

Appropriate Technology in the Woodlot—

# MANUAL WORK!

In my lifetime, the population has tripled, labor-saving devices have increased, and human labor and jobs have declined. With advancements in robotics, we may all end up sitting on our butts in the future and simply exercising our digits with digital technology.

By Ben Hoffman



Photo 1. Hand tongs facilitate lifting and moving wood. They reduce bending and provide a good grip on logs, bolts, or trees.

Unless we can solve the never-ending demand for economic growth and speed, while rapidly drawing down the finite oil, gas, coal, and pure underground aquifer resources that took millions of years to develop, our dependence on diminishing resources will at some point necessitate using human energy, which might come as a shock to some. If that happens, there will be a reduction in belly fat, obesity, and the need to go to a gym to exercise.

In the forest, massive machines have replaced manual labor, yet a person with a chain saw must still cut trees that are too large for the machines, or work in terrain that is too steep or rough for machines. And on the small woodlot, you will be involved in physical movement of wood, in addition to falling, limbing, and bucking the tree. If you work smart, falling and processing steps will be coordinated with the extraction method. Think! Drop the tree to minimize later work, but avoid making a mess that impedes work.

Back in the 1970s and 1980s, the Swedes developed a logging system known as “motor-manual.” It was mostly manual, using simple, labor-saving methods of moving wood by hand, and the motor part was the chain saw. Now you can really be green, or stubborn, and use a two-person crosscut saw, called a “misery whip.” A good friend working with Amish loggers in northern Maine is proficient with a chain saw; the Amish let him fall and limb the trees, then they skid (drag) or forward (on sleds) with horses.

In the “good old days,” when ages on headstones were much younger, wood was often cut at the stump into lengths that could be handled by one or two people. Four-foot pulpwood is a good example. It’s a hard way to make a living, but is feasible for doing firewood. In Scandinavia, small wood is cut into 10-foot (3-meter) lengths that can be handled by one person. Hand tongs (Photo 1) are indispensable for moving small wood, regardless of its length.

In Scandinavia, trails were spaced so wood could be piled within easy reach of a knuckle-boom loader mounted on a forwarder. That meant close trail spacing, 60 feet apart, and manually moving wood a maximum of 30 feet. One problem—close trail spacing takes up a large area that cannot grow wood. Since AT

Photo 2. A small, lightweight, hand-pulled sulky works better when you are not pulling uphill.



rules out large machines, the solution is wider trail spacing with narrow corridors reaching into the woods. And regardless of how you move wood from the forest, you must prepare the wood for transport—and that means human energy. Scandinavian landowners, who like to work in their forests, turned to winches, horses, farm tractors, and small, specialized (and expensive) equipment.

Trees in and adjacent to the trail are dropped in the trail, bucked, and piled. Trees away from the trail are dropped toward the trail to shorten wood movement, which may create slash in the work area. Slash thrown into the trail improves flotation for wheeled vehicles and reduces soil compaction, but is a hindrance to skidding. By proper planning, the “manual” could roll logs to trailside piles and drop trees as close as possible to the trail to minimize moving work. Large pieces were rolled or turned end-for-end (to avoid lifting the entire weight) and smaller pieces piled with them.

In the 1970s, in Tanzania, with massive unemployment and \$4-per-gallon gasoline, small sulkys (Photo 2) (commonly called arches) were used for thinning. These tools enabled trail spacing of up to 300 feet using a system of “corridors”—very narrow, unimproved trails where wood was felled, limbed, often bucked, piled in “bunches” (Photo 3), and then moved to the trail. If the wood is short, the corridors can be at right angles to the trail; for long lengths, angling corridors to the trail allows stems to be pulled out without scraping residual trees.

Regardless of trail spacing, the work was still “motor-manual”—one person with a chain saw cut, limbed, bucked, and piled the wood, either trailside or in the corridor. This is still a good system for the woodlot, but not practical for commercial logging. And

## MANUAL WORK!



Photo 3. A long corridor for winching, sulky or horse skidding. A skidding cone or sled used with a winch or horse can ride over slash, but slash will impede a sulky. Note the neat piles of wood with ends elevated for easy chocking.

large amounts of slash in the corridors can make physical work quite difficult.

No matter what method you use to remove wood—sulky, winch, horse, farm tractor—the chain saw operator must present wood that can be easily picked up. To that end, before piling wood, place a small log crosswise of the pile to elevate the lead end for easy chocking. The key to manual work is “work smart, not hard,” especially in woods work, which is so physically demanding. Always be alert to ways to simplify physical work and make it easier.

Loading is often the major problem in woodlot logging unless there is a machine available. A sulky is easy to load, but capacity is small, and with carts or sleds, getting wood from the ground to the deck can be physically taxing. Four-foot pulp or firewood can be loaded by hand but for lengths 8 feet or longer, human energy may not be adequate. In hilly terrain, one might load from a bank or roll logs up skids. ■

*Ben Hoffman is a forester with 28 years experience in state, federal, and private forestry and 17 years in academia. Ben is retired as a Maine Licensed Forester, and Vermont Land Surveyor.*

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