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The primary means of starting fire for European cultures over the last 1000 years (possibly longer) has been flint and steel. Building the flint and steel fire has become one of the sporting events common to black powder rendezvous. Because of this flint and steel sets and the knowledge required to use them are available to anyone who wants to learn the technique.

The four items needed to start a flint and steel fire are:

1. Flint, or some other hard rock.
2. A fire steel.
3. Something to catch sparks.
4. Tinder.

Flint has been the traditional stone because it is hard, and breaks into keen edged fragments. Other stones will work, particularly the quartz based minerals. Look for stones that break into relatively flat sections with sharp edges.

The steel is struck against the sharp edge of a hard stone which shaves off very small splinters of steel which are heated white hot by friction. To strike a fire hold the char on Top of the flint, close to the edge and strike the stone with a long sweeping downward stroke of the steel. Char cloth can be wrapped around the stone. When a spark catches in the char, a small glowing spot will appear. Blow on the spot gently and it will spread into the char material.

The most critical is number 3, the spark catching material. The most common material is charred cotton or linen cloth.

Char cloth is produced by heating in a low oxygen environment, producing a charcoal like substance. Get a metal can that can be resealed. Put the cloth to be charred in the can and seal it. Punch a small hole in the can and put the whole mess in a fire. Watch for smoke escaping through the hole in the can. When the smoke decreases slightly, remove the can from the fire and stopper the hole with a nail or something. After the can cools, look at the cloth. If it's dark brown, it wasn't heated long enough. If it falls apart at the slightest touch, it was heated to long. Experiment. The cloth needs to be 100% cotton, and free of dyes and other

synthetics. The heavier the cloth, the better.

Another good material to treat in this way is very rotten punk wood. Wood so rotten that it can be broken off with your hands. Maple is the preferred wood, but others work well also. Gather several different types and see what works well. Experiment. Charred punk is not as consistent as cloth, some will catch sparks very well, some won't at all. If it does catch, it is next to impossible to kill. Don't throw away the charred punk that won't catch sparks, it'll be useful later.

Char material will glow, but it does not produce an open flame. That is the job of the tinder. Lay the glowing char in a birds nest of fine dry tinder. Shredded paper, dry grass, and cedar bark all work well. Gently blow on the ember until the tinder bursts in to a flame.

On sunny days, a magnifying glass will get an ember going in the char material very easily. From there to getting the tinder going is no problem. The charred punk that you couldn't light with a spark will start this way.

#### ANOTHER WAY - Bow and Drill

The four items needed to start a bow and drill fire are:

1. The bow.
2. Drill, or drills.
3. A flat plank.
4. A bearing block.

And some char material and tinder of course.

The first item required is a bow. 30" long and .5 to .75 inches thick. A little bit of flex, but nothing like an arrow casting bow. Notch the ends of the bow and tie on a heavy cord, leaving just enough slack to wrap the cord around the drill. Nylon boot laces work very well, but any cord will wear out rather quickly.

Drills should be bone dry, with no pitch or oil. Relatively soft drills work better. Western Red Cedar, Red Alder, and Willow work well. Also try White Cedar, Cottonwood, Birch, Aspen, and Poplars. Drills should be 6 to 8 inches long, with the bark stripped off, and .5 to .75 inches thick. Round one end, and make a blunt point on the other.

The flat plank should be 2 to 3 inches wide and .5 to .75 inches thick. It should be made from one of the woods used as a fire drill above. Cut a triangular notch roughly .25 inch into the fireboard, this is to catch the sawdust. At the point of the V gouge a small hole for the drill tip. Work with that notch. Too shallow and the dust forms a ring around the drill, too narrow and the sawdust doesn't have the mass to support an ember. Experiment.

Lastly, is the bearing block. This is what you hold in your hand to hold the top of the drill. It should be slightly, or more bowl shaped, so the top of the drill doesn't wonder out. Common materials are hollowed out stones, hardwood knots, and carved bones. The author recommends a one ounce shot glass, as the shot glass is almost friction free when the drill turns inside it.

Place something flat and dry under the fireboard (plank) to catch the ember when it forms. Wrap the cord around the drill. Take shotglass in the other hand to hold the top of the drill. Put the point of the drill in the small hole at the V. Spin the drill with long smooth strokes of the bow. Use moderate pressure. You want some pressure to create friction. In a bit there should be smoke rising from the drill hole, and a wood dust pile rising in the notch. Watch the sawdust pile, and when it seems to be smoking on it's own carefully lift out the drill. If the sawdust continues to smoke there is an ember in there that will burn its way through the sawdust pile.

Now you can put some tinder on the pile and blow it into a flame, or light a piece of char with the sawdust ember. Since the sawdust pile is hard to move, and easy to blow away, it is easier to light the char with it. Again, this is a good use of punk wood that won't work with the flint and steel.

The time to think of matchless fires is sometime before your match supply runs out. Collect the materials now, and they will be bone dry when you need them.

#### OTHER READING:

Making Sure-Fire Tinder, by David S. Ripplinger, published by Track Of The Wolf.

Primitive Fire & Cordage, by John McPherson, P.O.Box 96, Randolph, KS, 66554

#### SOURCES:

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Dixie Gun Works, P.O.Box 130, Union City, TN 38261

Arrowhead Forge, RT.1 Box 25, Wilmot, SD, 57279

Prairie Forge, P.O.Box 234, Lavina, MT, 59046