

Chapter 13—Purchasing an Ax

Buying a New Ax

As noted earlier, finding new, high-quality axes in a typical retail store is becoming increasingly difficult. Manufacturers still make good axes, but not in the same quantity or variety of patterns as in the past. Some small companies manufacture high-quality axes that are not available through large retail stores. You may need to contact these companies directly to purchase an ax or find a distributor. The “Additional Resources” section provides contact information for some ax distributors.

Be aware that internet sites change often and new products come on the market constantly. Do your research well and understand that not all axes are designed for working in the woods. Furthermore, ax quality varies. The time, energy, and expense required to purchase a good quality ax and customize it to fit your body and chopping needs is a sizable investment. Be sure you get the tool you need.

Buying a Used Ax

At one time, manufacturers in America made more than 300 different ax patterns. However, the market for axes today is limited, so the choice of ax heads is also limited. In addition, many ax manufacturers today use inferior metals compared to the metals used in vintage axes. Many people prefer a vintage ax because of the quality and style.

When purchasing a used ax, examine it carefully to ensure that it is suitable and worth the time and energy to restore. You may be able to purchase used axes at very reasonable prices, but you may have to invest a lot of time to get them back in good cutting condition. Most used axes contain dirt, rust, and grime, but this is no reason to reject them. You can easily remedy these conditions with a simple cleaning.

The telltale sign to look for in an ax is its overall shape. Is it symmetrical or does it show signs of excessive wear or abuse? Examine the heel and toe of the cutting edge. Have multiple filings rounded them excessively? Many used axes have toes that are overfiled (figure 13–1), putting the toe out of



Figure 13–1—Two double-bit ax heads. The toe of the ax head on top has been filed out of alignment with the heel.



alignment with the heel. In this case, you would need to reshape the head to bring the cutting edge back into balance. However, you might have to file so far back into the head that you lose the tempered edge. Filing this far back into the blade can also affect the balance of the ax.

Examine the cutting edge for chips (figure 13-2). Minor chipping on an ax head is generally not a significant problem if you still have ample hardened steel to work with. Large chips may require you to reprofile the entire cutting edge to return the ax head to its proper shape and balance.



Figure 13-2—A minor chip in an ax head (left) and a major chip in an ax head (below).



Look for the temper line in the ax head to determine how much life the ax has left (figure 13–3). The temper line (also known as the hamon line) represents the transition between the hardened cutting edge and the untempered portion of the ax. The temper line should be at least a couple of inches back from the cutting edge. The working edge of the ax must

contain enough solid, tempered metal to perform as a good work ax. If previous users sharpened the ax too many times and the cutting edge is short, it may not have enough tempered metal left to make a good chopping ax after you sharpen or reshape it (figure 13–4).

Figure 13–3—Temper lines on a 1933 Sager Chemical double-bit ax head. Note the pitting in the softer metal at the center of the head. Despite the pitting, this ax has ample hardened steel on both cutting edges and can be restored to a good working ax.

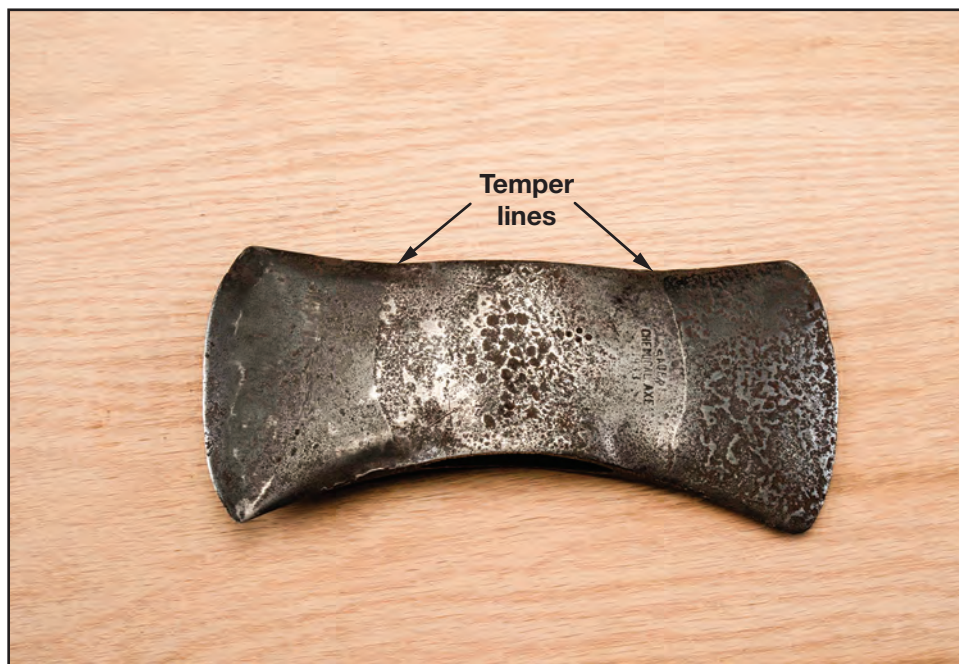
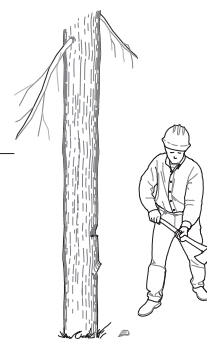


Figure 13–4—A Hubbard Lipincott double-bit ax head that has been filed past its temper line on both cutting edges. This head cannot be restored.



Examine the poll, if you are considering purchasing a used single-bit ax. If the poll is rounded or mushroomed, someone probably used the ax to drive steel wedges. You must grind a mushroomed poll back into shape. Remember, the poll provides weight and balance to the ax, so removing the mushroomed metal from the poll could change the balance of the ax, making work on the cutting edge necessary as well. Excessive mushrooming on the poll is dangerous. Never drive a wedge or other object with a poll that folds over (figure 13–5). As the poll mushrooms, the edges become thin and could break off when struck, potentially injuring you. If you grind the

mushroomed edge off the poll, carefully examine for cracks afterward. Any cracks in an ax head are dangerous and indicate areas of structural failure.

Examine the eye of the ax, especially if the poll is rounded or mushroomed. If the eye is misshapen (figure 13–6) or shows signs of bulging on its cheeks or lugs, the handle will not fit properly. This is a common problem on single-bit axes when someone has used the poll to drive hard objects. Poll damage on a single-bit ax usually occurs because the poll is not hardened steel.



Figure 13–5—A mushroomed poll. Note the large chip broken off the poll.



Figure 13–6—A properly shaped ax head eye (left) beside a misshapen ax head eye (right).



Examine the sides (also known as the cheeks or face) of a double-bit ax head. Because a double-bit ax has no poll, someone may have used the sides of the ax to drive or pound objects. Similar to the poll of a single-bit ax, the sides of a double-bit ax are not hardened steel and can easily be damaged. If the cheek of an ax shows signs of excessive pounding or damage, the shape of the eye may have changed. Rather than the bulging eye of a single-bit ax, the sides of the eye on a double-bit ax could be caved in. A caved-in eye (figure 13-7) could make the ax

handle harder to fit. In addition, many manufacturers place their mark or logo on the sides of their axes. If you are a collector, the damaged mark could reduce the value of the ax.

Check the top and the bottom of the eye to ensure that no one has distorted the opening (figure 13-8). This typically occurs when someone tries to seat or remove the ax head on the handle with a hammer. If the distortion is not extensive, you may be able to correct it by filing it.

Figure 13-7—The eye of this Marshall Wells double-bit ax has caved-in sides.



Figure 13-8—Distortion around the bottom of an L&J White broad hatchet head eye. This kind of damage usually occurs when someone tries to remove a handle using a hammer.



Cracks in the metal are defects that are often hard to spot, especially on a dirty or rusty ax head, but identifying them is critical. Carefully inspect the ax head for hairline cracks (figure 13–9). You may be able to weld a crack, but it may not be worth the effort. Examine the entire ax head closely, especially where you see other signs of damage or abuse. Cracks often appear in the thinnest parts of the ax head, such as the cheeks, or at high-stress points, such as the points of the eye on both single- and double-bit axes. Carefully search for cracks around the eye, the poll, and the cutting edge. Cracks can be difficult to detect, but they can have serious consequences if the ax head breaks while you chop.



Figure 13–9—A hairline crack in an ax head.

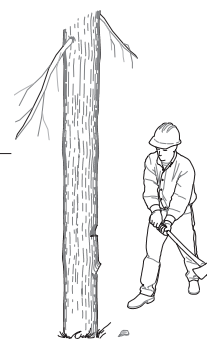


Surface rust is not a great concern, but be wary of axes with heavy pitting (figure 13–10). Pitting is typically more pronounced on the sides or cheeks of an ax where the metal is softer. Pitting on the cheeks of an ax is mostly superficial, but can contribute to friction while chopping. You can mitigate friction caused by pitting by filing flat over the pits to eliminate the high points and rough edges.

Pitting on the cutting edge poses a bigger problem. You may be able to file out pitting on a cutting edge while you sharpen the ax, as long as the pitting is not deep or excessive. Deep pitting on the cutting edge causes weak spots where the head could break or chip while you chop. You may have to reshape the entire ax head to get down to clean metal. An ax with excessive pitting may not contain enough good metal to restore.



Figure 13–10—Rust and pitting on an ax head. This ax head is not worth restoring.



Restoring a Vintage Ax Head

This manual covers shaping, profiling, and sharpening an ax head. These activities comprise the majority of work required to restore an ax head, but cleaning the head and correcting some common problems are also important. The common problems covered in this section are ones that an average person should be able to correct without specialized tools. This section does not cover serious structural problems (i.e., problems that require welding or other types of specialized equipment or skills). If an ax head is cracked or otherwise seriously damaged, the author recommends discarding it if you do not have the skills necessary to fix it safely and correctly.

Cleaning is the first step in restoring a vintage ax head. Be cautious about using power tools when cleaning or restoring an ax head. An electric grinder or power sander can quickly clean and reshape the head, but can also build up excessive heat and change the temper (remember, never contact the cutting edge with a power tool). The author prefers to begin cleaning with a razor blade scraper to remove loose dirt, grime, and surface rust (figure 13–11).

If the rust is not extensive, the second step is to use medium- or fine-grit sandpaper and a palm or finishing sander to sand the head. The grit you use depends on the condition of the head. The author typically starts with quality 100-grit sandpaper and finishes with 220-grit sandpaper. A sanding pad is also appropriate (figure 13–12). Depending on the ax head and the desired finish, the author may use a higher grit wet or dry sandpaper. Moving a palm sander continuously across an ax head does not build up excessive heat and produces a smooth finish for shaping and filing. You can use varying grades of steel wool or a wire brush or wheel in place of sandpaper. A brass wire wheel cleans well and scratches less than a steel wire wheel.

If 100-grit sandpaper and a palm sander are not coarse enough to remove the rust on the ax head, you may have to explore other methods. Disc and belt sanders provide power, but also generate more heat than a palm sander. Be careful when using power tools not to remove identifying manufacturer's marks on the ax head if they are important to you.

Figure 13–11 — Using a razor blade scraper to remove rust from an ax head.





Figure 13-12—Using a sanding pad to sand an ax head.

Soaking an ax head in white vinegar is a low-cost method for removing rust. Find a pan or other similar container that fits the ax head and fill the pan with enough white vinegar to cover the head (figure 13-13). Soak the ax head until the rust dissolves. Check the head once or twice a day to monitor how much rust has dissolved. Depending on its condition,

an ax head may have to soak for several days (or longer). Use a wire brush or steel wool to remove rust from the pitted surface after you remove the ax head from the vinegar. If the white vinegar does not completely clean the ax head, scrape or sand the head with appropriate grit sandpaper to remove any residual rust.



Figure 13-13—Soaking an ax head in white vinegar to remove the rust.



Wash and dry the ax head after you remove it from the white vinegar, then apply a light coat of oil (figure 13–14). The acid from the white vinegar removes any finish on the ax head and the bare metal can rust quickly when it is exposed to the air if you do not apply oil.

A word of caution: these cleaning methods are for a working ax. They might be too harsh if your ax is a collector's item, or if you wish to preserve the patina on the ax head.

Many people discard vintage ax heads because the eye is crushed or so deformed that it does not properly fit a handle. If you have access to a press, you may be able to salvage the head using a drift pin. Align the drift pin on the damaged eye and use the press to push the drift pin down through the eye. Because the cheeks of an ax are not hardened metal, a properly sized drift pin reshapes the eye as it pushes through (figure 13–15). If you do not have a press, use the jig you used to remove the handle. In some cases, an ax blade that is out of alignment could be the result of a misshapen eye. Reshaping the eye (also called redrifting) may help to realign the blade.

Vinegaroon and Rustaroon

Vinegaroon is a solution of vinegar and rust particles/steel filings. Applied to wood, the solution interacts chemically with lignin, turning the lignin black or dark gray, while the rust finds its way into the pores of the wood, turning the wood brown. Similarly, vinegaroon interacts chemically with tannin in leather, turning the tannin black. Alternatively, mixing linseed oil with rust particles/steel filings creates rustaroon, which primarily stains the lignin in wood and produces a lighter-colored result than vinegaroon.



Figure 13–14—Applying a light coat of oil to an ax head.





Figure 3-15—Using a drift pin to reshape an ax head eye.

You can also reshape a mushroomed poll. You will likely use the poll to drive a wedge at some point. Always keep in mind that the mushroomed or fractured edge of a poll can break off and injure you—removing the mushrooming around the poll is a matter of safety. You can correct minor mushrooming with a file, but you may have to use a disk sander to correct major mushrooming (figure 13-16). Always remember to wear safety glasses. Secure the ax head in a vise to keep it stable when filing, but do not tighten the vise

too much or you could damage the eye. If you have to grind the head to remove excessive mushrooming from the poll, be careful not to remove too much metal; you could affect the weight and balance of the ax. Remember that powertools can build up excessive heat and draw the temper out of the ax. Most ax polls are not tempered, but some, such as the poll of a rafting pattern ax, are.



Figure 13-16—The photo above shows major mushrooming on a poll. The top photo on the following page shows someone grinding down the poll using a disc sander. The bottom photo on the following page shows the reshaped (reprofiled) poll.

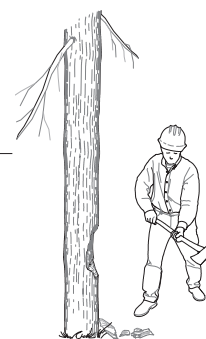




Mushrooming on the top or bottom of an ax head eye also commonly occurs when people try to seat or unseat the head. This mushrooming prevents the handle from fitting the eye properly. If the mushrooming is not too severe, secure the ax head in a vise and remove the excess metal with a file (figure 13–17).

After you correct any defects and clean the ax head, use the steps outlined in “Chapter 7—Files and Filing Basics” and “Chapter 8—Sharpening and Shaping an Ax Head” to shape and file it.

Figure 13–17—Filing off minor mushrooming on the inside of an ax head eye. Note that a flat file works best on the sides of the eye (right) and a round file works best on the rounded ends (below).



Collectable Vintage Axes

The ax is such an integral part of human heritage that people historically regarded it as one of their most prized possessions. Because of the importance of the ax, some manufacturers embossed or etched their products with identifying marks or designs. Many of these axes are now collectables. Collecting vintage axes is popular, especially collecting axes that display a manufacturer's artwork.

Some ax manufacturers displayed their own artwork on their axes, such as the Kelly Black Raven axes shown in figure 13-18 and the W.C. Kelly Perfect ax shown in figure 13-19. Other manufacturers produced axes with artwork specifically for a distributor, such as the Pioneer ax shown in figure 13-20 and the Johnston's Winner ax shown in figure 13-21. Manufacturers commonly made axes for specific hardware stores or similar companies that sold axes. These examples not only indicate the manufacturer's pride of workmanship, but also the axman's pride of ownership.



Figure 13-18—Vintage Kelly Black Raven double-bit axes. —Photo by Paul Hillmer; courtesy of Greg Strayer





Figure 13-19—The front of a W.C. Kelly Perfect ax (left) and the back of the same ax (right). Note the story of the ax and its manufacturer are printed on the back. An advertisement from the Sears Roebuck & Co., 1897 catalog for the W.C. Kelly Perfect ax (below). —Photo by Paul Hillmer; courtesy of Greg Strayer

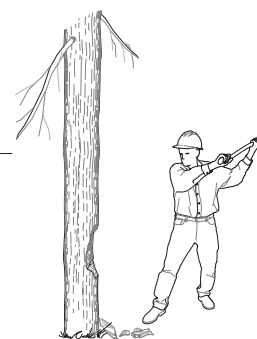
AXES.

We offer you a line of Axes which are acknowledged by all to be the standard of the world. We know there is no better made.



No. 12685. The Kelly Axe. It's the shape and good cutting qualities which have made this one of the most popular axes in the market. It is made of the finest steel, hand-hammered, tempered, and tested before leaving the factory. The blade is so shaped it will cut deepest but will not bind in the timber. It will burst the chip, and will not become stubbed after grinding. It has a taper eye which binds the handle. We have them in all weights, from 3 to 5 lbs.

Price, each..... 48c
Doz..... \$5.62



Remember that the information in this manual covers sharpening, profiling, and restoring **working** axes. Restoring collectable or valuable axes using these methods would ruin the patina and lower the value and the collectability of an ax.



Figure 13-20—A vintage Pioneer ax.
—Photo by Paul Hillmer; courtesy of Greg Strayer



Figure 13-21—A vintage Johnston's Winner ax.
—Photo by Paul Hillmer; courtesy of Greg Strayer

