

Offbeat Oregon: Watching bugs in stumps led to creation of chainsaw

By Finn J.D. John
For The Sentinel

Sometime shortly after the end of the Second World War, a logger named Joseph Buford Cox was out in the woods — probably doing some informal timber cruising on a patch of salvage timber, one of the standing forests killed in the Tillamook Burns. Using his ax, he split open a stump and found it was full of “timber worms” — the four-inch-long larvae of the timber beetle.

This was bad, but it was pretty common. In the late 1940s, the vast tracts of timberlands killed and left standing in the Tillamook Burn were like a banquet for timber worms, and the little devils were astonishingly fast. Finding them here probably meant a logging operation would be a lot less productive.

Joe took a minute to look the worms over as they continued to bore into the stump, trying to get away from him. Sawdust dropped away from their jaws in prodigious streams, and Joe watched them sink slowly into the stump. Some were going against the grain — crosscutting; some were go-

ing with it — ripping; all of them were going at about the same speed, and that speed was almost preternatural.

How, Joe wondered, did they do it?

Now, Joe Cox was an engineer. Not an engineer by university training — his formal education had actually stopped at the fifth grade — but an engineer by nature, and a very good one. He’d made a pretty decent living all his life by figuring things out and creating solutions to problems.

Just now, he was in Oregon with his brother working for various gyppo logging outfits, rotating through the positions from choker setter to saw sharpener; and a week or two earlier, the outfit he was working for had asked him to evaluate a new power saw to see if it might make sense to start using it on jobs.

It was a semi-portable unit, mounted on a chassis like a two-wheeled wheelbarrow, powered by a motorcycle engine.

Joe’s verdict: Nope. Definitely not.

“We couldn’t fall a tree as quick as we could with a hand saw,” Joe told writer Ellis Lucia. “This seemed strange to me because the



A timber faller watches from a safe distance as the fir tree he was working on goes down. (Image: Omark Industries)

power saw had plenty of stuff. I was a pretty fair filer at the time and figured that if I could make a power saw cut as efficiently as a cross-cut, it should practically fall through the wood.”

The motorcycle-saw definitely did not fall through the wood. But now, Joe was watching a bunch of timber grubs practically falling through a stump, grinding their way through solid pine and leaving prodigious little piles of sawdust behind them.

Maybe, Joe thought, he

could learn something from them that would lead to a better power saw.

Back at his home in Portland, Joe set up a little experiment station in the basement with a magnifying glass and some timber worms, with some wood for them to chew up. He inspected their teeth, noting the C-shape, and how they chiseled away the wood with their jaws moving side to side, like a miner digging a tunnel with a short shovel, rather than scratching at the fibers before them.

He inspected the sawdust under the microscope: it wasn’t dust, it was shavings — tiny chips.

It didn’t take him long to figure out that he was onto something.

The crosscut saws that were then the state of the art worked on the principle of a sharp knife-point scratching at the wood. One blade would scratch at one side of the kerf, another would scratch at the other side, and the squared-off raker teeth would drag away the loosened wood.

The problem was, this “scratcher saw” principle didn’t work very well at high speeds. The blades did less cutting on each pass, but they got dull much faster — so sharpening chainsaw blades was a huge and tedious part of any mechanized operation.

Working from the basic design of a timber worm’s jaws, Joe doped out a cutting chain that looked similar to a motorcycle drive chain with a cutting tooth sticking out every few links. The cutting teeth were hook-shaped chisels that would bite into the wood and essentially carve away chips; and those chips were big enough and clean enough that rakers weren’t necessary to clear them out

of the kerf.

Finding that the chisels tended to grab too much wood, Joe added a bump in the metal just in front of the chisel on each link; by filing down the bump (“gauge”) he could control how big a bite each chisel took.

Joe immediately filed a patent on his design, then spent some time in the basement refining it. It took him a while to get it to market — he wasn’t a rich man, although he soon would be — but finally, in 1947, he launched his company, calling it Oregon Saw Chain Corp., with a payroll of four employees helping him assemble chains in the basement of his house.

Ten years later, Joe’s company all but owned the market. Their operation had moved to a big facility on the outskirts of Portland, and their sales force was selling overseas; the name of the company had been shortened to Omark, although the chain still was stamped “OREGON.”

By then, of course, reliable lightweight aluminum two-stroke engines had been developed; and one of those, linked to one of Joe Cox’s “bug chains,” constituted a modern chainsaw.

Today, with the exception of some specialized applications, basically every chainsaw in operation uses Joe’s “bug chain.”

The patents have expired, of course, so every manufacturer is free to make the stuff; but Omark’s Oregon Saw Chain is still the original and the market leader.

Finn J.D. John teaches at Oregon State University and writes about odd tidbits of Oregon history. For details, see <http://finnjohn.com>. To contact him or suggest a topic: finn2@offbeatoregon.com or 541-357-2222.

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