

American Felling Ax

During the period in which the trade ax was being introduced to the North American Indians, the felling ax was brought to America by settlers from England, France, and Spain.

The 17th-century felling ax was made of two pieces of iron that were hammer welded down the center of the poll surface. Later axes had a thin poll with a flat surface. When North American blacksmiths began making the felling axes, they forged the poll side of the pattern longer in order to make a lap weld, which gave more welding surface. This produced a heavier poll with more weight behind the handle, providing better balance. In essence, this design is the modern ax that we use today (Kauffman 1994) (Figure 12).



Figure 12—Winchester ax and hatchet, Michigan pattern, typical of the American felling ax.

An edge tool maker's advertisement in the *Pennsylvania Packet and Daily Advertiser* on July 7, 1789, shows that the American felling ax was fully developed then. The illustration closely resembles the Kentucky pattern made by the Douglas Ax Company and illustrated in its 1863 catalog. The Jersey pattern, my personal favorite, is very similar to the model of 1789. It is still available. In the mid-19th century, some of the American axes were still made of both iron and steel. An iron poll and a

high-carbon-steel single-bit ax appears in an advertisement in the October 29, 1859, issue of *Scientific American* (Kauffman 1994).

The addition of the poll by an unknown North American blacksmith is what makes the American felling ax unique. Late 18th-century iron axes often had steel insert cutting edges. Earlier European axes with their long blades were awkward to use. When North Americans ground down the blades after sharpening them many times, they discovered that they could use them to cut more accurately. These axes had better balance and geometry. The blade wobbled less during the swing. After this discovery, American axes were made with shorter, wider blades.

In the late 18th century, some axes became almost square. These axes are often referred to as the American ax (Figure 13). Introduction of



Figure 13—My favorite American felling ax, a True Temper Kelly Perfect with a Jersey head and 32-inch straight hickory handle.

the Bessemer process for making steel in the late 19th century made steel affordable. The entire ax blade could be made of steel. Polished steel axes reduce the friction between the blade and the log. The ax blade can be made even thinner, allowing size and weight to be reduced while maintaining cutting efficiency. Making the entire ax wider with a heavier poll gave it more balance than the narrow, long-bladed English or European ax with little or no poll (Kauffman 1994).

The head of a full-size single-bit ax or poll ax weighed 3 to 6 pounds. The handle was 30 to 46 inches long.

The single-bit felling ax, or American ax, became the international standard for quality axes.

Double-Bit Ax

The first double-bit ax was probably made by William Mann in Pennsylvania at about 1850. The Mann Edge Tool Company is one of the few American companies still in the business of making axes. By 1860 the double-bit ax was very common in the Northeast. The double-bit was not widely popular until the last quarter of the 19th century when it came into its own in the Pacific Northwest (Figure 14).



Figure 14—Three double-bit patterns available from Collins in 1921.

The double-bit ax weighed from about 2½ to 5 pounds and had a handle that was 26 to 42 inches long (Figure 15).



Figure 15—Three representative double-bit patterns: Bluegrass Western pattern double-bit ax (top); True Temper Kelly Perfect Michigan pattern double-bit ax (middle); and a 2½-pound reversible cruiser ax, sometimes used for ax throwing (bottom).



Which is better, a single-bit or double-bit ax? No other question is likely to raise as much controversy among ax enthusiasts as this one. Although the single-bit or poll ax was developed first and has remained popular, the double-bit developed a strong following because of its balanced feel and versatility. Typically, one blade was sharpened to a finely honed, narrow “felling edge,” while the second blade was ground slightly blunter, and used for knots, cutting near the ground, or in other instances where a finely sharpened blade was more likely to be damaged.

The double-bit ax remains a popular utility ax in the Western United States, especially among agencies like the USDA Forest Service. The single-bit ax also remains popular. All of the competition axes are single-bit axes. In my opinion, a single-bit ax is a more efficient cutting tool; the double-bit is more versatile.

Broad Ax

Other special-purpose axes helped develop America. The hewing ax (also called broad ax or side ax) was used to square timber or flatten the sides of logs. It was used primarily for log buildings and timber framing, either in house or barn construction. Hewn timber was also used for railroad ties and trestle bridges.

The goose-wing broad axes (Figure 16) brought to America by German settlers were the earliest hewing axes commonly used in this country.



Figure 16—An 18th-century Germanic goose-wing hewing ax. There are maker’s marks hammered into the blade.

These axes were first used in Bucks County, PA. An earlier pattern of hewing ax known as the medieval goose-wing ax occasionally shows up (Figure 17). Goose-wing broad axes were made in both left- and right-handed models. The goose-wing handle was offset to the left or right by fitting it into a bent metal tube forged to the bit. Later hewing axes, known as American broad axes, had a handle that allowed the head to be taken off and re-versed for use by right-handers or left-handers.

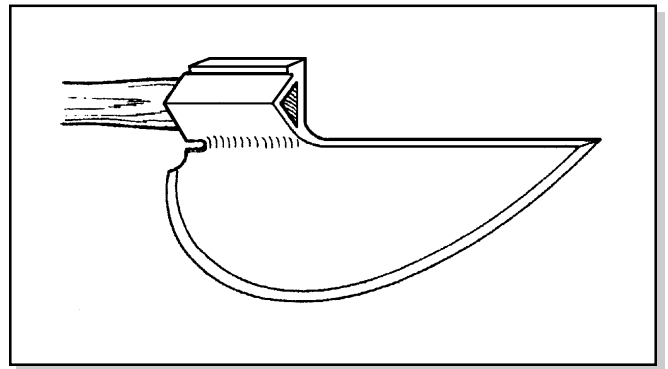


Figure 17—A medieval goose-wing ax that differs from the Germanic goose-wing axes brought into the United States by early settlers.

American broad ax patterns had geographic names. The most popular were the Pennsylvania, Western, Canadian, and the New Orleans pattern, my favorite (Figures 18a, b, c, d, and e). Until the 1930’s the Western and Canadian patterns were used to hack railroad ties. The slang expression for a person who made railroad ties was a “tie hacker.”

The hewing ax is the preferred tool for flattening the surface of round logs. In past centuries, wood beams were often made by splitting the logs with some type of mallet and wedge, or glut. Then they were surfaced with an adz or a hewing ax. When iron axes became available, the hewing ax almost replaced the adz. Hewing axes were frequently used to roughly square the logs before they were sawn into boards with a pit saw.

Even after the sawmill became common, the hewing ax was still used for hewing beams and planks in the Northwest. It was often easier to





Figure 18a—Beatty Pennsylvania broad ax.



Figure 18b—Early 20th-century Douglas, New Orleans broad ax—my favorite.



Figure 18c—Early 20th-century Beatty knife-edge tie hacker's broad ax.

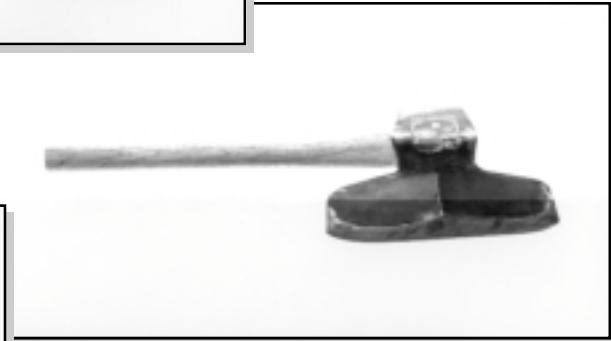


Figure 18d—Kelly 20th-century Canadian broad ax.



Figure 18e—A 19th-century shipwright's mast broad ax.

fell the tree, hew it square into cants, and skid the cants to the building site rather than to load and transport round logs to the sawmill where they would be sawn before being brought back to the building site. The hewing ax has been used in the same manner for about 2,000 years.



Other Axes and Hatchets

Axes have other uses besides felling timber and building houses. Splitting axes are used for splitting firewood or rails. Hatchets, with their short heads and handles, are used in the building trades, and for camping and hunting (Figure 19). Some axes and hatchets are used specifically for mortising (Figure 20), wood carving, flooring, shingling, and carpentry (Figures 21a and 21b). Special competition axes are also used in logging contests where people chop while racing the clock and each other (Figure 22).















Figure 19—Plumb 2½-lb boy's ax with 19-inch handle—my favorite for log cabin work.

Figure 20—An 18th-century mortising ax.

PLUMB HATCHETS

Advertised Finish—Smooth Black Head and tested Red Handle with PERMABOND Handle Assembly
 PERMABOND is a Revolutionary New Chemical Weld that Binds Head to Handle Permanently
 Electrically controlled furnaces assure you of a cutting edge that stays sharp. Plumb Handles are turned from tough, springy hickory that must pass rigid strength tests before being used.

<p>"AUTOGRAF" HALF HATCHET</p>  <p>Polished Finish Head Flat-Sided Red Handle</p> <table border="0"> <tr> <th>No.</th> <th>Bit Length</th> <th>Hdle. Length</th> <th>Weight Per Doz.</th> </tr> <tr> <td>AH2</td> <td>3½"</td> <td>13½"</td> <td>23 lbs.</td> </tr> </table>	No.	Bit Length	Hdle. Length	Weight Per Doz.	AH2	3½"	13½"	23 lbs.	<p>PLUMB HALF HATCHETS</p>  <p>Advertised Finish</p> <table border="0"> <tr> <th>No.</th> <th>Bit Length</th> <th>Hdle. Length</th> <th>Weight Per Doz.</th> </tr> <tr> <td>2961</td> <td>3¼"</td> <td>13"</td> <td>20 lbs.</td> </tr> <tr> <td>2962</td> <td>3½"</td> <td>13½"</td> <td>26 lbs.</td> </tr> </table> <p>Checked Milled Face CH2962 3½" 13½" 26 lbs.</p>	No.	Bit Length	Hdle. Length	Weight Per Doz.	2961	3¼"	13"	20 lbs.	2962	3½"	13½"	26 lbs.	<p>PLUMB HALF HATCHET</p>  <p>Polished Finish Head Red Handle</p> <table border="0"> <tr> <th>No.</th> <th>Bit Length</th> <th>Hdle. Length</th> <th>Weight Per Doz.</th> </tr> <tr> <td>530</td> <td>3½"</td> <td>13"</td> <td>20 lbs.</td> </tr> </table>	No.	Bit Length	Hdle. Length	Weight Per Doz.	530	3½"	13"	20 lbs.
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All the Above Hatchets Regularly Packed 1/3 Dozen to a Box.

Figure 21a—Some 20th-century Plumb hatchets and hand axes.





PLUMB HATCHETS AND HAND AXES

Advertised Finish—Smooth Black Head and tested Red Handle
 All Plumb Hatchets have PERMABOND Handle Assembly
 PERMABOND is a Revolutionary New Chemical Weld that Binds Head to Handle Permanently
 These Hatchets are designed to do a specific job. With cutting edges that stay sharp, they are perfectly balanced for easy accurate work.

These light-weight hand axes are easy to use in chopping kindling and cutting stakes. Yet, the heads are sturdy enough to pound and drive. Tempered to withstand numerous sharpenings.

PLUMB CALIFORNIA LATH HATCHET



Polished Finish, Thin Blade, Checkered Oval Head, Red Handle

No.	Bit Length	Hdle. Length	Weight Per Doz.
3025	2 1/8"	12 1/2"	18 lbs.

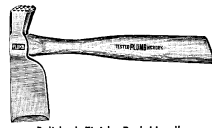
PLUMB BOX HATCHETS



Polished Finish, Checkered Oval Head, Red Handle

No.	Bit Length	Hdle. Length	Weight Per Doz.
2	2 1/8"	13"	18 lbs.
3	2 1/4"	16"	24 lbs.
4	2 1/4"	13"	21 lbs.

PLUMB WALLBOARD HATCHET



Polished Finish, Red Handle Crowned Face with Flat Checkers

No.	Bit Length	Hdle. Length	Weight Per Doz.
3020	2 1/4"	13"	21 lbs.

PLUMB EXPERT SHINGLERS HATCHET

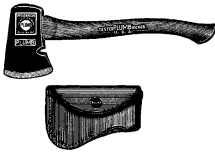


Advertised Finish With Shingle Gauge and Leather Strap

No.	Gauge Holes	Bit Length	Hdle. Length	Weight Per Doz.
565 1/2	5	2 1/4"	13"	23 lbs.

Extra Gauge for above Hatchet

PLUMB BELT AXES



Advertised Finish

No.	Hdle. Length	Weight Per Doz.
680	without sheath 14"	1 1/4 lbs. 21 lbs.
682	with sheath 14"	1 1/4 lbs. 23 lbs.

NATIONAL AXE



Black Head with Blade Ground and Polished Fan Shape and Tested Red Handle. All Purpose or General Utility Axe

No.	Hdle. Length	Weight Per Doz.
666	16"	1 3/4 lbs. 31 lbs.

PLUMB HOUSE AXE



Advertised Finish

No.	Hdle. Length	Weight Per Doz.
665	19"	2 1/4 lbs. 39 lbs.

PLUMB HUNTERS' AXES



Advertised Finish

No.	Hdle. Length	Weight Per Doz.
672	14"	1 1/4 lbs. 21 lbs.
674	16"	1 3/4 lbs. 29 lbs.

STORM KING HUNTERS' AND HOUSE AXES



Red Head, with Raced Bit White Lacquered Handle

No.	Hdle. Length	Weight Per Doz.
House SK 665	19"	2 1/4 lbs. 39 lbs.
Hunter's—SK 672	14"	1 1/4 lbs. 21 lbs.
Hunter's—SK 674	16"	1 3/4 lbs. 29 lbs.

NATIONAL BOYS' AXE



Black Head with Blade Ground and Polished Fan Shape and Tested Red Handle. A Light Weight Chopping Axe

No.	Hdle. Length	Weight Per Doz.
667	28"	2 1/4 lbs. 42 lbs.

PLUMB BOYS' AXE



Advertised Finish

No.	Hdle. Length	Weight Per Doz.
662	28"	2 1/4 lbs. 42 lbs.

STORM KING BOYS' AXE



Red Head, with Raced Bit White Lacquered Handle

No.	Hdle. Length	Weight Per Doz.
SK 662	28"	2 1/4 lbs. 42 lbs.

All Hatchets and Boys' Axes Packed 1/3 Dozen to a Box. All Other Axes Packed 1/2 Dozen.

Some axes weren't used for cutting wood. Ice axes were used to cut ice from lakes in the winter so the ice could be used for refrigeration during the summer (Figure 23). Sod or turf axes were used to chop sod for sod houses (Figure 24). People have used axes as a weapon for centuries. Fire axes are used to break down doors to enter burning buildings. The Pulaski is an ax tool used to fight wildland fires (Figure 25). An ax known as a butchering ax was used to kill cattle (Figure 26). Axes called "salesman samples" were miniature versions of full-size axes. Salesmen would carry them to hardware stores to demonstrate their wares.



Figure 23—A 19th-century ice ax for harvesting pond ice.

Figure 21b—More 20th-century Plumb hatchets and hand axes.

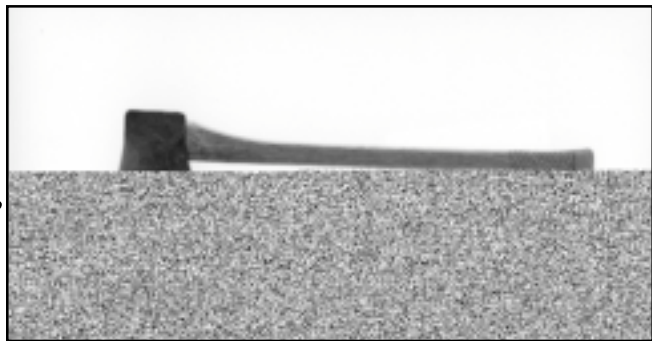


Figure 22—A Tuatahi competition ax. This New Zealand company specializes in custom-made axes and competition crosscut saws.



Figure 24—A 19th-century sod ax for building sod houses.

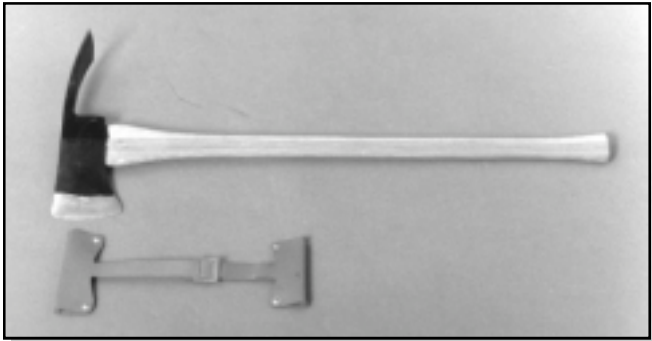


Figure 25—The Pulaski is a popular wildland firefighting tool that combines an ax with a grubbing hoe.



Figure 26—A 19th-century butchering ax.

Adzes

The adz is another hewing or dressing tool (Figures 27a, b, c, and d). It has a head that gives it the appearance of a hoe, but it is tempered and sharpened to cut wood. The adz is primarily used for dressing or planing timber that has been hewn by a broad ax. An adz is used for the final dressing in some of our finer hand-built structures.

Figure 27a—Collins lipped shipwright's adz.



Figure 27b—Plumb railroad adz.



Figure 27c—Modern carving ax or adz.



Figure 27d—Douglas carpenter's adz.



Decline of the American Ax

Some of the leading American ax companies have included: Collins Company, Mann Edge Tool, Kelly Axe or True Temper Kelly, Plumb Axes, and American Axe and Tool Company. When factory production first began, axes were produced by individual blacksmiths hired to make a complete ax. Gradually an assembly line was introduced. Improved steels and more efficient forging processes took most of the hand labor out of ax manufacture. The manufacturing process and materials evolved from individual blacksmiths hammering out axes one at a time to the giant drop hammers used today to stamp out fully formed ax heads.

During the 19th century, axes provided the best technology to meet the needs of the burgeoning forest products industry. Manufacturers produced hundreds of patterns for both general utility and specialized uses.

The use of American axes and their quality were probably at their peak during the period from 1850 to 1950 (Figure 28). Beginning about 1870, ax production began to drop due to the increased use of the crosscut saw as a felling tool. The ax continued to play an important role for swamping and limbing trees, but its role was diminished.



Figure 28—During the heyday of American axes, companies went to great lengths to promote their axes, like this Kelly “Best Axe Made” broad ax.

The introduction of the power saw was the death knell of the ax and the crosscut saw. By the late 1950's and early 1960's, lightweight, efficient chain saws had taken over almost all of the work that previously had been accomplished with an ax—felling, bucking, and limbing.

If you search the Internet for ax, axe, or axes, you will probably find more sites related to guitars (referred to as “ax”) than you will to those dealing with cold, hard steel. But if you focus on work in the woods rather than on the Internet, you will see that the ax still occupies an important place as a woodworking tool.

A Swedish company, Gränsfors Bruks AB, still manufactures hand-forged axes (Figure 29). Gabriel Brånby of Gränsfors Bruks provides a good summary of the modern role of the ax (Gränsfors Bruks 1997):

In a certain way we are back at the time before the entry of the booming forest industry. There are no axe-using forest workers any longer. The millions of cubic feet of pulpwood and timber that today arrive at the forest industries have never been grazed by an axe. The chain saws, harvesters and logging machines have taken over completely. Today most axes are used in small-scale activity by people like homeowners, firewood cutters, campers, hunters, joiners, woodworkers, log builders.



Figure 29—Modern hand-forged broad ax made by the Swedish Company, Gränsfors Bruks AB.



Figure 30—This modern blacksmith-made trade hatchet might be just the right gift for your sweetheart on Valentine's Day.

Thousands of new axes are sold every year, mostly for the activities Bránby describes. Some historic axes are sold or traded by collectors (Figure 30). In the Forest Service, axes still play a critical role in designated wilderness areas where mechanized or motorized equipment is prohibited by law. In these areas, axes, adzes, and crosscut saws are needed for clearing trails, cutting firewood, managing forest fires, and maintaining or restoring administrative buildings.

Outside wilderness, axes and adzes are used for historic building restoration and as lightweight, convenient, affordable alternatives to chain saws. To at least a few recreational wood cutters and craftsmen, the rhythmic sound and motion of chopping are more appealing than the whine and exhaust of a chain saw.

This look at the history of the ax and its evolution in North America is not complete. Four excellent references for more detailed study are: Henry J. Kauffman's *American Axes* (1994); Charles A. Heavrin's *The Ax and Man* (1997); Alan Klenman's *Ax Makers of North America*, and Henry Mercer's *Ancient Carpenter's Tools* (1960). Full citations for these sources are in *Selected References*.

