The Garland Mill at 160

As the 9-ft.-long yellow birch lever is pulled down, there's a sound of water surging through the penstock into the wheelpit. Then a few thumps and knocks and the straining of belts. The board saw advances weakly and the edger stutters, then springs to life. As more water drives across the canted fins of the hidden turbine beneath, the mass of iron spins faster, and the floor, in fact the whole building, begins to rumble and shake. Quaint? Well, sort of.

What's the relevance of an old water-powered sawmill in this era of cloud-based data storage, 3D structural printers, and virtual reality? For us, two cousins, it's a pre–Civil War cornerstone of our timber framing business. The Garland Mill, listed on the National Register of Historic Places, has been in continual commercial operation since it was built in 1856 in far-northern New Hampshire, and it produces timbers and boards pretty much the same way it did five years before Abraham Lincoln became president.

In 1986, timber framing came as a natural complement to the mill's customary activities. More than a century earlier, Garland Mill had provided heavy timbers for local builders who routinely used mortise and tenon joinery in their construction. Today the mill saws timbers from native species to meet the needs of its own in-house building company. Pretty straightforward, but let's explore the process as well as the product that has kept the mill going for another generation.

The mill buys winter-skidded logs whenever possible, to keep rocks and mud out of the 50-in.-dia. headsaw that cuts most of the timbers used in the frames. A handful of local loggers and foresters keep their eyes open for good timber and have been supplying the mill for years, in some cases generations. Predominantly white pine (though some spruce, fir and hemlock) arrives at the sawmill from not usually more than 15 to 20 miles away. It's then scaled off the truck (see back cover photo) and piled on the bank or out onto the pond ice.

When the ice goes out, usually by Easter, the mill comes out of hibernation. A frigid torrent flows through the 1938 S. Morgan Smith turbine, the shafts and pulleys creak, and leather and canvas flat belts whip the saws and planers back into action. We use pike poles to maneuver the logs around the pond and into position, and then they get hauled up the front slip and into the sawmill by a heavy bull chain (Fig. 1).

Cant dogs (peaveys) and human power take over, at least until the log is wrestled onto the carriage and held fast by the Lane "Sawyer's Favorite," a hand-set, screw-fed steel dog (Fig. 2). No hydraulics at the Garland Mill.

The current log deck configuration and the Lane No. 1 rack-and-pinion drive carriage can saw up to a 35-ft. stick without too much trouble (Figs. 2 and 3). Our immediate predecessors sawed over 40 ft., and the Aldens (the second family to run the mill for two generations) milled all the full-length tie beams for the 50x100-ft. barn they had built a short distance from the mill, a beautiful three-story gambrel-roofed timber frame raised in 1900, completed in 1901 and still in use as storage for our lumber and timber. The ability to saw long, specialty timbers helps the mill justify its existence, particularly in the absence of much power or speed, hindering cost competitiveness with local mills. But local mills don't offer to saw longer than 20-ft. logs!

The sawyer's stand is just in front of the head rig, and a single lever advance runs the log past the saw. Once slabbed, the cant then comes back past the blade, gets ratcheted forward (toward the operator), and another plank or board is pulled off. The log is turned over by hand with peaveys and the process repeated until the takeaway man pulls the finished timber off the carriage and rolls it out the back of the sawmill. A process familiar to all sawmills, though still rather nonmechanized here. The off-cut boards and planks are air dried, then planed and profiled and used as siding or decking, respectively, on the timber-framed houses and barns the company builds. The sawdust is hauled away by

1

Photo left Matthew Hammon; photos above and below Heather Burkham

1 Bull chain pulling long pine logs from storage pond into mill, with pike pole standing on left.

2 Dana Southworth sawing 19th-century style. Lane No. 1 carriage on the move, with "Sawyer's Favorite" screw-fed dog (by sawyer's right hand) holding log fast.

3 View from other end of mill. Dana Southworth prepares for next roll of pine cant, Matt Hammon, right, sets rear carriage advance.

Photos above and below left, Matthew Hammon

Dana Southworth

local farmers as bedding, and folks keep coming back to the mill year after year for pine slab wood kindling. No packaging and no waste.

All the while, across the brook in the office there have been phone calls and client meetings, followed by site visits and design sessions, discussions with the engineer, permit applications—all the initial stages of the design-build process. We like to do the intake meetings together but then one of us takes on architectural and mechanical design and the other takes on timber frame design and production.

Timber production means running the sawmill and planer. For years, all timber ran through the mill's Lane single-side 24-in. planer, situated next to the saw carriage, which required carting the sticks from the outfeed deck (Fig. 4) back into the mill, then multiple hand-fed passes of each piece, then back onto a trailer and around to the joinery shop. A timber sizer finally appeared in 2009—all 17,000 lbs. of it—with flat belt and babbitt bearing technology similar to the sawmill's, but of modestly newer vintage (ca. 1912), and it earned its own little building (Fig. 5).

This innovation was followed shortly by a small forklift and the construction of several drying sheds, which have made timber handling and processing more humane, though a bit less rustic (Fig. 6).

The layout and notching have remained much the same since timber framing operations began at the mill—traditional mortise and tenon joinery cut by hand, and one frame at a time in the shop (Fig. 7). The shop tools have improved over the years, and the shop plans have progressed from pencil and graph paper renderings to SketchUp and DataCAD. The timbers get marked, checked, notched, checked again, stored under cover, then planed and oiled just before delivery to the site. Clients are often enthusiastic participants in the raisings, and in some cases have even been able to round up people attentive enough to pull off a hand-raising. Most raisings are, however, crane assisted (Fig. 8).

Fig. 9 shows part of the interior of a super-insulated house built as a turnkey project in 2000, handily enough just up the road from the mill.

It might be argued that the 1850s water-powered sawmill is actually the tail wagging the dog. Sitting astride the stream that we

4 Freshly sawn timbers ready to be stacked before planing.

5 Dana Southworth using American Boss 12x20-in. timber sizer, built ca. 1912.

6 Timber shed sheltering rafter set and timbers awaiting notching.

7 Tall posts under way in the shop. Crew left to right, Ronan Thompson, Evan Perkins, Scott Cramer, the late Harry Southworth.

8 White pine frame with cherry braces, raised for garage-workshop.

9 Roof framing in house completed in 2000 in Lancaster, N.H.

10 Ben (left) and Dana Southworth pause before stacking afternoon's sawing run.

Photos above and below left, Dana Southworth

Robert Wojciak

also harness to generate electricity to run our laptops and design software, the mill remains the heart and soul of the business. It has helped sell a job or two, supplied numerous hard-to-source big sticks (at least by East Coast standards), and captivated the imaginations of several generations of family owners grateful for and appreciative of their local history. —Dana Southworth

Dana Southworth (dana@garlandmill.com) and cousin Ben (Fig. 10) are the third set of multigeneration family owners of their mill, after the Garlands (1856–1895) and the Aldens (1895–1974). Brothers Tom and Harry Southworth acquired the mill in 1974. The next generation, who acquired the business from their fathers in 2010, consider themselves historical caretakers at least as much as owners. They say, "Do visit, but beware, if you stay for more than twenty minutes or so, you'll probably be put to work."

Matthew Hammon