

# A GUIDE TO CHOOSING AND USING WOODS TOOLS

## Preface

As of this writing, I have been using woods tools for just over 51 years. I acquired my first axe as a Christmas present in 1964; and for a long time that was my only axe, because my father, a woods tools instructor for the Boy Scouts of America's Norumbega Council, had quite a few of his own, which he used when teaching axemanship. I was allowed to use some of them on occasion; and thus I received my first lessons on the differences in axes. Some of Dad's axes "sprouted wings" over the years; but I have several which belonged to him, and have built up a collection of my own. In the same period of time, I have also built up a collection of knives, mostly those intended for use in camping; and I have a few saws as well.

Looking at the collection, one day, and trying to decide which tools to use on a camping trip, I realized that, while most people are taught HOW to use woods tools, and often how to care for them, they are rarely taught WHICH tools to use in the first place; and thus an earlier version of this guide was created. In the areas covering choosing tools, I have broken each section into three areas: "Leave 'em Home", for tools which are of little or no use and which can be safety hazards; "Limited Use", which have some usefulness in the outdoors but which are not always the best ones to have; and "Bring Them", for tools which are well suited for use by anyone. This guide is designed to be used primarily by Scouts and their families, and throughout it I refer to "Scouts"; but indeed anyone wishing to use woods tools will, I hope, find it useful.

I should also add that I am rather "old school" in my attitudes about woods tools, and that there are methods being taught, in places like the Boy Scout Handbook, which contradict what I say in these pages. It is easy to find other ideas about how to use woods tools online; and there are books available, both new and used, which can reinforce what I say above, give contrary but valid advice, and introduce you to more advanced areas which I do not cover here. I urge you to use what I have written as a starting point, and then keep adding to your knowledge so that when you are in your early 60s, as I am as of this writing, you can look back on years of fun which you had with a knife, axe or saw in your hands. You can use whichever method suits you best; but whichever method you use, **use it exactly as instructed**. Using woods tools isn't quite so much fun when you have "cut corners" and an injury results. Take the extra time and care to do things the right way.

Finally, this guide is **not** just written for boys and men. Over the years, I have seen girls and women prove to have no peer when it comes to swinging axes or using other woods tools. As I will point out later, brute strength is much less important than muscle control, when using woods tools; and girls and women have this as well as any of their male counterparts.

## **SELECTING KNIVES**

Before I begin, I would like to mention that I classify the knives which you will usually encounter, in the woods, into three-classifications: fixed-blade knives, requiring a sheath to protect the edge when not in use, folding single-blade knives, and folding, multi-blade or multi-tool pocket knives.

### **“Leave ‘em Home”**

It is very tempting, for the Scout who is buying his or her first pocket knife, to “be thrifty” and buy an inexpensive knife – an imitation Swiss Army knife, for example, instead of the more expensive real thing. However, this is a false economy, because many of these imitations are made of poor-quality steel. They dull quickly and require almost constant sharpening; and the “extra features” on them, such as the saw, are practically useless. Their only virtue is that, if the knife is lost, less money goes to waste. I have a couple of these knives in my collection; but they are only used for introductory lessons in which the Scouts practice carving bars of soap. Other knives to avoid are the tiny knives which are meant to fit into a purse, briefcase or glove compartment. Finally, avoid knives in which part or all of the blade is scalloped, toothed or serrated. They may look good and may have practical uses for some; but they are almost impossible for anyone but a professional to sharpen.

I also include here, to my regret, the current Boy Scout and Girl Scout knives. They seem to be made with a mind to keeping the price down; but quality has been sacrificed in the process. I bought a new Boy Scout knife in 2009; and I have used it for less than ten minutes because it dulls quickly and already has a wobbly knife blade. Its Girl Scout counterpart does not appear to be any better. Regrettably, the modern Boy Scout whittling knife has fallen victim to the same false economy as its regular counterpart; so avoid them completely.

### **“Limited Use”**

Included here are single-blade knives, which may be of good-quality steel and hold a sharp edge well (this includes sheath knives with fixed, non-folding blades); but of course such knives are good for only one thing; and sometimes the temptation to use them as a prying tool, screwdriver, or something else can result in a knife blade broken or bent beyond use. Many of these knives have blades which are much too large to be of practical use in the woods – at least as far as Scouts are concerned. I also include here “special purpose” knives like whittling knives; although any serious woodcarver will want to have one, they are of little practical use to most Scouts. To top it off, many Scout councils have restrictions on the kind of knives a Scout may carry; so the wise Scout will find out what these restrictions are before buying a knife. These knives can be used for splitting small sticks (not much more than an inch or two in diameter) by “batoning” the back of the blade with another piece of wood; but I would not bring such a knife into camp for just that purpose.

So-called “multi-tools”, like the Leatherman, are in here as well. As a compact tool kit, they can be very useful in the woods, and each patrol should have one; but by no means should every Scout in the patrol bring one on a camping trip. If he or she wants a knife, then he or she should have one that is not part of an all-in-one tool.

## “Bring Them”

There is very little that a Scout needs to do, with a knife, out in the woods, that cannot be done by what is often called a “jackknife” or “pocket knife”. There are many different kinds of pocket knives available, many different brands of knives, and many different qualities of knives among these; so the wise Scout will consider the purposes for which he or she wants a knife before going out to buy it.

Especially with a Swiss Army-type knife, some are tempted to buy the knife with the most blades and tools. However, most people will never use all of these extra features, and the largest Swiss Army knives are not only expensive but can be clumsy to use. Often, another tool will be available which performs the intended job better than the “mega-knife”, or the tool on the “mega-knife” performs a function, such as stripping electrical wire or opening a wine bottle, which will be rarely if ever done on a Scout camping trip. The official Boy Scout and Girl Scout knives, plus most traditional jackknives, include a knife blade, screwdriver, can opener, bottle opener and leather punch; and most Scout leaders agree that these blades and tools will suffice for most camping uses. If a Scout wants to select a Swiss Army knife, the extra features should be kept to a minimum. My own Swiss Army knife has a small knife blade, a Phillips head screwdriver and bootlace hook included with the essentials listed above. There are other features, some of which I use occasionally; but I have them on my knife only because I wanted to buy the smallest knife possible which included the three features listed above. The larger ones might find a place in a patrol’s equipment box; but as an everyday knife I find them bulky in my hand when I am trying to use the main knife blade. The steel in Swiss Army knives (whether made by Victorinox or Wenger) is of excellent quality.

Earlier, I said that I discouraged Scouts from buying the modern-issue Boy Scout or Girl Scout knives. Many Scouts will still want an official Scout knife, though; and fortunately, there is a solution, although not necessarily an easy one. Online auction services such as eBay, regularly offer classic BSA or GSUSA knives for sale; and these knives feature carbon-steel blades which may not look as pretty as their stainless-steel modern counterparts, but which hold a sharp edge well. When perusing these auctions, look for indications as to the age of the knife; and often the listing will give the name of the manufacturer, such as Imperial, Camillus, Kutmaster, Ulster or Schrade, which is a good sign. There are also many other “classic jackknives” available as well; and these are also good values. The average cost of one of these “classic” Scout knives is around \$25; but the extra cost (over that of their modern counterparts) is money well spent. From time to time, I will see auctions for knives which are badly rusted due to improper storage; but I have successfully restored these knives to use by using 3-in-1 oil, or its equivalent, a brass-bristle brush, and steel wool (you will place the knife on a paper towel or old newspaper, then drip the oil into it until the blades become easy to move. Then, you will use the steel wool, brush, and Q-tips to remove any residual rust or dirt).

Once you have your knife, go to a hardware store and buy a double-ended **brass** belt clip that can be clipped onto a belt loop, a short length of small-gauge link chain and at least one small split O-ring. One of these O-rings will be attached to the carrying loop on your knife (if your knife has a shackle at the end, as with official Scout knives, you will probably not need this loop). To this ring (or to the shackle) will be attached a length of chain (I suggest using no more than a 3 inch length, or perhaps a lanyard made from nylon cord or paracord (I suggest using the Solomon’s Bar knot). If you use a chain, and your chain has loops that cannot be opened and closed with a pair of pliers, you should use the loop mentioned above to connect the chain to the shackle). Attach another O-ring to the other

end of the chain, and then clip this ring to one end of your brass belt clip. This may seem like a lot of work or an inconvenience; but by doing this with my own knives, I have ensured, on more than one occasion, that if the knife pops off of the belt clip, for any reason (especially when hiking through dense brush) the knife will fall into my pocket instead of into the underbrush where it will likely be lost forever. When using the knife, I simply tuck the chain and loop into the palm of my hand.

## **SELECTING AXES**

Before telling you how to select an axe, I'd like to tell you about the different styles and sizes of axes which are available. There are wide variations in the weight and style of axe heads and the length of handles; so let's go over those before we move onto deciding which axe is best for you to use.

### **“Pocket Hatchet”**

This style of axe has a head of 1 lb. or less in weight, and a handle of under 10 inches in length.

Pluses: It is compact and easy to transport, and can be used to split small sticks or to sharpen sticks or spars to a point when necessary.

Minuses: Anything which these hatchets can do can also be done, better and more easily, by larger hatchets, axes or knives. The heads are too light to supply much power when cutting or chopping; and they can only handle the smallest of sticks.

### **Hatchet or Hand Axe**

This style of axe has a head of less than 2 lbs. in weight, and usually a handle of 12 inches or less. It is designed to be used with one hand only.

Pluses: It is light and easily transportable, and is excellent for splitting small pieces of wood (usually 3" or less in diameter).

Minuses: people often see a hatchet and think “axe”, and use it to try to chop a log in two. They will spend three times the effort to accomplish one-third the work which could be done by an axe; and the risk of damage to the hatchet or, worse, of injury to the user is significantly higher. This should not be your primary woods tool.

### **Cruiser, Camp or Backpacker's Axe**

This axe has a head somewhere around 2 ½ pounds in weight, just like a medium axe, and will have a handle of between 14 and 20 inches in length. It must be swung with two hands.

Pluses: This is an excellent axe for backpacking, since it can be used like a hatchet but has the power to chop logs like a larger axe can.

Minuses: The shorter handle means that the user has less leverage, and thus less power, than a larger axe can provide.

## Medium, Youth, or 3/4 Axe

This axe has a head somewhere around 2 ½ pounds in weight, and will have a handle of between 28 and 32 inches in length. A longer handle, of up to 36 inches, will provide additional leverage and power to the user.

Pluses: This is the ideal camp axe, since it can be used with equal skill by the smallest and largest people in camp. By choking up on the handle, it can be used as a hatchet; but it has the handle length and leverage (and thus the power) to chop logs or cut down trees. It can also be used as a backpacking axe.

Minuses: There aren't many. At worst, it will not cut down a large tree or split a larger log as well as a full-size axe can.

## Full-Size Axe

This axe has a head of usually between 3 ½ and 4 ½ pounds in weight, and a handle of between 32 and 36 inches in length.

Pluses: This axe will accomplish almost any task which you might need it to do. The weight of the head and the length of the handle make it a powerful tool.

Minuses: It is often "more axe than you need", especially if the head weighs more than 4 pounds, unless you are chopping large logs, cutting down large trees or want to use the axe for splitting. It can be difficult for smaller campers to control safely, or for anyone when splitting small logs.

## Professional/Specialty/Timber

Any axe with a head weighing more than 4 ½ pounds, or with double bits or other tools on the back of the axe head, is one which should be used only by professionals, or by trained woods tools experts.

Pluses: for anyone other than professionals in full safety gear, **none at all**. Some say that the head on a double-bitted axe provides better balance than the head of a single-bit axe; but I've never had a problem with the balance on a single-bitted axe.

Minuses: THESE AXES ARE DANGEROUS IN THE HANDS OF ANYONE BESIDES A PROFESSIONAL If you have one, leave it at home. The minuses far outweigh any pluses.

## "Leave 'em Home"

All too often, someone who wants to own their axe will "take over" an axe which is in someone's cellar, or they will go out to a hardware store and buy one. A Scout may wind up with an excellent axe in the process; but he or she can easily wind up with one unsuitable for use.

At the top of this list is what I call the “Paul Bunyan”, or double-bitted, axe, with a blade on each side of the head, and a straight axe handle. **Avoid this axe at all costs!** This axe, with can capture a Scout’s imagination; but **it is a bad choice for anyone not a trained professional.** Many Scout councils do not permit their Scouts to use them, because they are more dangerous than single-bitted axes, due to the extra blade, and because the additional blade is not necessary for any Scout activities. Specialty axes, such as “fire axes”, with a blunt triangular point on the back of the head, or the “Pulaski” axe, with a regular axe blade on one side and a “beaver tail” horizontal blade on the other, should also be avoided unless there is a specific job (such as trail building or conservation work) that requires the special features of one of these axes.

The “cellar axes” can be dangerous because, if they have not been used properly, the blade may be dull, the handle cracked, chipped or rotted at the top, or the head loose, rusty, or deformed from being used as a maul, splitting wedge or hammer. Such an axe may be able to be rehabilitated; but unless a Scout has the time and the skills to do so **properly**, a new axe might be the best bet.

I also include hatchets in this group. I have heard some people say that they prefer them “because they are safer than axes”. I have not found this to be so; and in a camping situation an axe can do anything that a hatchet can do, and much more, because of the heavier head and longer handle. As for the issue of safety, I have found that they can often be **more** dangerous than an axe, and more than once have seen a Scout whaling away at a log with a hatchet, trying to cut through it with many short, rapid strokes. Such a Scout will tire quickly, and at best may end up missing the wood and hitting a nearby rock. The short handle also means that a missed swing is more likely to result in the blade striking the user, and the Scout spending that night in a hospital rather than a tent – perhaps minus a digit or two.

I would only use a hatchet at an established campsite, for firewood preparation; but again, the right axe will do this job quite well. I would use the hatchet only for trimming small branches off of trees, or for splitting small saw-cut logs for the woodpile. In the latter instance, you can use the contact method; and if necessary, you can take a piece of **wood** and tap the butt of the head so that the bit is firmly seated in the wood to be split.

### “Limited Use”

In my axe collection, I have several “full size” axes. There is nothing wrong with these axes; but they are unsuitable for backpacking, and I would only use them at a “tailgate” camp or at summer camp; and only then if there is a need to chop a large tree down, “buck it” into sections for splitting, or for splitting. They are also more difficult for a small person to control – and control, rather than muscular strength, is the key to using axes efficiently. A “cruiser” axe can be useful; but it’s best for backpacking trips where saving weight is important, or in camp as a tool to split small logs for firewood, after they have been cut with a larger axe or a saw. They require two hands to swing properly. Finally, there are the “broad axes”, featuring wide blades and straight bits. These will do a first-rate job chopping – in warmer weather; but their blades are usually too narrow for them to be good for splitting, and they are likely to break when used in the colder weather. If you have one and are using it in cold weather, warm up the head a bit before using it. Tuck it inside your coat or jacket for a while (while you are wearing it, of course!), if need be.

You may encounter axes with fiberglass handles, or perhaps axes which are forged, together with the handle, from a single piece of steel. The main virtue of these kinds of axes is that the handles are virtually indestructible, meaning that you never have to pause in your work to replace a cracked or split handle; but in my opinion and from my experience, the fiberglass handle is prone to vibrations which will tire out the user more quickly than will a wooden handle. As for the latter axe, the blades are much thinner than usual, which makes them much less useful in splitting. There are also axes with hollow plastic handles, in which the handle comes up to surround the axe head and hold it on; but aside from the quality of the steel used in the head (which I am yet to be convinced is suitable for extended use), there is also the danger that, through carelessness or misuse, the plastic will melt or crack, thus making the entire tool forever unsuitable for use. In both cases, better axes are available.

### **“Bring Them”**

The best axe to have in camp, whether a Scout or a Scouter is to use it, is the single-bitted axe which comes in the “three-quarter”, “medium” or “youth” size. My very first axe was a three-quarter “Hudson Bay” axe, with a broad bit and narrow “butt”, or rear of the head. Over 50 years later, it is still my camp axe of choice, although I am 6’6” and can easily handle a full-size axe. There are many other styles of axe heads, and each has their advocate; but in general, any “youth size” axe will serve you well, no matter where you are camping. By “choking up” on the handle, much as one might do with a baseball bat, it can be used as one might use a hatchet. It can be used to split the firewood that will be used on most Scout camping trips, and it can be used to trim branches. I have several of these axes, and on one of them, I have used a 36 inch handle instead of the usual 30 inch handle; and I like the fact that this gives me some extra leverage, and axe-head speed, when I am using this axe. I would bring a smaller axe (probably my Hudson Bay), though, if I was backpacking

As with knives, it is well worthwhile to seek out older axes. Many modern axes, even the ones with wooden handles, are made of steel which is not as good as the steel in older axes; and the blades often need a fair amount of work before the axe is ready for use. In addition to “down cellar”, you can find older axes at flea markets, yard sales, antique stores or on eBay. If you decide to go this way, make sure that the butt of the axe has not been flattened by having been used as a maul or hammer; and make sure that there are no cracks in the eye of the axe (this particular inspection saved me from buying an axe which certainly would have had the head crack, making it useless, at some point). If the head is good, but the handle is in poor shape, it’s okay to buy the axe as long as you are willing to replace the handle. You can also seek out an axe **head**, with no handle. The heads are usually used; but if they are in good condition, you will be able to mount a handle on these axe heads and get a top-quality axe for sometimes as little as ¼ of the price of a new one. The shipping costs are less than those for axes with handles.

If you would rather get a brand-new axe, I suggest that, if you would rather buy an axe locally, look for one with a wooden handle. These do not come from the factory ready to use, and you will need to spend some time getting the bits ready for use; but if you know how to sharpen an axe (and we will soon discuss that), you will be able to do so. However, the quality of the steel used in these axes is adequate at best; and in my opinion, you are better off getting a vintage axe, or a vintage axe head and mounting it on your own handle, since for close to the price of a new axe, you will get one of far superior quality.



You can also seek out axes from manufacturers like Snow and Nealley, Council Tool, Husqvarna, Helko, Ochsenfuss, Wetterling, Best Made and Gransfors Bruks; but although these are the best axes on the market you will pay over \$50 for axes from the first three companies, and over \$100 for the best axes from the others – sometimes closer to \$200. The extra money spent on these axes is well worth it, since the axes will last literally for decades, if not centuries, if the heads are properly maintained; but the cost will put these out of the easy reach of most people (indeed, my axes with heads from Gransfors Bruks, Helko and antique Snow and Nealley, are all ones in which I bought the heads and mounted them on my own handles). Other worthwhile antique brands are Kelly, Plumb, Tru-Temp, Dunlap, Norlund and Master Mechanic; and there are many others worthy of your consideration.

Some people will resist or reject the idea of using an axe because of “safety concerns”, and will encourage, instead, the use of camp saws. I do not oppose the use of camp saws; in fact, I use them myself. However, when I have the choice of using either an axe or a saw, the axe will always be the better choice, especially in wet weather when the firewood is wet and a saw cannot let me get at the dry wood inside the wet logs. As for the safety issue, I have found that, **when safety practices are followed to the letter, without any deviations**, an axe is a very safe tool. Those practices include keeping the axe sharp at all times, keeping the axe yard free of obstructions by ropes, trees or brush, and permitting no one to approach the axe user unless the blade of the axe is masked or sheathed. In 50-plus years of Scouting, I have seen half a dozen injuries caused by camp saws, but only one caused by an axe; and that injury occurred because the Scout did not follow the rules regarding lack of obstructions, and his axe caught on a branch and cut the user on his lower right leg. **There is only ONE way to use an axe – THE RIGHT WAY.** It is not difficult to learn how to use an axe the right way, so there is no reason not to do so.

## Suggestions

Of course, the goal of the woods tool user should be to use their axe in a way that will not damage it or break it; but sometimes the handle does break, and must be replaced. I suggest that a spare handle be kept available, if possible, so that it can replace a broken handle if necessary. Ideally, this handle will already be cut so that the top of the handle is flush with the eye of the axe head. You should also have a wooden wedge, to go into the split part of the top of the handle; and you should have two or three small steel wedges to drive into this wedge (once it is seated in the handle and cut flush with the eye), **crosswise to the wooden wedge**.

Finally, I suggest that anyone going camping bring at least two axes with them. That way, if one axe becomes dull, it can be sharpened while the other one is unmasked and put to use. I also suggest that, if a personal axe is brought on a camping trip, it should not be lent out. Most serious woodspeople spend a lot of time and effort getting their axes into the proper shape; and no one wants to see their hard work undone by a careless “greenhorn”.

## SELECTING SAWS

### “Leave ’em Home/Limited use”

Most Scouts will readily understand that carpentry-type saws are inappropriate for use out in the woods. Other saws, such as two-man saws, single-handle saws with blades designed for cutting logs, and saws with wooden frames and turnbuckles to keep the blade tight, are much more useful; but the drawback for Scouts is that they have to be sharpened, which is a painstaking job well left to the expert, and are often too big to carry comfortably. If you are in a situation where it is suitable to use them, though, they can be a lot of fun to use (one of my favorite uses, for a two-person saw, is at a camporee or jamboree, where two troops feed a line of users. Two Scouts who do not know each other will cut slices of wood off of a log, one for each person, and will then inscribe their piece for the other – and, it is hoped, make a new friend). They are also fun to use if a troop is doing a conservation project involving the felling and cutting of large trees. Backpacking saws, usually consisting of two metal rings attached to either end of a chain or wire with cutting teeth attached, are useful only in situations where saving weight and space is a major consideration. The saw blades that are found on some Swiss Army knives have their uses, I’m sure; but **not** when it comes to cutting wood for a campfire or a conservation project.

### “Bring Them”

The type of saw which is generally most useful to Scouts is the “bow saw”, sometimes with foldable handles, or pruning saws. Bow saws are especially useful because their blades are meant to be used once and then discarded – which means that **a Scout troop should never be without extra blades** when bringing the saw on a camping trip – and they will do almost anything that you might need a saw to do while you are in camp. Also useful are the folding or fixed-blade pruning saws that can be found at most hardware stores; but these should only be your backup saw unless you are going backpacking and wish to make that your saw for the trip (which is why I bought mine).

Most hardware stores will carry both kinds of saws; and the quality is usually pretty good. In contrast to knives and axes, I would be very careful about buying a saw secondhand; but it is okay to do so if the frame and all of its parts are in good shape.

## SHARPENING

When taking woods tools into the woods, it is critical that proper sharpening equipment be brought as well, because a dull knife, axe or hatchet is very dangerous to have around and, at best, will be useless to you.

At the very least, you should have with you a pocket sharpening stone with a fine grit; but if possible your sharpening stone should be one of the ones with both coarse and fine grit, and measuring around 6" by 2" by 1". If you have an axe with you, you should also have a sharp "mill bastard" file with you; and if possible that file should have a wooden handle. It's even better if you can make a "knuckle guard" for it, which involves cutting a curved piece of plastic from something like a sports drink bottle (especially the half gallon or two liter size), about 3" by 4", punching a hole in the middle, and then placing it between the file and the handle, with the curve pointing toward the tip of the file. This, as the name suggests, will help guard knuckles from getting cut by sharp axe bits. Make sure that the teeth of your file are not shiny, because this means that the file has either been used improperly or for too long, and will thus not do a proper job of sharpening your axe.

You can use a dry stone; but this might result in dust clogging up the pores of the stone and might cause the stone to wear away more quickly than you would like; so some lubrication is best. Oils like 3-in-1 oil, or liquids like WD-40, are excellent; but then you will have to keep the stone in a strong plastic bag or else getting oil from the stone into your gear; Water will work okay; but the best lubrication I can think of is one which some look upon as somewhat distasteful – one's own saliva. You always have it with you; and it is easy to wash it off of your tool, your stone and your hands.

**IMPORTANT NOTE:** As noted earlier, some axes come from the factory with a bit which is much too dull for immediate use; and this is so that the bit will not be damaged in transit by contact with anything hard. If you are buying a brand-new axe, take the time to get it properly sharpened before using it

### Knives

Grasp the sharpening stone from beneath, keeping your fingertips below the surface of the stone (and for extra safety, you can wear a pair of sturdy gloves). Take your knife, and put the throat (the part nearest the handle) of the blade at the end of the stone nearest you, using the fine grit side. Then, raise the back of the blade enough so that you could put a dime underneath it; and as you push (gently!) the knife along the stone, move the blade to the side so that, when the blade arrives at the other end of the stone, only the tip is touching anything.

Count the number of strokes you make; and then flip the knife over and repeat the process, only this time you will be bringing the knife toward yourself (this is why you are holding the stone as you are, and are being gentle with the knife and stone). Once you have sharpened the knife with an equal number of strokes, turn the blade towards you and look for any bright spots of light. If you see any, then continue sharpening; but if not, grab a piece of soft wood and see how easily the blade cuts. If you can cut the wood with minimal pressure on the knife, you are all set for now.

## Axes and hatchets

These tools will require more work to sharpen, not the least because they do heavier work than any knife and because people will sometimes miss what they are trying to chop and will bury the axe in the rock-filled ground.

If your axe has serious dents in the bit, or (in most cases, except with the most expensive axes) is coming to you directly from the store where you bought it, you may need to use a grinding wheel to take out the dents or remove the worst of the customarily sloppy factory grind on the bit (and this is the only time when you should use a grinding wheel on an axe or hatchet). Grind down the bit until the dents are gone, and then lightly grind down the bit until the “shiny line” you see when the bit is pointed directly towards you is thin. It is not advisable to sharpen an axe or hatchet any further, because it is difficult to get an even grind on everything and can even ruin the temper of the bit. Once you have done this or if this step was not necessary, and if the metal of the bit shows any remaining small dings, dents or uneven metal, you should start by placing the axe on a firm surface (and if you have a way of clamping it in place, or have someone else to hold the handle down, so much the better). The Boy Scout Handbook teaches Scouts to stake the axe against a small log on the ground; but in my experience I have not found this technique to be necessary, although I have used it.

Now, take your file, and place the tip on one end of the bit raised just enough so that you can, as with your knife, place a dime underneath the file. Now, make a stroke with the file, along the bit, so that when you reach the bottom of the file, it is resting on the other end of the bit. Make sure that you use the entire file surface with one stroke, and cover the entire length of the bit, or else you will find yourself with a file which is dull in the middle, and an imperfectly sharpened axe. Once the bit on one side is sufficiently flat, turn the axe over and repeat the process with the other side. You should feel a “burr” – a rough ridge of metal – on the edge of the bit; if not, you should closely examine the bit to see if you have been sharpening the edge, or working instead on the metal behind it.

You shouldn't need to do this for more than 5 or 6 strokes, in most cases; and now it's time for the sharpening stone. Turn the coarse grit side of the lubricated stone and place it on the bit, just as you had with the file. This time, though, you will move the stone in small circles as it travels up and down the bit. Keep going until all of the file or grinding marks are gone; and then flip the axe over and repeat the process with the other side. Now, rinse off the stone and lubricate the fine grit side; and work on your axe just as you did with the coarse grit side of the stone. Count the number of times your stone travels up and down the bit, so that you don't sharpen one side more than the other.

You will test the sharpness of the axe, not with your finger, but by looking at it. First, point the bit toward you and look to see if any bright spots appear on it. If so, resume sharpening it; and if not, hold the axe so that the bit is pointing up and you can look along the length of the bit. You don't want the angle of sharpening to be too shallow, since such a bit will dull quickly and glance off of the wood instead of biting into it; and an overly narrow bit is more prone to chipping or cracking. If your axe is “in the middle”, then field-test it in your axe yard.

For practice in sharpening axes, it is a good idea to have a “retired” axe used for that purpose ALONE, because novices can ruin an axe's bit instead of sharpening it. Paint the entire axe a distinctive color, except for the bit, and write “SHARPENING PRACTICE ONLY” on the handle.

## Saws

I will not discuss how to sharpen saws, because this is a skill which is difficult to master, and should only be attempted by well-experienced users of woods tools. In most cases, you will have a saw in camp with a replaceable blade; so rather than attempt to sharpen these, simply replace the blade. I will note only that when your cuts seem not to be getting deeper and the sawdust from your cuts is becoming more of a fine powder, check to make sure that you are using the proper technique with your saw. If you are, then it is probably time to change the blade.

## General Suggestions

I suggest that you always have at least one knife or axe in camp with you but not in active use. All too often, people will continue to use a dull knife or axe rather than stop work and sharpen it; and as I pointed out in the beginning, this is dangerous. When the first tool gets dull, you can simply switch it for the one which is sharp, and have a helper sharpen the tool which you have just stopped using so that, when the second tool gets dull in its turn, you can swap it for the first tool and keep on working (or you can simply take a break from chopping and relax as you sharpen the tool); or the person with the sharp knife or axe can simply take over the job. Everyone does not need their own saw or axe, in camp (although there is nothing wrong with that); but I suggest that each person have their own knife.

For the axes in my personal collection and the ones in use on Scout campouts, I paint the bottoms of the handles in one of three colors; or if there is a rubber grip on the handle, I will paint the handle just above the grip. The colors serve three functions. First, the colors make it less likely that an axe (especially, if unsheathed and left carelessly lying around) will not get lost under blowing leaves. Second, the colors make the axe handles stand out more when the bit is buried in a chopping block, so that someone walking inattentively through camp will not stumble into an axe. Finally, the colors serve as a code indicating who can use the axe.

In my troop, an axe with green on the handle is one which can be used by any Scout who has his "Totin' Chip" and has thus been checked out in basic woods tools safety. An axe with yellow on the handle is one which can be used by any Scout who has first checked with one of the adults in camp. Typically, hatchets and full-sized axes will receive this color. Finally, an axe with red on the handle can only be used with the personal permission of the axe owner, usually me. I use red for my personal axes, which I have sharpened to my satisfaction, which are often my most expensive axes, and which have sound heads held securely on sound handles; and this is because I do not want a novice ruining the bit, or even sharpening the axe in a different way from the one I use.

## USING KNIVES

When you are learning to use any kind of woods tool, it is a good idea to get some guidance from someone who already possesses that skill; but I will go over the basics with you so that you will know what to expect.

Before you begin to use your knife, pick a comfortable spot well away from anyone else and from anything which might get in the way of your work. You do not want to lose your balance and topple over, with an open knife, and you want no one else and nothing else within your “safety circle”. You identify the safety circle by opening it, grasping the handle firmly, extending the knife out as far as possible with the tip pointing away from you, and then swinging the knife, **gently**, in a 360° circle. If there is anything or anyone else close to that circle, either ask them to move back, or move yourself back and measure the circle again. Then, move the knife back and forth over your head, to make sure that there is nothing which could touch you while you are using the knife.

Now, pick up whatever it is that you are trying to cut (I will assume, here, that you are trying to cut a piece of wood, but the same technique applies for anything else), and place the “throat” or bottom of the blade (the part nearest the handle) on the spot where you want to begin your cut, facing **away** from you. The blade should be angled up off of the blade just enough to slide a dime underneath it. Now, **gently** push the knife blade away from you; and if your knife is sharp and the blade is at the correct angle, a small shaving of wood should begin to appear. **Do not try to force the blade through the wood!** If the knife will not cut or does not cut very much, the knife may be dull, the blade may be at the wrong angle, or the wood may be difficult to cut for some reason.

If you are trying to make a pile of shavings with which to start a fire (you should try for at least a hatful), keep something underneath you so that you can retrieve your shavings.

If you are in camping and, while setting up your tent, you discover that one of more of your tent stakes is missing, you can make your own. You’ll want to find yourself a stick around an inch and diameter, and then cut it so that it is about 6-8” long. Sharpen one end to a point; and then you’ll want to cut a notch into the other end to catch and hold the guy line for the tent. You do this (and this is why I included this example) by placing your blade vertically on the wood, and rocking it back and forth (you move the handle up and down. You don’t twist it from side to side). When you have a small indentation in the wood, you place the blade about 1/8 of an inch away from the indentation; and then, with your thumb, you gently push the blade toward the indentation. The blade should stop there. Do this a few times more; and you will have a notch deep enough for your intended purpose. Hook the guy line into the notch, pull it tight, and then drive the stake into the ground, **not with your axe or hatchet**, but with a hammer, mallet, piece of wood or even a rock. This is a good skill to master if you are also interested in the art of woodcarving.

## USING AXES

A good way to envision the proper use of an axe is to envision yourself coming to bat in a baseball or softball game. You adopt a comfortable stance, with your feet placed well apart and evenly distant from the plate. In other words, your feet are not close together; and you do not have one foot forward and one foot back. You reach across the plate with your bat to make sure that you are close enough to the plate to be able to reach all of it; and when you swing the bat, you are trying to control where the bat goes so that it will arrive over the plate just as the ball does and – you hope – drive the ball out of the reach of any of the fielders. Swinging an axe is much the same, except that you are swinging down and not across. With an axe, though, it is even more important to have good muscle control, because it is a mistake to try to smash the axe through the wood with brute force. The weight of the axe head, plus the leverage you get from the length of the handle, will do the work for you. Your primary task is to tell the axe where to fall by controlling that fall, and making sure that the power of your swing does not make you miss your target or throw you off balance. I'm going to imagine, for the moment, that you wish to cut a log in two (known as "bucking" a log); so let's proceed on that assumption.

To start, you find a comfortable place to stand, where you will not stumble or fall. Next, grasp the axe by its head and extend your arm as fully as possible. As with a knife, you check your safety circle not only in the 360° around you, but also above you. In over 50 years of Scouting, the only axe injury I've ever seen was when a Scout didn't check overhead before swinging his axe; and instead of landing in the wood, the bit landed in his lower right leg. The pain, the blood and the screaming which result from such an injury is tough enough to take; but the paperwork which is always required after such an injury is unbearable, so **always check your safety circle – above and around**. Next, take the axe by the knob at the bottom of the handle and extend your arm fully; and you should be able to easily reach what you are trying to cut (if not, move in or out as necessary).

Many people over the years, and the current Boy Scout Handbook, teach that to swing an axe, you should start by raising the axe and putting your dominant up near the head of the axe, and then sliding it down, as you swing, to meet your other hand at about the point where the axe strikes the wood. I am no longer a fan of this method, because to me it robs you of some of your power, and can throw off the impact point of the bit from where you want it to be. I now suggest that it is far better to put both hands all of the way at the bottom of the axe, one on top of the other, just as you do with a baseball bat. In my experience, this gives you a more powerful and a more accurate swing.

When you are ready to begin your swing, raise the axe so that it is just above your head. **Do not** move the axe behind your head, because that will just waste energy and reduce the power of your swing. Your arms should be fully extended, and the head of the axe should be **slightly** to one side or the other of your head (if you move the axe too far to one side or the other, you will not only reduce the power of your swing, but you will be more likely to lose your balance). Once your axe is in position, let it fall towards the wood which you are cutting. If you want to bring the axe down more quickly than that, you can do that as long as you are not trying to force the axe through the wood. Remember that the axe head and the leverage of the handle will do the work for you; and your main task is to control where the axe head falls.

If you have a sharp axe and you have swung the axe correctly, you should now have a nice cut in the wood. For your next swing, repeat these same steps, except that this time, you will rotate your wrists slightly and put the axe head on the other side of your head before beginning your swing. Your goal is to make a V-shaped cut in the log. Once you are more than halfway through the log, roll it over and finish cutting through it from the other side.

“Limbing” a log involves cutting off branches, or the remnants of branches. You will **always** want to cut into the **underside** of the branch – **never** into the “V”; and you always want the log between you and that which you are cutting, so that if the axe doesn’t bite into the log, it won’t bite into **you**. Avoid cutting into knots, because they are hard and can chip the bit of your axe. Cut around them, instead.

When you want to split a log (assuming that it is small enough so that your axe can do the job), stand the log up on your chopping block. If the log will not stand on its own, you can use small twigs or branches to brace it into position. Take your stance and measure your swing, as you did in bucking a log; only this time, you want to try to center the bit of the axe on the log. When you swing the axe, swing it from directly over your head; and with luck you will split the log cleanly in two.

Often, though, the axe does not go all of the way through. The Boy Scout Handbook tells you to remove the axe and repeat the process; but unless your second swing lands the bit of the axe in the same place as the first, you may wind up with a log shredded on one end. Instead, I suggest looking first at the position of the axe head in the log. If it is squarely in the log and the bit is still pointed toward the bottom of the log, try lifting the axe and log up a foot or two, and with a short stroke, try driving the axe the rest of the way through the log. If the bit is angled towards one side or another, you can try to straighten it. If you can’t do that, or if any part of the handle is inside the log, remove the axe completely. Then, you can either try swinging the axe again; or you can try resetting the axe in the log by setting the bit inside your cut and “batoning” the back of the axe head with a piece of wood (**NEVER, EVER, WITH A HAMMER OR ANYTHING METALLIC!**) back down inside the cut.

The **only** time that you will ever strike a woods tool with anything metallic is if you are using a splitting maul. In those cases, if you have proper eye protection, you can strike the back of a splitting maul with the back of another splitting maul or a sledgehammer (**NEVER an axe!**) to drive the first maul through the wood. Splitting mauls are designed to take this kind of pounding; but axes are not. In addition to “mushrooming” the back of the head, you will also widen the eye, making it more likely that the head will fly off of the handle in the middle of a swing or that the eye will split and forever ruin the head. If the axe can’t do the job, use a splitting maul, and wedges if you have them.

I said earlier that I do not like hatchets. If you are limbing a small branch off of a small tree or log, or trying to split a small piece of wood for your fire, you can use a medium axe like you would a hatchet by choking up on the handle about halfway. If you cannot split a piece of wood like this, but the bit of the axe sets correctly in the wood, then simply stand back and finish the job using the axe as an axe. If you are trying to split a smaller piece of wood, this is one of the few situations where I find a hatchet to be useful, because the Boy Scout Handbook recommends the use of the “contact method”, in which you place the bit of the hatchet or axe (if the latter, choke up on the handle), raise both the hatchet and the piece of wood, and then bring them both down onto your chopping block, still in contact with each other. If you find this difficult, you can place the bit on the end of the piece of wood,



baton the bit into the wood, and then split the wood with a short, gentle stroke. If you have a pocket hatchet in camp, batoning is the only method which will be effective in splitting sticks.

## USING SAWS

It is rare that you will use any kind of saw, in camp, other than a bow saw or folding saw; so I'll simply say that if you are using a two-person saw, your main tasks are 1) to avoid pushing the saw. Take turns **pulling** it; otherwise, the saw may jump out of the cut and could injure someone; and 2) start by **gently** pulling the saw, in turn, across the wood until the saw begins to bite into the wood.

Using a bow saw starts off much the same way. You start by gently moving the saw back and forth across the wood until the saw begins to bite into the wood; and make sure that you are cutting at a point on the outside of the sawbuck or chopping block, because otherwise gravity will make the blade stick and bind as the cut gets deeper. It is best to cut in an up-and-down motion, because this too will reduce the risk of sticking and binding. The "cutting stroke" happens when you pull the saw towards you; so after you have finished the stroke, simply ease the blade back away from you so that you can begin your next cutting stroke. Make sure that you use the **entire** blade; or else you will end up doing one-third the work in thrice the time, and you will also wind up with a blade which is sharp at either end but uselessly dull in the middle. If you have someone nearby to help with the cutting, they can press gently down on the wood between the end of the piece and the place where you are cutting; and this will open the cut and make your work easier. It's also acceptable to either put a foot on the wood which you are cutting, or have someone hold or even sit on the wood in the sawbuck or on the chopping block. As with an axe, you may (if you so choose) flip the log over and cut into the other side when you are most of the way through the log.

## **CARE OF KNIVES**

All knives need to be kept sharp; but folding knives often need to be kept clean. Dirt, debris, sticky substances and other things can get inside your knife, so it is a good idea to clean it periodically. Wipe down the inside with a cotton swab, or a twig, bottom of a wooden match or a toothpick, wrapped in a small piece of cloth or paper towel. If the blades do not open and close easily, a little oil (like 3-in-1 oil) will do a nice job of lubricating them. If the knife is too dirty to be cleaned in that way, or if you have used the knife to cut your food, wash the knife in hot, soapy water and then, after drying it thoroughly, apply some oil to the hinges.

If the knife is too badly rusted to be able to open or close the blades without trying to force them, take several layers of paper towels or rags and place them on a flat surface. Place the knife on whatever you have, and then drip oil all along its length. In a while, you should see rust begin to leak out of the bottom of the knife. After the knife has had the oil in it for a while, try opening the blades. If they still don't open or open with difficulty, add some more oil and let it soak in for a while longer. If you can get the blades open, wrap each partially-opened blade or tool in a rag or paper towel, and work them back and forth gently to loosen any rust. Then, add some more oil and put the knife down; and repeat this process until all blades open and close easily.

## **CARE OF AXES**

Of course, you want to handle your axe so that the head will not be damaged through misuse; but you should also take good care of the handle. One reason why you measure your swings is so that you do not "overshoot" with your swing, and hit the wood you are trying to cut with the handle of the axe. Before long, the wood at the front of the handle will start to splinter and break; and you will be on your way to needing a new axe handle. Another idea, which will extend the life of any wooden axe handle, involves drilling into the bottom of the handle (which should be trimmed, if necessary, so that there is a flat area at least the size of a U.S. quarter. This will keep the toe of the handle from cracking). The hole should be around 3 inches deep. Then, take a larger drill bit, and drill a small countersink hole, just big enough to fit the head of a screw; because when you are finished you will be putting a flat-head wood screw in here. Next, take a medicine dropper and, when you have some time, drip some linseed oil into the hole; and then hang the axe by the knob, upside down, in a suitable storage area. Repeat the drops of linseed oil over time; and then take the screw and seal up the hole with it. Take a rag and rub more linseed oil into the handle (and drip some into the eye onto the handle and wooden wedge). Do this often enough, and it will prevent the handle from drying out and cracking, and make it much less likely to break.

## **CARE OF SAWS**

Always keep the blade of the saw clean; and if you have a saw with a permanent blade, always keep it sharp and free from rust. If you do not have a sheath for the blade, you can make one out of an old garden hose. Just cut the hose to size, and then slit it down one side; and it should fit nicely over the blade. Tie or tape the hose in place when you are going to or from your campsite. If you have an old saw with a wooden frame and a metal turnbuckle to maintain the proper tension on the blade, be sure to keep the turnbuckle oiled and rust-free.