

tricks of the trade

Chain Saws, Brush Hooks & Machetes

The rush to new technologies is so fevered that one would think that little heed is anymore paid to the physical mechanics of surveying.

Surveyors who 30 years ago would forego the -30mm offset for prisms in the spirit of “keep it simple, I don’t trust automation,” now automate nearly everything and understand little of it.

One question appearing recently on a national blog was “Does anyone run line anymore?” On that note, try brushing lines using RTK GPS, scanners, UAVs or four year college graduates. You will probably find them all lacking. However, the *Measuring Minnesota* article in the October issue of *American Surveyor Magazine* gives hope that the Javad VS might be a game changer under tree canopy.

Last month at our local survey chapter we asked a new firm what percent of his surveys were performed with GPS and what percent did tree cover force them to use total stations? He replied that it was 50/50. We know of an older firm that regularly visited the local bar in the mornings to intercept out-of-work loggers. Rather than a college graduate, sometimes it is better for a crew to have one of these whirling dervishes with a screaming chain saw. With these the brush just seems to melt away; but such proficiency with a chain saw comes only after many semesters of another kind, and only a few surveyors reach this degree.

Right out of high school, in the Spring of 1965, Chad’s cousin, Bruce Erickson, had Chad falling timber and bucking logs in the woods around Coeur d’Alene, Idaho. The first tree Chad fell smashed his own car. Bruce hollered, “Cousin don’t you know how to fall a tree? Just remember that the



strip of wood between the undercut and the back cut acts as a hinge. As long as you don’t cut the hinge you can control the tree and the direction it falls.” “All Right, I’ll do that next time,” Chad said, as he kicked the roof back in place with his corked boots.

It was going fine for the rest of the first morning; the trees fell wherever the hinges pointed, until Chad came to a tree with a cat face (rotten spot) on the uphill side. The hinge failed and the tree tipped sideways, hung up in another tree and would not come down. He walked under the leaner, notched the offending tree and started the back cut. The added pressure from the leaner caused the standing tree to barber chair (split up the middle), kick back 20 feet (missing him by inches) and then fall sideways off the 20’ tall stump. The leaner fell on one side of the 20’ stump and the barber-chair fell on the other, each missing Chad by inches but smashing his saw to smithereens.



In the early 1970s, the editor of the magazine fulfilled a lifelong dream by moving to California and working in the woods and in a lumber mill. One day he rode along to the woods to take pictures and captured this logger felling a redwood that had been left over from earlier clearcuts. Clearly shown is the "hinge" referred to in this article.

When Chad came up out of the strip to get his extra saw, Bruce heard his tale of woe and exclaimed, "Cousin, don't you know how to knock down a hung up? Go to a third tree, fall it into the leaner and they will both come down." "All right, I'll do that next time."

It wasn't long before Chad hung up another tree, this time into the crotch of a "school marm." He selected a second tree, fell it and now had two trees hung up. So he fell a third, fourth, fifth, until he had eight trees hung up in the one tree, and only quit because there weren't any more trees within range. The whole works looked like a Sioux teepee 100 feet tall. That pyramid now

wouldn't fall over if an earthquake and a hurricane came at the same time. So, Chad went into the teepee, cleared an escape trail right down to bare soil and, at the first "crack" from the school marm, dropped the saw and ran. He says the compressed air assisted him out the escape trail.

But the nine trees also smashed Chad's spare saw, so up the hill he went to ask Bruce if he could borrow his spare saw. "Cousin," Bruce exclaimed, "Don't smash MY saw." "All right, I'll do better next time."

Sure enough, in the afternoon Chad had another hang up. But this time he reasoned that if there were only two trees above

him things would be a lot simpler, and when he made his escape he would keep Bruce's saw with him. So, under the leaning tree Chad went, put a big undercut in the standing tree, cut its sides before cutting the back, revved up the saw, made a big cut into the back, heard the first crack and took off running with the saw as fast as he could go. Now, he had deduced that he could run a lot faster downhill than uphill, not yet observing that all trees on hillsides naturally lean downhill.

When Chad came to he had a lump on his forehead, was lying over Bruce's saw, which fortunately wasn't running, and about the only things that he could move were his eyeballs. Looking around he saw that he was pinned to the ground with interlacing branches from the two trees and the two trunks were parallel to his body, one on each side about 18" away. With his right hand Chad was able to wiggle the faller's axe out of its scabbard on his belt and at first to just nibble at the offending branches. By the time he escaped it was getting dark and he went home.

The next morning Bruce was glad to see his saw in one piece and said "Cousin, how did you get that bump on your forehead?" "I woke up with it", was all that Chad said. With the lessons learned that day and over the next two years Chad can still, while making the tree swing 90° or jump 15' horizontal before the butt hits the ground, fall a tree within a foot or two of where you want it. And all this with NO MORE injuries and only smashing his car one more time. However, you shouldn't be surprised that he considers a beginner with a chain saw a deadly threat to the beginner and all others within one hundred and fifty feet. And you shouldn't be surprised that Chad went to college to be something else. (Chad completed Land Survey Courses at FVCC in Montana and University of Alaska and has been a licensed surveyor since 1985.)

In late November, 2006, in the mountains near Kellogg Idaho, there was a survey crew made of an Idahoan logger (to protect the guilty we won't say who) and another they called the Arizona Flash. On the way through the woods they passed large stumps that were 15 to 20 feet tall. "How did they cut such high stumps," asked the Flash. "That's how deep the snow gets around here; they were standing on top of the snow when they cut those trees." Their object for the day was to get the last two

RTK GPS shots that would complete the due diligence survey of hundreds of U.S. Mineral Surveys. If they got the shots they could leave the next morning for warmer climes. If not, the big snow storm coming that night would shut them down; they would have an upset client and would have to come back in the Spring. While waiting for a stronger signal, the Idahoan was sharpening his Stihl 044 chain saw, filing down the rakers and checking the lean of the trees. At 3:00 P.M it was desperation time and the Idahoan grabbed the chain saw, advised the Flash to stand way back, and started tripping trees. It was the Mý Lai Massacre all over again. Within 20 minutes there was a 50' radius of open ground around the US Mineral Survey monument.

After returning to the monument and finding a signal, the Flash turned to the Idahoan and declared, "I like chain saws." They ran through the woods to the truck, drove to the second site, scrambled up the bank, tripped some more trees, got the second reading and just as the snow started falling were back at the lodge for exquisite homemade enchiladas and apple pie. Whether it is a chain saw or a kitchen, it is good to have someone who knows how to use it. Linda was pleased when the Flash said that he had had to come all the way to Idaho to get the best enchiladas he ever had, and Chad still puffs up when told that he runs a chainsaw more like a logger than a surveyor. But then, maybe the Javad VS negates a need for a degree in Chain Saw.

Axes:

Once upon a time there were two party chiefs in the same firm in Arlington, Washington who had a rivalry about their axes. Bob liked "boy axes" which were light, yet long enough to get a good swing going. Chad, yep, that's him, liked "falling axes," about the same length as a "boy axe" but with double the weight in the head. A typical morning greeting went something like, "morning Neanderthal," followed by "morning Candyaxe!"

One morning the boss decided to end the rivalry by sending Bob and Chad out as a crew, just the two of them, saying he didn't have enough work for two crews. (Yeah, right!) Now, the job was overgrown with alders, a trash tree back then, and, after they had hiked in, the first thing they did was to select two alders about 8" through and start the stop watch. The faller's axe had two chunks the size of your open hand arching through the air when there were the sounds of a slap and a load "ow." When Chad looked up, Bob was doubled over like Lee Harvey Oswald.

Being light and going fast, when the boy's axe hit the tree it had twisted in Bob's hand, slapped the tree, bounced off and struck his shin in such a fashion as to cause a spiral crack from one end of his tibia to the other. Not to mention the 5"x1/2" deep gash to the bone.

There are too many lessons to be listed here, but let it be said that axes can be almost as dangerous as chain saws.

Machetes

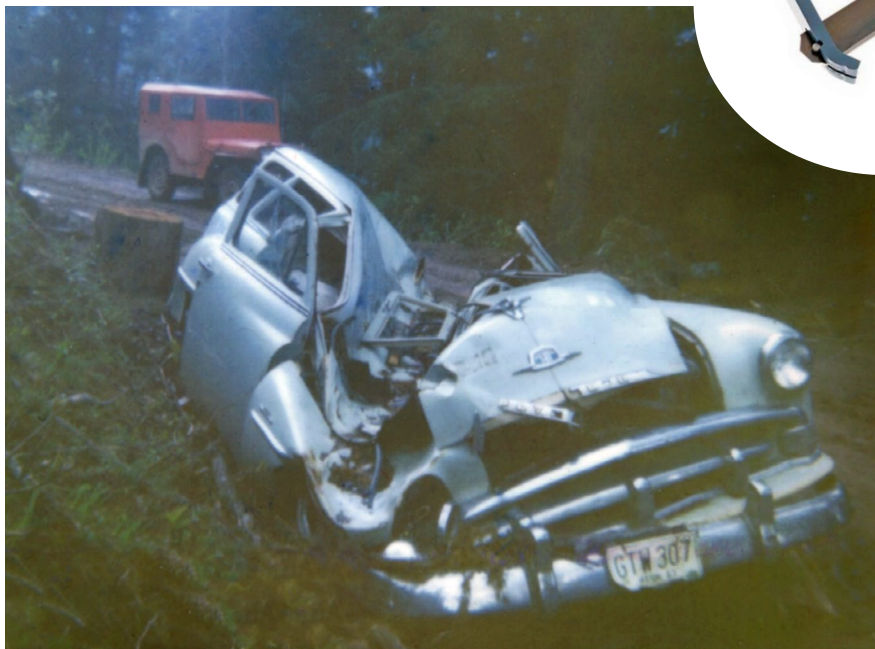
Deep in the woods, in the rain of northwest Washington State, a crew member reached up with his left hand to pull down an offending cedar bough and swung the machete hard with his right. Not good. For his troubles he got a deep cut to the back of the left hand, broken bones and severed tendons. The party chief helped the wounded crew member down the trail while the third carried the gear, including three machetes gripped by the blades in his right hand. Mr. Third tripped and, in catching himself, ran his hand down all three sharp blades. There are no machetes on our crews.



Brush Hooks and Swedish Brush Axes

We've never had, nor heard of, an injury from brush hooks or Sandvik brush axes, not even for beginners. We are sure that such accidents do occur but still consider brush hooks and Sandvik the safer alternative for beginners.

And so, as we ride off into the sunset in our lightly used 1951 Plymouth station wagon, we sing "Happy Trails to You," and remind the beginner that it pays to clear your survey lines down to the ground, removing trip hazards and sharp stobs. The first pass is slow but the next is at four miles per hour. ■



This article is dedicated to the field personnel of the survey world, and their mates who share in their fatigue and stories. We know whereof we speak, at this moment Chad has a patch over his "posion oak" eye and Linda has broken ribs from a fall on the tailgate.