HISTORIC WOODWORKER
WOODSHOP INTERPRETIVE INFORMATION

The interpretation of the tools and methods of work performed in the woodshop at Carriage Hill Farm is more important than the actual production of wooden items. Through proper interpretation, visitors will begin to understand the pride of craftsmanship and satisfaction experienced by wood workers of the 1880s in producing useful items.

This section provides some specific information about the woodshop and its contents. It also briefly covers the procedures and provides some helpful suggestions.

The Shop

The shop has been reconstructed on the original location using the construction methods common to the 19th century. A band saw was used to cut the beams. The straight saw marks on the beams are typical of marks left by a vertical sawmill. The ceiling joists were recovered from a summer kitchen originally located at Possum Creek Reserve. (Limestone from the same building was used in constructing the icehouse.) The shop has mortise and tenon construction. The structural beams were raised in August 1979 by volunteers and MetroParks Staff.

The Tools
The woodshop contains a variety of tools, each with its own specific purpose. We have a combination of restored, reproduction and shop-built tools. We have a variety of tools to use in the shop to recreate an atmosphere of an 1880s woodshop. We try to obtain tools made prior to or during the 1880s as much as possible. Unfortunately, these tools often lack the strength and precision of their early years. We spend considerable time restoring them to usable condition and we must learn to properly use them. Many of these tools are quite delicate due to age. If you are not sure of the proper use of a tool, you may to do research in the farm library or contact the volunteer coordinator who will try to find the information for you.

At times, we need tools that we have not been able to locate. We then use reproduction tools, make them ourselves, and if all else fails, use newer tools. Earlier craftsman made many of their own specialized tools. When making our own tools, we attempt to make them in a design consistent with the period of the farm.

Treadle Wood Lathe
This particular model is circa 1890. Lathes of this type cost approximately eight dollars new. Only the metal parts were purchased. The craftsman built his own table to suit his needs. This unit has a two-step pulley to allow changing speeds.

If you feel you need practice in lathe work, we always have turning stock to work on. This demonstration is popular with the visitors. What better way to improve your skills than on the job training? Do not allow visitors to use the lathe.

We perform our own maintenance on the shop equipment. Be sure to put a drop of machine oil in the bearing holes on the headstock occasionally. The oil can is above the toolbox. Do not loosen or remove the headstock mounting bolts. This will change the alignment of the machine. If you have a problem with the machine, notify the Volunteer Coordinator or the weekend staff person.

Treadle Scroll Saw
This model dates to circa 1890-1900. It is used for making the intricate cuts and curves which are performed today by power band saws and jig saws. Some models had a seat mounted to the frame so the craftsman could sit down while working. Only trained woodshop volunteers should use this saw.

Jack Planes
These short planes, sometimes called Scrub planes, often have a convex ground iron (blade). They are used to do initial planing of the mill cut boards. These planes take off wood very quickly. Most of the older planes have wooden bodies. The iron is held in place by a wedge. The iron is adjusted by tapping one end or the other with a wooden mallet to raise or lower the iron (the toe to lower, the heel to raise, not the iron).

Trying Planes
These planes have a little longer body than the jack plane. They provide a finer cut than the jack planes and are used to smooth out wood after using the jack plane.

Jointer Planes
These long-bodied planes sometimes measure up to thirty inches long. They are used to plane the wood to a perfectly flat surface. The extreme length prevents the iron from cutting into the hollows until the hills are taken off. The craftsman can tell the wood is flat when an unbroken shaving emerges for the whole length of the work piece.

Plow Planes
These specialized planes have an adjustable fence (guide) which allows the craftsman to cut a groove a given distance from one of the edges of the work piece. These planes are used for making dados, plows etc.

Molding Planes
These specialized planes are used to make the fancy wood trim seen in many old houses. Each plane is designed to cut a specific shape. Some have a fence to aid the craftsman. Some are actually two planes combined such as the tongue and groove plane. One side cuts the tongue and the other cuts the groove.

Draw Knife and Shaving Horse
These two tools are used together to quickly shape rough wood. The work piece is held in the vice by pressure applied by the craftsman's foot. The knife is held with the bevel down and drawn toward the wood worker. Holding the blade at a slight angle allows easier cutting. Some items made with these two tools are shingles, handles, stool legs, etc.

Wood
The type of wood used is determined by the purpose of the item being made and the wood varieties available in the area. In this area, oak, walnut, cedar, maple, poplar, ash, elm, and hickory were common in the time of the Arnolds. Ash is used to make many tool handles as it becomes smoother with wear and will bend by steaming. Elm is considered the best material for manufacturing wheel hubs since the interlocking grain made it almost impossible to split. Poplar was, and currently is, one of the cheapest of the hardwoods and used extensively for painted furniture, moldings, and siding.

Types of Work
As a farm wood shop, the type of work performed differed from that of cabinetry shops. While furniture making was still a fine art, handmade furniture was declining by 1880. The heavier Victorian furnishings popular at the time were mostly machine cut. Furniture was readily available in the stores in Dayton and could be ordered from the Montgomery Ward’s Catalog.

From review of family records and original family furnishings still available, we know that Henry H. Arnold was a skilled wood worker. Henry made many articles for his family, yet fine woodworking was only a small portion of the work performed in the shop.

The Arnolds had an overhead line shaft which, through a series of pulleys and belts, could be connected to the steam engine located in the north end of shop. The shaft was used to power some of the shop machinery and a mill. There is a cistern under the engine shed which collected water for operating the steam engine. The cistern has been covered for safety reasons.

The building was probably most often used for grinding feed, although the present shop cannot accommodate the steam powered mill and still leave room for the public. The woodshop was also used for butchering. The water in the scalding trough came from the cistern and was heated with steam from the steam engine. The hog was hung from the rafters and the benches were used to process the meat.

Maple syrup was boiled down in pans that were placed in the walkway between the engine and the woodshop. The pans were heated by steam similar to the way we presently boil down sorghum for molasses.

Most of the work in the woodshop consisted of repairs. Many pieces of farm machinery were wooden and replacement parts could be fashioned in the shop. Repairs of metal parts were done in the blacksmith shop. Typical items repaired might have included wagons, buggies, various farm machinery and furniture.

Our work now includes repair and restoration of antiques, small projects to demonstrate the various tools and some restoration of the house and the outbuildings. We try to have samples of our work on exhibit and, whenever possible, have projects in various stages of completion to aid in interpretation. There are ongoing projects of crates and benches for use on the farm.

Materials and Supplies

Carriage Hill MetroPark maintain a supply of wood for use in the woodshop. This material belongs to the Farm and should not be used for personal projects that are to be taken home. You are welcome to bring in personal projects to work on as long as the item is consistent with the 1880 farm scene. If you have a specific project you want to do for the farm, notify the Volunteer Coordinator or Education Supervisor of the quantity and type of wood and supplies you would like to request

There are many volunteers working in the shop, therefore please be careful when you pick some wood for a project. Stack or bundle any wood you have for a specific project against the wall and mark it with your name. This will prevent any misunderstandings caused by someone inadvertently using wood chosen for another project. The scrap pile is fair game for impromptu projects.

Historic Woodworker Safety Instructions

If you are apprehensive about using any equipment, please notify a staff member and ask for assistance.

Ensuring the safety of our visitors, volunteers and staff is our primary concern. The shop is arranged so that the work benches act as a buffer between the public and the tools. Care must be taken to keep tools away from the front edges of the benches. Also watch out for hands getting into the belt of the lathe.

The fire extinguisher is located on the south wall by the door on the way out. If you need to use it get everyone out of the shop, use the extinguisher, get yourself out of danger, call the fire department, and notify the park staff/country store.

During cold and windy weather, you may want to close one set of doors of the shop to keep the stove warmth in. Care should be used in building a fire in the stove. A small fire can be easier to control and maintain. Over-heating the stove can shorten its life or permanently damage it. You should stop putting in firewood about 1/2 hour before quitting time and close off-air intake and leave the damper open. If you have any questions about the stove operation, contact your designated staff lead or available MetroParks staff.

Wood Lathe

1. All glued up work must set at least 24 hours.

2. When doing spindle work, make centered perpendicular saw kerf cuts at least 1/16" deep on the headstock end of your material before driving in the spur center.

3. Always lock the tailstock and the tailstock spindle clamp tightly before starting the lathe.

4. The tool rest should be set to within 1/4" of the work. Do not adjust the tool rest while lathe is running.

5. Rotate the lathe by hand before turning on the power. Check that the material does not strike the lathe, bed, or tool rest, and have your supervisor check your set-up.

6. Start all lathe work at the slowest speed.

7. Use only authorized wood turning cutting tools mounted in long handles for wood lathe work.

8. Hold wood turning tools tightly in both hands while turning stock.

9. Keep lathe tools sharp. Dull tools are ineffective and dangerous.

10. Do not put your hand on revolving stock.

11. Always remove the tool rest when sanding.

12. When using a faceplate, make sure that the screws are tight and do not project so far into the stock as to catch a tool edge.

13. Do not use a skew or gouge on the inside of cup-shaped work during faceplate turning. The tool's sharp comers or upper cupped edge could catch the stock and jerk the tool out of your hand.

14. When using a wood lathe, do not lean too closely to your work. Your hair or clothing may be caught in the machinery. Long hair must be tied back and secured.

Scroll Saw:

1. Set the pressure foot against the stock before turning on the power.

2. Do not put your fingers closer than 2" from the blade.

3. When cutting, do not have your hands directly in line with the saw blade.

4. You should hand turn the scroll saw to be sure it is properly adjusted before using the treadle to speed it up.

5. Never clean scraps of material near the moving blade with your fingers.

6. If small pieces get caught in the throat against the saw blade, be sure to stop the machine before trying to remove them.

7. A scroll saw should be started at the slowest speed setting, and the speed should be adjusted back to the slowest setting before finishing.

8. When installing a new blade, make sure the teeth of the blade are pointing down, so the cutting action is towards the table of the scroll saw.

Table (Circular) Saw:

1. The saw blade should be raised no more than 1/8 inch above the stock.

2. The material edge that is held against the rip fence or miter gauge should be straight.

3. Be sure the blade does not contact the throat plate, the fence, or the guard before the saw is pedaled.

4. Clamp stop blocks to the table to prevent kickbacks before lowering material into the blade.

5. Do not use a dull blade. A dull blade tries to lift the work and throw it out of the machine. With a dull blade, you must push the work much harder, and your hands are more likely to slip off your work.

6. It is unsafe to cut round stock on the table (circular) saw.

7. Do not use both the rip fence and the miter gauge at the same time while cutting stock.

8. You must use a clearance block clamped to the fence for a stop block when using the miter gauge to make multiple cuts of the same length.

9. Use a push stick when ripping material less than 4 inches wide.

10. Ripping of any material less than 2 inches wide must be done by an experienced staff member.

11. Do not stand in line with the blade while starting and operating the table (circular) saw.

12. Do not crowd or bind the saw blade. The work may break or be thrown from the machine, and your hands may slip into the blade.

13. A helper, tailing off, should not pull stock that is passing through the saw.

14. Do not place hands in front of or over the blade.

15. Never try to clean scraps off the table saw with your hands when the saw is running. If scraps (discarded cut material) must be cleared away, use a scrap piece of wood at least 10 inches long, or wait until the saw has come to a full stop.

16. You must always use the rip fence when ripping stock, and the miter gauge when cross cutting stock. If you try to rip stock without using a fence, or crosscut without using a miter gauge, stock may be twisted or jammed and may be thrown out of the machine.