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SAFETY TRAINING FOR THE PROFESSIONAL AND THE NON-PROFESSIONAL

by Donald F. Blair

> *WARNING. Tree maintenance is often dangerous and hazardous. It is the responsibility of the arborist to exercise adequate precautions for safety. Be safe. Do not rely on one piece of equipment only. This tree is subject to failure if climbed improperly. All tree maintenance must be performed in compliance with ANSI Z133.1 1988 standards.*

To date, I haven't seen this warning plate nailed to any trees, but the way things are going in the world of product liability and warning labels, don't be surprised if you do see it soon.

Ignoring my wry editorial, there are some good solid words to live by, literally, contained within the warning label. Philosophically, I try not to consider tree work as being either dangerous or hazardous, just peculiar (more on peculiar later). However, national safety statistics place the pursuit of arboriculture as an especially dangerous and hazardous occupation.

For your information, *peculiar* in the legal profession, refers to that which is unique and specific to a particular endeavor. Tree Work has an associated *Peculiar Risk* by virtue of the required skills and equipment necessary to permit an arborist to work safely and above ground. One might say that, "Arborists are peculiar," "Arborists do it in a peculiar manner," or "Arborists take peculiar risks."

Within arboriculture, in my experience, are two separate, parallel, unrelated expressions of tree work for hire. One is the self-styled recognized profession of arboriculture, of which we are all proud practitioners. The other is the murky underground of tree cutting for dollars. Table 1 gives a somewhat idealistic and stereotypic com-

parison of the two worlds.

Over the years, I have talked with scores of people who are in the tree care business with no knowledge of the established profession. These are men and women who had been or are still carpenters, rock climbers, merchant seamen, roofers, painters, investment bankers, ex-paratroopers and people who like to climb trees and get paid for it. There are also homeowners who, not knowing the difference between the price of paying for tree work and the cost of doing it themselves, buy a belt at a flea market, rent a chainsaw and do it themselves. The non-professionals are not aware of our organizations, skills, and techniques.

There are differences in the way professionals and non-professionals kill or maim each other. A non-professional, too often, is the victim of "not knowing any better". Improvising tools and guessing at technique quite often puts the non-professional at the disadvantage of being unaware of setting up a direct path to a serious injury. Electrical Hazards are quite often out of mind and out of sight until the moment of electrocution.

Professionals on the other hand, have the tremendous advantage of specialized equipment, established procedures, training programs and the stated philosophy that all accidents are preventable. Why then, do so many professionals get killed and crippled each year? Not paying attention to details such as: maintenance, communication, and hazard recognition. A professional who ignores the warning signs of a frayed rope, a cracking limb or a leaking fuel line puts himself in the direct path of an accident that did not need to happen. Electrical Conductors are neither mysterious nor unpredictable. They do a very consistent job of passing voltage through your body anytime you make direct or indirect contact.

Does anybody enjoy the thrill of gambling? The uncertainty of putting everything you've got on one number at the roulette wheel? Has anybody ever gone to Vegas with the pink slip, house deed and every cent, plus contracts to sell the family into slavery, has anybody ever put absolutely everything on the line for one number? Probably not. Has anybody ever been in a hurry, taken a shortcut, turned his back on a powerline, used a frayed rope, said, "I know it's not right, but let's go with it." What's the difference? Your life and your families future is on the line as surely as it is watching the little ball come to rest on the wheel. What's the difference. Luck? How much luck? What laws of probability are at work here?

Who is dumber? The non-professional who ties an electric chainsaw to an aluminum pole as as expedient, or the 'pro' who thinks ANSI are what get in your 'pantsi'.

As a professional, don't lose sight of the fact that people are going to climb trees whether they know how or not. Don't be miserly with your knowledge or your training. Try to get involved at the community level in consumer education, drive home the point that *"Pruning a tree can put you in touch with sudden death!"* This was the title of a very successful public information campaign sponsored by Kansas City Power and Light. Appreciate the fact that as a professional you have access to correct information, tools, techniques and equipment. As a professional you have an obligation to maintain your safety program as you should maintain the rest of your business. Failing to take advantage of safety programs that you know are available is not only irresponsible, its unprofessional.

Hazard Recognition

Sort of sounds like a lecture topic from a WWII training camp. All right men, notice the chart, here we have the M3A1 Hazard, you will learn it, you will recognize it, you will, you will, you will.

Hazards come in all sizes and shapes. Some are mechanical, some are botanical, some walk, some run (chainsaws, equipment of all types, dogs and children). Some creep (vines, for instance), some climb.

Table 1. An idealistic and stereotypical comparison of two words of tree care.

Professional Arboriculture	Tree Work for Bucks
Insured by: "Travellors", etc.	Smith and Wesson
Business License	Dog License
ISA, NAA, ASCA, CAA	NRA, AA, AAA, VFW
Attends Tree Seminars	Golf Clinics
Teaches "traditional methods"	Self-taught by instinct
Equipment is specialized	Improvised to the point of hazard.

Hazards are where you find them: in your pockets, in tool boxes, the truck that the tool boxes are bolted to, the tree next to the tree you're going to climb, the neighbor next to the client you're going to work for. "For want of a screw, the sideplate was lost. For want of a sideplate the clutch blew. For want of a clutch the saw stopped. For want of a saw the backcut stopped short. For want of a backcut, the top barberchaired. Because of a barberchair, the climber dies." Hazards are where you find them.

I think that we might be able to break Hazard Recognition down into various subcategories (Table 2).

Personal Hazards

Training/Supervision. You should either know how to do what you have to do or be in the process of learning. If you are learning, you must have adequate supervision until you have mastered the requirements of safety. Once they have been learned, you can concentrate on efficiency and quality. Lacking adequate knowledge of an appropriate procedure for a specific tree maintenance operation, lacking supervision or failing to supervise are all very real potential hazards.

Attitudes. Hey, You don't wanna do it, you ain't gonna do it! Right? Your attitude is going to make you or break you. If you have a good attitude about this profession and your specific job time passes quickly, the challenges can be enjoyed. If you hate any phase of the profession, tree work in general, your specific job and workmate, days drag, challenges are viewed as personal insults. A bad attitude is a hazard that can either hurt the individual or someone else. I knew a climber who would pull a chainsaw cord three times only. It failed to start, he'd throw it out of the tree. I know another legendary Euc Man who would normally punch out his supervisor as a means of turning in a resignation.

A good attitude can keep you calm when things don't go quite right. A professional attitude keeps you interested enough to keep pace with changes in the profession. A sincere attitude helps you with your clients and workmates. John Britton put it inelegantly but well when he said they won't hire the type of guy who "throws his balls over his shoulder before starting up a tree." Another tree company's motto (on their tee shirts) used to be "No balls, no bucks." Old "El Weblos Grande" is not the ideal man to have on your crew. Hire him and you'll have to add a handyman to go around replacing irrigation pipe, windows and shingles.

Physical Condition/Daily Health. You have to be physically fit in order to do tree work. Some phases of work and some styles of climbing are more demanding than others. It is important to be in form sufficient to accomplish the selected task.

Daily health takes into consideration the dips in well-being that we are all subject to. Getting over the flu, coming down with a cold, up too late the night before, too much to drink, perhaps? You can be strong but not up to par on any given day. You need to be able to make adjustments in order to maintain a margin of reserve.

Trying to do more than you physically can do is a hazard. You might strain your back trying to lift too large a log; get your arm broken for trying to hold on to too much limb; might fall because 80 feet is too far to footlock.

Table 2. Subcategories into which Hazard Recognition may be subdivided.

Personal
A. Training/supervision
B. Attitude
C. Physical condition/daily health
D. Personal Protective clothing and equipment

Tree
A . Work to be done vs structure and condition
B. Other Factors:
   1. Ivy or other vines entangling
   2. Bees, wasps, hornets, racoons or sloths in residence

Equipment
A. Suitability to specific task
B. Condition
C. Operator knowledge of equipment

Obscure Hazards are those not so easily categorized. Obscure hazards are those not immediately associated with tree work. Obscure hazards are those that require particular vigilance. Examples of obscure hazards might include and are certainly not limited to:
A. Children playing ball in a yard across the street and two doors down from where you are working
B. A sprinkler pipe hidden by ivy
C. Fueling a chainsaw on the fender of a chipper
D. A car accident in the next block

Discussion:
Keep in mind that we are either:
A. Learning (trainee, apprentice, etc.)
B. Learned (journeyman arborist)
C. Teaching (foreman, supervisor, owner)

Personal Protective Clothing and Equipment. From head to toe...hard hat, eye goggles, hearing protection, appropriate work shirt, strong pants that aren't badly ripped, gloves, ballistic protection, appropriate work boots. In addition, there may be job requirements for a respirator and chemical proof clothing. There are so many types of personal protective gear on the market, the most important factor for the purpose of Hazard Recognition is to recognize the fact that correctly maintained and appropriate clothing and gear can and will make a difference. The NAA has a very good instruction tape illustrating the proper use and storage of personal protective equipment.

Pilots have a pre-flight checkout that they go through every time they prepare for a flight. Your pre-work checkout should include the items listed in Table 3.

Table 3. Every tree worker should consult the following check list prior to beginning work each day.

Equipment Supplies	Yes	No
Hard hat (clean, suspension aok)		
Eye Protection Type _____		
Hearing Protection Type _____		
Tee Shirt		
Long Sleeved Shirt		
Lace-up min. 8" boots, rubber sole or vibram		
Ballistic pants		
Ballistic chaps		
Ballistic leggings		
Glove Type _____		
Spray Protective Clothing		
Dust Mask (helpfull when chipping Sycamore)		
First Aid Training		
Aerial Rescue Training		
CPR		
First Aid Kit		
Drinking Water		
Climbing Gear		
Saddle (good condition)		
Climbing Line (long enough, no burns, cuts, frays)		
Safety Strap (flipline, lanyard)		
Climbing Line Snap (functioning properly)		
Throw Ball (line long enough)		
Handsaw (sharp, handle aok)		
Scabbard (not clogged with sawdust, not ripped)		
Hand Pruner Scabbard aok		
Spurs (gaffs sharp and original shape)		
Spur Pads and Straps aok		
Optional:		
1/2" stainless steel pulley		
2) Locking steel carabiners		
2) 1" X 4' slings		
Spare Shoelace		
Electrical Tape		
Purely Personal:		
Special Medicines		
Lunch		
Enough Sleep		
Timepiece		
Money		
Swiss Army Knife		

Tree Hazards

Work to be Done vs Structure and Condition. Remember, 'Old Man Trouble". He's hiding behind that tree.

You should always check the root crown of a tree before climbing it to make sure that the tree isn't going to fall over on you. Be suspicious of trees entangled by ivy. Be vigilant if the crown is a little sparce. Ivy can hide bracket fungi. A sparce crown can indicate a failing root system.

I referred to a relationship between the work to be done and the tree structure and condition. A tree might be safe for felling but not for climbing. A limb might be safe to remove but not safe to climb in. A pre-climb check list is given in Table 4.

Equipment Hazards

We have a tremendous advantage over the non-professional in the tools and equipment we have available to us. The best tools available reflect years of practical experience translated into highly specialized equipment unavailable and unknown to the general public. A perfect example is a popular chainsaw lanyard snap that is designed to break at 150 pounds, thus releasing the saw if it

Table 4. A pre-climb check list for use to determine the structure and condition of the tree.

Pre-Climb Check Out	Yes	No
Power Lines/conductors		
Ivy on trunk		
Major deadwood		
Broken, hanging limbs		
Cables		
Split crotches		
Selected method of entry		
Path to tie-in point selected		
Secondary Rescue Line Needed		
Aerial Rescue Gear at Hand		
Cavities		
Bird or Squirrel's nest		
Bee, Wasp or Hornet activity		
Decay Fruiting Bodies or brackets		
Poison oak, ivy or allergy-inducing plant material		

were snagged by an overwhelming weight.

A lot of professional accidents have been traced back to improvising. A scoop shovel is not a good substitute for a peavy. A climbing line is not a bull rope. Make sure that the key equipment is suited to the intended task. Perform daily condition and operational checks and perform maintenance as recommended by the manufacturer. Take worn equipment out of service and destroy it, repair it or change it. Cut the nicked and worn sections out of rope. Repair or destroy ladders. The point is, don't leave it available for 'one more time'.

Specialized equipment requires specialized maintenance and use procedures. If you're in management, you must train your people in the proper use, inspection and field maintenance procedures. Equipment is too unique to create an all inclusive check list, but Table 5 will provide some of the questions that should be answered.

Obscure Hazards

I mentioned earlier that obscure hazards are those that are not so easily categorized. Examples:

1. Children playing ball across the street. They are fine as long as they stay in their yard, but if the ball gets away they are going to run after it. If it rolls under the tree as a limb is in free fall, you've got a problem.

2. Sprinkler pipe in the ivy. It can snag a climbing line or bull rope, trip a groundman or impale a falling climber. Find it and put a road cone over it.

3. Fueling a chainsaw on a chipper fender. Spill a little oil and you have a slick spot. Climb up on the chipper to reach a limb and slip off. Result, one broken elbow, etc.

4. Car accident in the next block. Our climber has thrown an aluminum ladder against a guy wire so that he can reach an overhang. He knows that guy wires are not energized. Big mistake! Car hits power pole one block over and knocks 12kv line loose. Conductor hot wires the guy and we score one melted ladder and one fricasseed arborist. Obscure Hazards require special vigilance, detailed observation and strict operational procedures. If the climber had been using a fiberglass ladder, there would have been less danger. If the climber had not trusted the guy wire, there would have been no accident.

Following ANSI Standards and working with a professional attitude should create enough of a safety buffer to allow for the absorption of the occasional obscure hazard. If you operate right to the razors edge of disaster; worn gear, inadequate equipment, sloppy work practices, there's no back-up or 'absorption factor' built into your operation. A truck with no brakes is no problem as long as you don't have to stop quickly or go downhill. A half-cut climbing line will still hold together as long as you never have to put your full weight on it. Don't fall.

Discussion

Now that I've got all of these hazards recognized, what do I do about them?

1. Get an ANSI Standard Book. Read it, teach it, live it.

2. Order the NAA ANSI video. This new program has brought tree care training into the 1980's.

3. Institute a documentable training program.

4. Implement a series of checklists including a salesman checklist (have the salesman take note of equipment needs and potential hazards), a foreman checklist (equipment and procedures), a climber checklist, and a crew checklist.

5. Schedule aerial rescue practice.

6. Plan for orientation of any new equipment acquisition. On the job is not the place to learn how to operate new equipment.

7. Teach proper back care and lifting procedures.

Table 5. A pre-climb check list to determine the suitability and condition of equipment.

Questions	Yes	No
Do I know what the job is		
Do I need any special tools not normally carried		
Are all standard tools on board		
Are the ropes clean and uncut		
Are all the tools on the Climber Checklist aok		
Are the ladders complete and tight		
Are the handles on the clean-up tools smooth and tight		
Are the pole saws sharp and non-splintered		
Are the pole pruners sharp and functioning smoothly		
Is there a tool box with maintenance tools and files		
Is there correct fuel mix for the equipment		
Is there special grease if needed for equipment		
Are manuals for special equipment on board		
Are wheel chocks on board		
Is the fire extinguisher current		
Am I familiar with all the tools and procedures I'll be responsible for using on this job		

8. Make sure that all employees can identify 'leaves of threes*' and other rash and allergy inducers. *Poison ivy, oak, sumac.

9. Require first aid and CPR certification.

10. Wear date your equipment and retire it on the correct birthday.

11. Keep your insurance current and paid up.

Sure, this is going to require some attention to detail and cost you some money. If you think that complying with a safety program will force you to make so many changes that you can't stay in business, you are already out of business. You are just putting yourself, your family and your employees at risk.

How can we compete for the shrinking labor market? How can we minimize our expenses and maximize our profitability? Professionalism will help. Wives and girl friends are more likely to accept their mates occupation if they can see that they are trained, equipped and supervised. If you can reduce your accident costs, you can increase wages and benefits, which will help you attract and keep better people who will be better motivated to be more professional, which will result in higher quality work with more production and greater safety, which will reduce your accident costs, which will enable you to increase wages and benefits, etc.

The more businesslike and professional we can conduct ourselves, the more 'legitimate' we'll appear in the eyes of the consuming public. We must do all that we can to widen the gap between the professional and the non-professional tree worker. Would you go to a dentist who worked out of a garage? Would you trust a lawyer who worked out of the back seat of a 1969 Fury station wagon? You see. We have certain expectations about certain professions. What should the public expectation about an arborist encompass?

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Abstract

SANTAMOUR, F.S. JR. and A.J. McARDLE. 1988. **Dogwood canker.** Am. Nurseryman 167(4):73-81.

Between December 1982 and July 1983, we established that there was a close association between dogwood canker and the almost universal presence of at least two species of nematodes. The nematodes appeared in the bark and phloem of cankered areas on the trunks and branches of flowering dogwood *(Cornus florida).* We were also successful in June 1983 in artificially inoculating nematodes into the bark of living dogwood stems and recovering them two months later. Inoculations we made in August 1984 produced dogwood canker symptoms, but we re-isolated no nematodes. Thus we delayed publishing our findings until we had more convincing proof that dogwood canker is caused by nematodes. Recent publication on the canker-nematode association by other researchers who were aware of our work has prompted us not only to report our findings but also to share some of our observations and speculations.