>
<tr>
<td>64. Southeastern Equipment Company</td>
<td>51</td>
</tr>
<tr>
<td>65. Tamarack Clearing Inc</td>
<td>19</td>
</tr>
<tr>
<td>66. Tamarack Clearing Inc.</td>
<td>71</td>
</tr>
<tr>
<td>67. TCI EXPO</td>
<td>58</td>
</tr>
<tr>
<td>68. Terex Telelect Inc.</td>
<td>3</td>
</tr>
<tr>
<td>69. Timberwolf Manufacturing Corp.</td>
<td>46</td>
</tr>
<tr>
<td>70. Tree Tech Microinjection Systems</td>
<td>43</td>
</tr>
<tr>
<td>71. Trueco, Inc.</td>
<td>62</td>
</tr>
<tr>
<td>72. V &amp; H Inc.</td>
<td>76</td>
</tr>
<tr>
<td>73. Valley Sterling Trucks of Canton</td>
<td>14</td>
</tr>
<tr>
<td>74. Western Tree Equipment &amp; Repairs</td>
<td>21</td>
</tr>
<tr>
<td>75. Woodsman Inc.</td>
<td>31</td>
</tr>
<tr>
<td>76. Yale Cordage Inc.</td>
<td>25</td>
</tr>
<tr>
<td>77. Zenith Cutter Company</td>
<td>22</td>
</tr>
</tbody>
</table>

* Please circle this number on the Reader Service Card for more information.

Cummins Diesel Power
for the Tree Care Industry

B&C Series Engines that provide a wide range of Engine Power, 76-260 horsepower. Engines that are designed to meet the new and future off-Highway Emissions Regulations.

Cummins Michigan Inc.
41216 Vincenti Court • Novi, MI 48375
Phone (248) 473-9000 • Fax (248) 473-8560

Please circle 23 on Reader Service Card

TREE CARE INDUSTRY - APRIL 2000

79
Check Your Ropes Closely ...

Even in the Middle of a Job

By Terry Castellow

I am an owner of a small tree care company, which I started in Gloucester County, Va., in 1976 when I was 20 years old. I've done most of my own climbing, always with ropes and saddle. This particular day I was contracted to take down a fairly large tulip poplar tree in Williamsburg, Va. The tree was about 30-inch dbh and 90-feet tall. There was a slingshot fork about 45 feet above the ground. All I had to do was put the tree on the ground, but other trees prevented a clean drop away from the house, fence and garage. I decided to top both forks to 55-foot stubs. Then I could drop the trunk cleanly under some obstructing hickory limbs.

I went up one fork, "set" my ropes, then dropped down the other fork. I proceeded to rope limbs over the fence, swinging them freely as my groundsman swiftly lowered them, untied them and flipped the rope back to me for the next one. As I worked my way down, I noticed a melted spot in my blue climbing rope hanging above me in the other fork. It had been in good condition at the start of this operation, but the lowering bull rope was crotched a couple of feet above the point I had used to "saddle in" and was rubbing against my climbing rope.

I adjusted my saddle rope, unhooked my flip line and prepared to take a swing-jump onto the remaining fork. I was palming the lip of my last cut, had pulled my spikes out of the tree and twisted my body in the direction I was about to jump. At the same time, I was holding the two strands of climbing rope in my right hand, putting increasing weight on the rope. I was about to let go with my left hand and swing the short distance, when I heard a snap and the rope went limp in my hand. My left hand was the only part of my body in contact with the tree. I instinctively tightened my grip as my body dropped about a foot. I quickly twisted back around, got my spikes into wood and got my flip line around to secure me. As I looked at the ground, 55 feet below, I shook my head and thanked God I was still alive. I had been seconds away from full commitment to my rope and sure death if it hadn't snapped before I put my full weight on it.

In retrospect, I should have crotched my lowering rope below my climbing rope and avoided all the friction. More importantly, I reinforced the lesson that had been drilled into me for years ... always maintain and check your ropes, even in the middle of a job. I'll never take another melted spot for granted. My life is worth more than a $70 hank of nylon. I look at nicks more critically now. I hope you will do the same.

Terry Castellow is owner/operator of Quality Tree Service in Saluda, Va.
WHEN IT COMES TO TREE AND WASTE PROCESSING EQUIPMENT...

LOOK TO BANDIT

Model 3680 Beast Recycler™

By Smoracy

The most effective waste reducer and mulch producer available. Processes stumps, logs, brush, pallets, railroad ties, wet leaves, construction waste and demolition material.

Model 250XP

Seven Models of hydraulic feed disc style chippers with 6", 9", 12" & 18" diameter capacities

Model 1850 Track Bandit™

The most productive, cost effective whole tree chippers. Available as towable and self-propelled in 14", 18" & 19" diameter capacities.

Chip Box Combo

The Megabyte

Chipper chipbox combo

Large log & stump shear

BANDIT INDUSTRIES, INC.

6750 MILLBROOK RD. • REMUS, MI 49340
PHONE (800) 952-0178 or (517) 561-2270 • FAX (517) 561-2273
E-Mail: brushbandit@ecliptel.com • Website: www.banditchippers.com

Please circle 9 on Reader Service Card
These 55', 58' and 60 foot working height vehicles are the most compact and maneuverable for doing (GTW) General Tree Work. The overall length of the unit is approximately 26 feet.

Working over the rear of the truck eliminates dropping on the cab.

From trimming to removals, you gain the extra height by working over the rear of the truck, enabling you to set up in smaller and tighter area.

Very compact with a short wheel base of 152". Back of the cab to center of the rear axle dimension is 84".

50 foot side reach work can be performed without leaving the roadway.

All parts on an Aerial Lift are available for overnight delivery.

THE BEST WARRANTY IN THE BUSINESS

AVAILABLE: Tool & Rope Boxes • Thru Boxes

AERIAL LIFT, INC.
P.O. Box 66 • 571 Plains Road • Milford, Connecticut 06460-0066
PHONE USA: 1-800-446-5438, In CT: 1-800-245-5438 • Phone: (203) 878-0694 • FAX: (203) 878-2549
E-Mail: aerialinfo@aol.com
Company Website: http://www.aeriallift.com

Please circle 2 on Reader Service Card