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1. Introduction

There are many books and YouTube videos on sharpening carving tools. Our goal here is to quickly get you safely carving with good sharp tools with minimal focus on the technical details. Future papers will address honing, reshaping tools and power sharpening systems. Carving with dull tools is unsafe and a challenge that most people will not endure.

Sharpening Philosophy

Our philosophy is to start with a high-quality tool that comes “pretty sharp” and to keep it sharp over time with just a strop. If done right and consistently, stropping might be the only sharpening system you need (although the techniques described here also applies to honing which is using stones rather than a strop). This approach just requires a piece of wood, some leather, and an abrasive compound. If you have old tools that are damaged, or want to reshape a tool, a future paper will cover this topic.

Factors that impact carving wood

Without going deep into the weeds, the tool needs to cut wood fibers with as little effort as possible leaving a shiny surface. “Cuts like butter” is what you strive for. There are three aspects to carving wood:

- **The wood itself** – For beginners stick with traditional carving woods which are soft, making it easy to cut. Remember, what the industry calls “Softwoods” and “Hardwoods” has nothing to do with the wood’s “hardness”. Recommended woods are Basswood and White Pine which are readily available locally. Starting with soft woods makes it easier to learn the right carving techniques.
- **The bevel angle** – This is fixed by the tool manufacturer and at this stage, do not attempt to “improve” it. All you will do is ruin the tool. What’s important, is, for each set of tools, they are all at a similar angle. Why? The angle is how you hold the tool and approach the wood. This builds muscle memory and if your gouges are different, each will require a different approach – negating muscle memory.
- **Sharpness of the edge**– Now we get to what you really need to understand. A dull edge will cause you to add excessive force to move it through the wood. This can cause the tool to pop uncontrollably out of the wood and into your hand *causing serious injury*. Although all tool makers say their tools come sharp, even the best tools can benefit from stropping when new. That is what this article is all about.

2. Buying a new tool

Some people can afford to buy the most expensive tools available. Some are tempted to buy a beginner's set or look for bargains at estate sales to save a few dollars. The first is a bad idea and the second only works if you really know what you are doing and are lucky.

We highly recommend buying good tools and slowly build your collection as you start carving. Sets generally end up wasting money as you may never use some of the tools, making the ones you do use, expensive. Also, different types of carving projects require different tools and until you know what you want to carve, you don't know the tools you need. For estate sale bargains, it is the luck of the draw. Few beginners will know how to judge a tool and you don't really know how the tools were used or abused.

What is a good tool?

A tool consists of a handle and a blade. Some brands have a wide range of tools while others manufacturers might specialize in one type of tool.

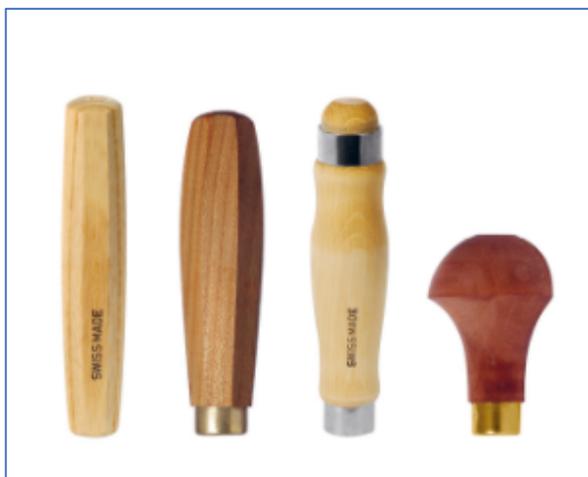
Blade Material - Certain brands are known for their quality, so the easy choice is to stick with them. The best blades are made with High Carbon Steel or similar alloy. The shaft can be any color, it is the blade edge that is critical. The thinner the blade, the easier it will cut but also easiest to break. It is a fine line between thickness and longevity. There is no spec on this, but independent reviews may say – breaks easily. I would not list this as a bad thing, just important information and often a good thing as the thinner the blade, the less wood it must cut through.

Different steels have different hardness levels. High Carbon Steel with a hardness level in the 58-60 range is optimal. Hardness is a tradeoff between ease of sharpening and durability of the edge. Too hard - takes a long time to sharpen and the edge can break. Too soft - you can get a sharp edge quickly, but the edge will not last long.

Handle – this is very subjective as it relates to your hand. If it does not feel good, then the most expensive tool will not work for you. Look for tools with an ergonomic handle, won't roll off the table, feels good in your hand and have a nice, lasting finish.

The second decision is length - long, medium, short (palm tools), or micro. Sometimes your project will decide for you but for many projects, both palm and long handled tools can work well. The best way to choose is to try them before you buy.

One benefit of being an OCG member is access to a large collection of tools, some for rent, some for loan.



Example of tools handles.

Brands – Our goal here is not to review all the tool makers but to give you some guidelines to selecting tools. We encourage you to support local vendors with an inventory of carving tools. Locally in the Portland area, [Woodcraft](#) and [Woodcrafters](#) have a wide range of carving tools. Look for their carving experts and tell them what you are looking for.

Gouges - Pfeil (Swiss Made) and Bracht can be found locally and are highly recommended. There are many vendors that offer a wide range of good quality tools but only available online. The top contemporary brands besides the above are Henry Taylor, Two Cherries, Stubai, Ashley Isles, Dastra, Lamp, and Auriou.

Knives - our OCG supporter and friend, Gil Drake of Drake Knives in Washington State makes well respected knives and palm tools. Pfeil (Swiss Made) knives are available locally.

Mid-range vendors – There are several vendors offering tools at a lower price. To keep costs down, trade-offs are made, usually in labor intensive steps like finishing. These tools will work as well as the more expensive tools but may require more initial sharpening and an edge that may not last as long resulting in more time spent sharpening. As a beginner, make sure you have your sharpening techniques down pat and take the time to initially sharpen these tools. Carefully examine the edge as for some of these types of tools, stropping may not be adequate and you will need to hone them with stones (explained below).

Low-Priced Tools – A popular saying is “Cheap Tools are just that - Cheap Tools”. You can find a set of carving tools for less than one of the good tools recommended above. You get what you pay for and your carving experience will be poor.

Advice – buy tools as you need them and focus on quality. Better to have a few really good tools than a lot of mediocre ones.

Why do tool costs vary?

You might see similar carving knives with prices from \$12 - \$50. They look the same so what is the difference? A lot goes into pricing a product –manufacturing process, distribution costs, marketing budget, and finally material costs.

Manufacturing Process & Labor– Most large vendors invest in automation for many of the manufacturing steps which lowers their labor cost and can improve product consistency but may lack the “human” touch of sharpening.

A smaller vendor usually has more labor-intensive steps which takes more time, requires very skilled labor but can improve overall quality especially in the finishing steps which includes sharpening.

Distribution Costs –A distribution channel like Woodcraft is expensive but with huge benefits for the customer. Online sales can offer free shipping but lacks the ability to touch and feel the tool before buying. It’s always best if you can see and handle the tool first. *Take advantage of OCG’s Tool Library.*

Marketing Budget – How did you find out about the manufacturer? Small companies use word of mouth and independent product reviews while large companies have a large budget for print or online advertising. Money spent here is money not spent on the tools themselves.

Materials – The actual material cost of a tool is pretty small – maybe \$5 in a \$30 tool.

Summary - Automation enables consistency in the manufacturing process, turning out a tool that will always be the same. The most expensive step which requires the most technical expertise, is the last step - finishing/sharpening. The more expensive tools usually have an expert putting a fine edge on the tool for a mirror finish and “ready-to-go” sharpness (although a few minutes on the strop are still a good idea..

3. Get Ready to Sharpen – Preparing the Strop

First some terminology

Strop (noun) – an item that is coated with an abrasive compound for removing metal from the tool

Strop/stropping (verb) – the process of sharpening on a strop.

Hone/honing (verb) – the process of sharpening on a stone before stropping. Uses the same technique as stropping but is more aggressive.

Polish – the final step in sharpening. Removes a tiny amount of metal and leaves a polished surface.

Burr – the wire edge formed on the opposite edge that is being sharpened. Burrs need to be removed before using the tool.

Edge – the very tip of the tool that cuts the wood.

Bevel – the area behind the edge that guides the tool at a specific angle.

Keel – the area on a V-Tool where the two sides meet.

Prepare the Strop

First you must apply an abrasive compound to the leather strop. A little bit goes a long way so don't cake it on but do make sure the whole strop is covered. Compounds come in either a paste or wax. A solid wax bar is more common.

Compounds – Most aggressive to least aggressive

Unfortunately, there is no industry standard on colors so there can be exceptions to the chart below.

Color	Purpose	Grit	Comment
Black	Cut	Aggressive	Use on dull tools, cuts fastest
Yellow	Cut and Polish	Medium	Flexcut's brand – similar to green
Green	Cut and Polish	Medium	Best all-purpose compound
Red	Polish	Fine	Final step, removing the burr
White	Polish	Fine	Final step – note some white is more aggressive than black
None	Polish	None	Final Step, removing the burr



Best Options - Use one side of your strop to cut and the other side to polish. Many carvers will have two strops – an aggressive one with Black and Green and one with Green and Red or Green and plain leather.

4. Sharpening a New Good Tool or a Dull Good Tool

With a new good tool, stropping should all that is needed. For a good, but dull tool, you may have to hone first which we will discuss at the end but the techniques are the same for honing or stropping. Our goal here is to help you build muscle memory that works for both stropping or honing.

Stropping

There are two techniques to stropping; hold the tool steady and move the strop or move the tool on a stationary strop. The second technique is the most common and the focus of this paper.

Lay the strop on the bench and align the tool so the whole bevel is against the strop. Lock your wrist/hands and pull the tool along the strop with the sharp blade trailing so not to cut the leather. Many people use both hands, one on the handle and one on the edge of the tool.

Stropping Steps

1. **Inspect** – look carefully at the tool, the shape, and the edges. If you see grinding marks then it will need a lot of work meaning a major amount of steel needs to be removed and you will need to hone, or worst case, power sharpen. We will assume at this step that the edge is pretty sharp and has a polished edge.
2. **Mark the bevel** – use a black marker (Sharpie) to mark the bevel
3. **Find the Angle** - Hold the tool against the strop so the whole bevel is engaged and take a few swipes with the blade edge facing the opposite direction of the swipe to avoid cutting into the leather. For finding the angle, use the least aggressive compound.
4. **Adjust the Angle** - Check if any of the black marker remains – if so, adjust your angle. If holding it too high, just the edge is in contact with the strop which will round over the edge and actually dull the tool. Mark the bevel again and adjust your angle so when you swipe, all the black is removed. This is the hardest step for beginners, as, without muscle memory, it is very hard to be consistent. Once you build your muscle memory, you will be able to just pick up the tool and sharpen it correctly by feel
5. **Strop** – Once you have the correct angle, start with a more aggressive compound, usually green/yellow, lock your hands and body and start stropping. Start with sets of 10.
6. **Remove the Burr** – On a knife, as you flip sides, you will be removing the burr. On a gouge, you need to remove the burr on the inside after each stropping. Strop 10 times, remove the burr, strop another 10 times, remove burr and so on.

a



The burr can be seen here on a gouge highlighted with black marker at the very edge of the tool. It is removed with the right sized dowel.

7. **Polish** - After stropping with aggressive compounds, polishing is the final step. Use the same technique with your finest compound (or raw leather). Maybe a final 10-20 strokes will be good enough. This will also form a miniscule burr that will come off on your first cut or on your test board. Polishing results in a mirror finish. Be very critical of your work at this stage.
8. **Test for sharpness** – See section below. Repeat previous steps until you pass the sharpness test.
9. **Strop Frequently** – You got this far, now keep it sharp by stropping frequently, usually after every 20-30 minutes using that tool, depending on the hardness of the wood.

[SHORT VIDEO HERE]

What is happening – The stropping compound is an abrasive material. Different colors are different grits. If you strop frequently, the less abrasive grit is needed, sometimes just the plain leather itself will do. As you strop, you will see black on the compound which is the microscopic steel you are removing. Since sharpness is two planes coming together at a point, on a knife or V-tool, each side needs the same number of strokes to keep them even.

The Burr – when you sharpen one side, a burr forms on the opposite side. The burr needs to be removed before using the tool. If you have a big burr, it could snap off, leaving you with a very jagged edge. There are two methods to remove the burr - “sharpen” it off or breaking it off. To sharpen it off, you will use a series of grits on both sides. Strop the front, create a burr, strop the back which moves it to the front, repeat with finer and finer grits until it is gone. However, since our assumption is we are just stropping a pretty sharp tool, then the burr, after stropping is going to be very fine. In this case, you can quickly get back to carving by taking a few swipes on the strop to remove it or simply use the tool on a piece of test wood as the first few cuts will remove the burr.

Practice, Practice, Practice

If you are having difficulty sharpening, the solution is practice with the correct technique otherwise correcting a bad technique later is difficult. The time you spend practicing sharpening now will pay great dividends in time saved as you work on your project and improve the quality of your work. Over time, your muscle memory will automatically kick in and stropping will be fast and easy.

5. Sharpening Different Types of Carving Tools

There are three main categories of carving tools we will cover – Knives, Gouges, and V-Tools

Sharpening Knives – Double edge tool

A knife has two surfaces that come to a point. This point is the definition of sharpness. There should be no reflection of light when looking at the edge.

- **Angle** – most knives are sharpened to around 12 degrees. One way to determine this is hold the knife vertical (90 degrees), rotate in half (45 degrees), half again (22.5 degrees) and half again to about 12 degrees. The knife will be almost flat on the strop. Use your marker to mark the whole blade with a Sharpie and test the angle with 2-3 swipes.
- **Swipe** – the longer you wait to strop, the more swipes you will need. It is critical is to strop each side the same number of strokes. 10 strokes at a time to start is a good rule of thumb. The process is “Swipe-Lift-Turn Lay Down” and repeat. Be very careful to lift the blade up at the end of the swipe to avoid rolling over the edge and making it dull. As you swipe one side, a burr will form on the opposite side which you will remove when you strop the opposite side. As it gets sharper, the burr gets smaller. Take a final swipe on both sides with the finest side of the strop to remove any burr left.
- **Direction** – always swipe with the sharp edge away from the leather to avoid cutting the strop.
- **Pressure** – light pressure. Let the compound do the work.



[SHORT VIDEO HERE]

Sharpening Gouges – Single Edge Tools

The sweep of the gouge requires two motions, the stroke, and the rotation.

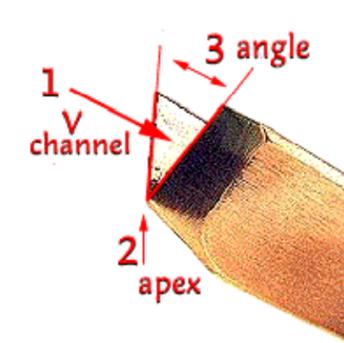
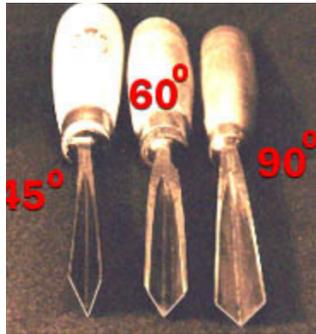
- **Angle** – Find the angle by holding the gouge against the strop so the whole bevel is against the leather – this will usually be in the 22-degree range. The exact angle is not important. What is important is that the whole bevel is engaged with the leather. Mark the bevel with your Sharpie.
- **Rotation** – to sharpen the whole blade, you need to rotate the tool as you stroke. The rotation needs to cover both edges of the sweep. Your black marker will give you feedback on your rotation. Once you have the correct rotation, you need to lock your hands and use your body to swing for the rotation. Do not over rotate as that will round over the corners but more often you will not be rotating enough leaving the outer edges untouched.
- **Swipes** – the longer you wait to strop, the more swipes you need. Once you have the motion down and are stropping the whole blade, take 20-30 strokes or until you can feel a burr on the inside of the gouge.
- **Remove the Burr** – Once you feel a burr, remove it by running the inside of the gouge against a rounded piece of leather or a round dowel with a similar sweep as the tool. Flip it back over and continue stropping.
- **Pressure** – you may feel like you need to press down hard on the strop. This has the tendency to round over the edge. It’s hard to describe the amount of pressure but look to minimize the indent in the leather.

[SHORT VIDEO HERE]

Sharpening V-Tools

This is one of the most difficult tools to sharpen. You can think of it as three tools - two chisels that come together, forming a small gouge at the point. There are also three bevels, the two chisel bevels and the gouge bevel which is called the keel. The keel is most critical as the keel is what engages the wood first and the keel's bevel is the angle that the tool is held.

Examine your V-tool and make sure both wings are flat, symmetrical and have the same wall thickness. The keel should be a sharp "V" and centered. If not, this method will not work as the tool will need reshaping.



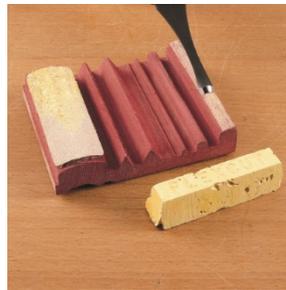
V-Tools come with different blade configurations given in sizes and degrees. Common are 45, 60, 70 and 90 degrees.

For your first V-tool, suggest a 60-degree, 10 mm version.

- **Angle** – Find the bevel angle by the method above using your marker.
- **Swipes** – Both sides need to be sharpened exactly the same. Once you have the correct angle, Swipe 10 times per side to start. This will start to form a burr on the inside. Remove the burr as below.

Once the sides are done, address the Keel (the point where the two sides meet). The keel is critical to how well the tool cuts. The keel of the V-tool is like the bevel on a gouge. A sharp and polished keel will let the tool glide through the wood smoothly. The keel is sharpened like a tiny gouge with a tiny rotation along the tip. Watch the video as this is hard to explain.

- **Remove the Burr** – Remove the burr by running the inside of the V-Tool against a piece of wood shaped to match your tool. You can use a compound, but it is difficult for the compound to adhere to raw wood so don't worry about it. Below is an example of a strop with precut shapes for V-Tools and small gouges. You can also use a folded piece of high grit (1000 or above) sandpaper, flat against the inside, to remove the burr. This functions as a slip stone which is a stone cut with a fine V-shaped side,

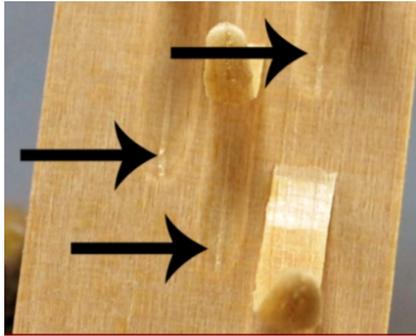


A precut strop for V-tools and small gouges.

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6. Testing for Sharpness

How sharp is sharp? If new to carving, you may think your kitchen knives were sharp, but in fact they are incredibly dull compared to the sharpness you will get on your carving tools. Aside from cutting the hair on your arm, a better way to determine sharpness is to cut on the same wood as your project. It is best if you have a known, really sharp tool to compare with but not everybody will have that option.



- Test on a piece of wood that is the same as your project.
- Test both with the grain and across the grain. On the left, you can see a flaw in the tool cutting with the grain and requires more stropping. On the right, your tool is cutting perfectly.



- Cut across the grain and run grooves close together. By running the grooves close together, the ridges between the grooves, will have short wood fibers. This makes them weak. The pressure from a blunt cutting edge will easily crumble these ridges, whereas a sharp edge will sever wood fibers as it crosses them and leave them standing.

- First, cut with the tool the way it is – this will give you a baseline. Try to remember the amount of pressure you used.
- Second, strop
- Third, test again. The difference will show you how you are doing. You're done when the cut is perfectly smooth with no torn grain or fuzzies. The pressure required to cut the wood should be less.
 - For a V-tool, take a deep cut and check each side of the cut.
 - For a gouge, check that the cut is smooth across the entire sweep, especially the edges.
- For knives, paper is a good test but better is to test it on end grain. If you get a smooth cut on end grain, the knife is sharp.

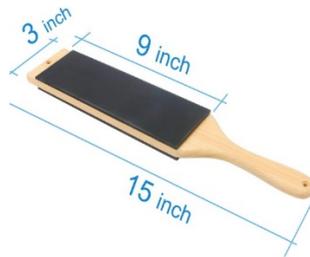
[SHORT VIDEO HERE]

7. Make Your Own Strop

You can buy nice strops for \$20 or so and multiple designs are available but if you want to make your own, below is a simple strop.

Materials

- **Wood** – $\frac{3}{4}$ " stock works well but thinner or thicker can be used. You might find you make several strops for different reasons. A 2x4 will keep your knuckles from scrapping while a thin one may be easier to carry or use on a bench. Solid wood, plywood or MDF are most common, and must be hard and flat.
- **Size** – 12" – 15" is a good length as it's long enough for long strokes. 3" is a good width as it is wide enough for knives and gives you room to not overuse a small portion of the leather.



Leather - The most common material for a strop is leather.

Leather has two sides – a smooth side and a rough side. The rough side (sued side) is best because stropping compound will adhere better but either side can have compound.

The rough side of leather has a bit of a give to it making it easier to maintain 100% contact across the tool. Thick, soft leather has the disadvantage of rolling over corners and rounding edges because of its softness. Thin leather (~1-2mm) reduces the chance of rounding over.



- **Contact Cement** – used to adhere the leather to the substrate. Yellow glue also works but takes time to dry and should be clamped with a piece of wood over the leather.
- **Compound** – Most aggressive to least aggressive is Black, Yellow, Green, Red.
- **Shape** – This is the hardest to advise as it depends on the tools to sharpen. Not a big deal for knives as you are working on a flat surface but for gouges and V Tools, you need to deal with the inside edge to remove the burr. Each sweep requires a different curve. You can use a router to put a curve on your strop to match the sweep or use separate dowels with leather, sandpaper, or nothing to remove the burr. Another option is to just use a piece of leather with or without compound folded round and rub the gouge (excluding V-Tools) along it. At this stage we are only talking about 2-3 swipes. The V-tool does need a sharp edge which can be the corner of a piece of wood, a special strop with different pointed shapes – see picture above, or a folded piece of high grit sandpaper (1000 and up)

8. Summary

The key to keeping your tools sharp is once you understand the technique, the road to perfection is with practice. But remember, practicing the wrong technique will take a long time to unlearn. If you have a carving buddy or can attend a class, there is no better way to learn than with someone watching and correcting you. Then practice, practice, practice.

In this paper we focused on a leather strop and abrasive compounds. All the same techniques apply to honing with stones which are available in many grits. There are natural stones, man-made stones, and diamond “stones”. Stones can be expensive, many require periodic maintenance, take a lot of space, and most require a lubricant. We will cover honing and stones in a future paper.

Sandpaper can also be used in much the same manner and with the same techniques, but sandpaper wears out, requires adhesive to a truly flat surface, and can also be more expensive as you normally have to buy a pack of each grit.

9. References

Below are reference documents and videos that may help provide more information. In some cases, stropping and honing are sometimes used interchangeably but in general, the techniques are the same as described here.

Documents

- **Easy Steps to Sharpening** - <https://lsirish.com/wp-content/uploads/2019/12/Easy-Steps-to-Bench-Knife-Sharpening.pdf> by Lora Irish
- **Two Stones and a Strop** - <http://www.closegrain.com/2016/06/two-stones-and-strop.html>
- **Selecting and Sharpening V-Tools** - <https://www.bob-easton.com/blog/wp-content/uploads/2011/04/SelectingAndSharpeningYourVtool.pdf> by Chris Pye

Videos

- **Carving Tools Overview** - <https://www.youtube.com/watch?v=JpuZR6UQMLg> by Mary May
- **Sharpening Gouges** - <https://www.youtube.com/watch?v=47Ns9F91uGY> by Mary May
- **Sharpening V-Tools** - https://www.youtube.com/watch?v=nu3kguxHKTA&list=RDCMUcbn9V_U62LCmxWTiT7DI5eA&start_radio=1 by Mary May.
- **V-Tools** - <https://www.youtube.com/watch?v=p0VvK3ED5QM> by Chris Pye