

# The Natural Farmer

## Antique Farm Equipment - Fall 1999

By Jack Kittredge

Early settler and farm families in our region lived largely self-sufficient lives. The food, fiber and energy they needed for subsistence were produced on-farm. The few items they could not produce were available locally on a barter basis. This way of life has been captured in several historical museums in the northeast which specialize in recreating life as it was in certain places and periods of our past.

These museums, such as Old Sturbridge Village and the Hadley Farm Museum in Massachusetts, the Farmer's Museum in Cooperstown, New York, the Howell Living History Farm in New Jersey, Coggeshall's in Rhode Island, Shelburne Museum in Vermont, Stonewall Farm in New Hampshire, the Maine State Museum in Augusta and many more have collections of period tools and implements. These tools illustrate the cleverness with which our forebears faced their daily tasks.

Frank White, curator of the Old Sturbridge Village (OSV) collection, has a degree in the classics and started at OSV as an interpreter. The Village has space and staff to display only 10% of its tool collection during most of the year, but does open the barn to the public during the special Agricultural Fair the last weekend of September. Frank was kind enough to give me a special viewing, and discuss with me local agricultural tool-making during the end of the 18th and first half of the 19th century.

Over the 50 years from 1790 to 1840, major changes occurred in tool-making. At the beginning of that period tools were largely local. Metal blades or tips to shovels, axes, plows, etc. were either produced on-farm or by the village blacksmith. The wooden handles were usually cut and shaped by the farmer. Implement designs were largely regional. Plows used in Pennsylvania in the 18th century were different from those used in New England or the Hudson River valley.

As the years passed, however, more tool-making took place off-farm. Patents for tools were filed by common everyday people - local blacksmiths or mechanics. They were making tools on an everyday basis and saw ways to improve them. By the late 1820s the New England Farmer Seed Store in Boston put out a catalog listing seeds and various farm equipment. You could visit the store and take it home with you, or order from the catalog and take delivery through your country store, which would have someone going to Boston on a regular basis. By 1840 a comparable store opened up in Worcester, Ruggles, Nourse, Mason. Besides stocking equipment made by others, they manufactured the cast iron "Eagle" plows which gained a national reputation. Manufacturers like this had agents going to Pennsylvania or beyond, trying to sell their products. A plowmaker in Hampden had plows in Texas, Louisiana, and the Midwest.

The OSV implement collection is particularly strong in plows, and Frank illustrates the changes in society during this period from the changes seen in plowing tools. "In the early 19th century," he relates, "one of the most important changes in agricultural technology was that from wooden plows, ones which were locally made, to cast iron ones - still with wooden beams and handles, but with cast iron share and moldboard and landside -- that were factory made. The wooden plows had some iron, usually a point and locking coulter (the vertical sod cutting knife), but the moldboard was wooden, though often faced with iron.

"There would be a plowmaker in the town - someone who was a reasonably skilled woodworker. Sometimes it would be the blacksmith himself. But the plows were locally made. The advantage to that is that if you are on limited means, as many farmers were, you could take your plow to the shop and have it repaired for an exchange of labor or scrap iron instead of having to come up with cash. In the rural areas there wasn't much of a cash economy in the early 19th century. But in 1818 a man named Jethro Wood patented a plow with moldboard, share and landside in three separate castings. With this plow you could replace the point when it wore out or broke. In this area from the late 1820s into the 30s a lot of the farmers who could afford to were converting from their wooden plows to cast iron ones. They were mass produced and as a result were much more uniform than the earlier ones. The problem with cast iron, factory made plows was that you would have to lay out money for them. And repair parts would cost you money as well. But by 1830 cash was more prevalent in the region. A good farm worker might get a dollar a day for his labor."

By 1830, White asserts, there was enough commerce in farm implements that a design would be patented and then an iron foundry would buy the rights to cast those parts. Then a local plowmaker would go down to the iron foundry in Hartford, get a load of castings, and bring them back. He would then make the wooden parts for them and sell the plow. If you were a farmer you would buy directly from the plowmaker. If you wanted a different plow you could go to your local store and order one, or go yourself to an agricultural warehouse like the one in Worcester and buy one there.

Plow design became much more standard across regions, too, as time passed. Massachusetts plows were popular in the Midwest and South. On prairie soil, however, the cast iron plows made here didn't scour well - the dirt didn't fall off the moldboard. That opportunity was met by John Deere, a Vermonter, in the 1840s, with his steel plow. Cast iron rusts, but in New England abrasion from the soil scours it to a shiny finish. In prairie soils that doesn't happen. Steel, which polishes differently, turned out to be the answer.

Other new implements had to do with processing corn and other grains. Corn was the biggest crop grown in New England. It was grown for the seed, which was either ground into meal for human consumption or cracked for animal feed. When you harvested your corn you would husk the ears by hand and then put them into a raised shed to dry. Later in the fall when it was dry you would shell it. There were a number of ways to do this. You could take a shovel with an iron tip, place it over the edge of a tub, and rub the ear of corn back and forth across it. The kernels would fall into the tub. Or you could flail your corn on the barn floor. The problem with that is the kernels scatter all over the place and you have to shovel them up, which isn't very clean.

One of the pieces of equipment that became quite popular, according to Frank, was a corn sheller. There were various kinds made. One, patented by Harris, was a simple device made in Vermont in the 1830s. It's a matter of two cast iron plates with teeth on them, one mounted on an easel, one with a handle. You put the ear of corn between the plates and work it back and forth. This was produced for many years and there are a lot in existence, so White believes it was reasonably effective. A smaller, bench mounted version just had nails in it. That, too, was quite common.

The most effective corn sheller had large wheels studded with iron teeth. A hand crank drove the wheel through gears. On the side of the box there were also iron studs, facing the wheel. You laid the ear in against the wheel, turned the crank, it rotated the ear, pulled it down, and striped it clean. Some of these were made in small one or two-man shops, like the one OSV has, which was made in Woodstock, CT. Others were made by larger factories.

Another major introduction, which compared with the corn sheller, has to do with processing small grains. Farmers didn't raise much wheat here because they had trouble with rust and other diseases. The climate was too damp and crop rotations weren't customary, so the problem kept recurring. Finally they introduced resistant varieties, which did better, but with the opening of the Erie canal in the 1820s grain prices plummeted and farmers found they couldn't compete with the wheat which came in from upstate New York. In the early 1800s, however, farmers in New England did raise a lot of rye and oats.

They harvested small grains with a sickle, bending the stalks over after being cut for someone else to come along to bind. In the late 1700s harvesters began to use a cradle, which is a scythe with an attachment of fingers which catch the cut grain and hold it. Someone still has to put it into sheaves, but it's a lot faster. The cradle was common in the mid-Atlantic states and New York before coming here, perhaps because they raised more grains there.

After harvesting, farmers in southern New England threshed their grain with a flail on the barn floor. The grain shattered and the stalks were separated out. By the 1830s there were people designing threshing machines, mostly in New York and Maine where the crops were large enough for that.

But cleaning the grain still took a long time. You would pick it up, after removing the stalks with a pitchfork, and put it through a riddle - a sieve with open latticework. You would shake it and catch the larger debris there. Then you would take a winnowing tray into the barn when a wind was blowing, open both doors for cross-ventilation, and toss the grain repeatedly into the wind so it would blow away the chaff. Eventually you ended up with clean grain, but it was fairly labor-intensive.

So fanning mills, or winnowing machines, became popular. You pour the grain into a hopper, crank a fan in the back which creates a draft in the box as the grain drops through a series of screens of different size. These screens are connected to the crank so they slide back and forth as the fan turns. Your clean grain falls into the bottom of the box in a tub. You could change the screens to those of a different mesh, depending on the size of the grain you were winnowing. You could even winnow peas or beans.

There is evidence that fanning mills were actually first developed by the Chinese for cleaning rice. The idea apparently was brought to northern Europe by people who had traveled in China. The mills were used in Europe, and then moved to America via German immigrants, who used the mills in Pennsylvania and New York long before they were popular in New England.

One more major improvement in 19th century farm technology had to do with dairying. Farmers were moving from producing for their own use and for a limited local market to producing for a much broader market. Herd sizes were increasing. Barns were getting larger. Butter and cheese were being produced in larger quantities on-farm for shipment to market.

Refrigeration, of course, did not exist. Commercial ice-production was only beginning in the 1820s and 1830s - Frederick Tudor started the business in eastern Massachusetts and found a market for ice, packed in sawdust, shipped to the Caribbean Islands. But on farms ice-cutting didn't become common until mid-19th century. There were occasional ice cellars, and later in the century most towns would have an icehouse.

Farmers, however, needed to keep dairy products cool and relied on spring houses or underground storage. Salt was used to preserve butter, which was made in cooler weather (cheesemaking occurred when it was warmer). Many people are familiar with the dasher churn - the one with a plunger in it - which the housewife or daughter would lift up and down until the cream was made into butter. For larger quantities other methods were developed. One is a barrel on a rocking chair base which could be operated with a foot while doing something else. Others were hand-cranked, and there were a lot of different designs for mechanizing this process.

One interesting innovation, usually found in back rooms or dairy rooms, is the "dog power". This is an endless belt or treadmill, perhaps 5 feet long. A dog or goat or other small animal would be hitched onto it and trained to turn the belt, which would turn a crankshaft driving a pitman rod that would operate a churn or some other piece of equipment. Dog powers were used a lot in the middle to late 19th century and were available as early as the 1830s. Larger versions of it involving horses or oxen drove thrashing machines, while balers were driven with sweeps.

Once the butter is churned, the moisture still has to be worked out of it. This is usually done with wooden paddles, working the butter back and forth while adding salt. You pour off the liquid every so often. OSV has a butter worker - a one handled rolling pin which can be used to roll butter back and forth and work out the liquid. You can change the pivot hole to get butter that catches in the corners. Later models had a hand crank and gearing which drove a fluted roller in a rectangular trough to do the same thing.

When you make cheese you have to break up the curd. Several devices handled this. One is a multi-bladed knife, another is a hopper with teeth and a crank. Later you have to press the cheese curds and drain the liquid out. Some presses used a screw system like a vise, others used weights and gravity. But one problem they encountered was that, as the water is driven off, the cheese gets smaller. Instead of resetting the screws a lot, one clever device - called a self-acting cheese press - uses the weight of the cheese, amplified through levers, to press it.

There are many other interesting implements in the OSV collection. One is a sausage grinder - similar to current meat grinders except that it has wooden teeth. Another is a hay press, or stationary baler. They were quite rare, according to White. You fork loose hay into the cabinet, crank the ropes tight with the windlass to compress the hay to about half its size, and then pass cords around the bale to tie it off. Then you open the doors and take the bale out. For transporting normal distances you would carry hay loose, in a wagon. But you would bale hay for long distance shipment when space was at a premium. The OSV baler came from a farm in Connecticut where they were shipping hay out on board ships. Larger, horse operated hay presses were in existence, Frank says, which pressed up to 500-pound bales.

In the early 1900s cider was usually pressed in a large mill, which might be part of a large farm with an orchard. Other farmers would come and have their apples pressed there and take the cider home in barrels. Of course it got hard, and that is what cider was - unless it was hard they didn't call it cider. Cider milling was a source of extra income to the mill owner. The OSV mill is typical for the time, coming from a farm in Brookfield, New Hampshire. The press bed is 5 or 6 feet square, and it has three large wooden screws.

The apple crusher has a ten foot trough which feeds apples to be ground up into large toothed cylinders. A horse or ox was hitched to a wooden beam or sweep which drove the wooden gears of the crusher. Then the pomace would be shoveled up and put into "cheeses" on the press - layers of crushed apples contained in layers of folded straw. Several "cheeses" would be stacked on top of each other and pressed at one time.

Another OSV implement is the woodworking lathe. The lathe is driven by a foot treadle on which is mounted a connecting rod that turns a large overhead wheel. The wheel, through a belt connection, drives a lathe spindle. Blocks slide along two wooden bars paralleling the spindle to serve as stops and tool rests.

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