

Arnon Kartmazov was the guest instructor for October 2016 4th Saturday event at the mentoring center in Longview. His Bridgetown Forge in North Portland welcomes visitors but does require a phone call setting an appointment (503-804-1524) rather than just dropping in. Please check the Forge website for classes and product offerings. A mix of Uri Hofi (Israel) and traditional Japanese cutlery training have created a unique blend of techniques and the system that he presents, is not claimed to be anything more than what he does and what works for him. His systems have developed over a long period of study and practical application but are always growing and evolving; always open to a better idea or process



Hammer edge acts as a fuller

There is a strong stress on quick, easy and highly functional processes, that save material, fuel, wear and tear on the body, while engaging a lot of thought and analysis. He wants to know the "why" as well as the "how" in any process he uses. Taking us back to high school physics, he did a dry board analysis based on the formula for kinetic energy to show the functions of hammer weight and velocity proving that reductions in hammer weight and the resulting increase in speed makes major changes in the energy imparted to the metal. The lighter hammers also help with accuracy in his opinion.



Arnon Kartmazov

The hammers are square faced and have radiused edges that get a great deal of use. The combination of anvil face edge and hammer edge can really move metal. A light grip on the hammer handle helps encourage rebound and the force of the blow is not absorbed into the arm joints. He urges all of us to use the whole arm starting with the shoulder joint, and adding elbow and wrist. All the hammers he used were of his own make: "The hammers I customary use (and sell an awful lot of, for some reason) are 2.5 lb and 3.25 lb, Hofi-style, rounding, and Japanese-style." Even the sledge hammer skillfully applied by his striker, Nitzan Lillie, was user made.



Hofi meets Japan in this knife hammer

A pair of tong making techniques were covered, both in the quick and easy category. He showed us several tongs so very light in weight they appeared to be ineffective. The key to their success was treating them in super quench to toughen them up.

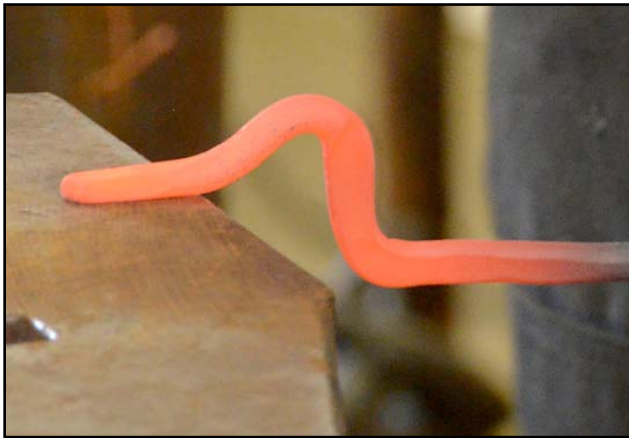
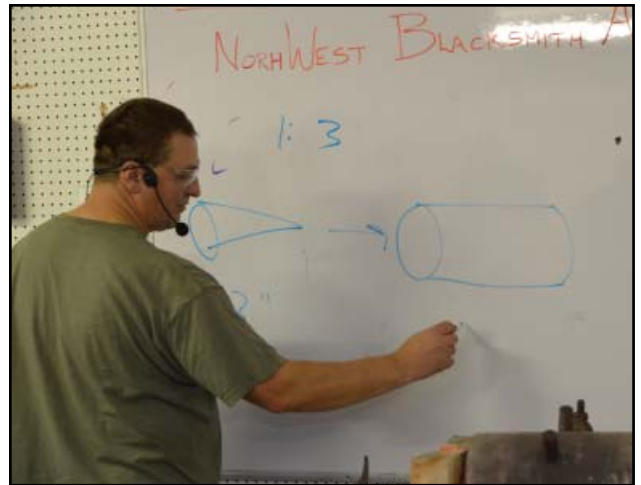
An interesting jig to make bolt tongs had our full interest. The accompanying pics show the tong half after it has gone through the jig and the rivet boss flattened. The jig is made from 1/2" plate with a notch slightly larger than the size of stock to be used, a different jig for different sizes of stock. The one he used was set up for 1/2" and 3/8" stock on opposing sides of the plate. The edges of the notch are radiused and a short section of round stock, positioned vertically, is welded to the far side of the notch. As the notch size grows so does the diameter of the round stock attachment. Actual dimensions are builders choice. The other system is the "twist" style, where in two fuller valleys define the rivet boss area. The jaws are bent 90 degrees and the reins drawn out. The fuller valleys are slightly less than half the flat stock width. Remember to bend both jaws the same way to get them to match up correctly.



H-13 is Arnon's preferred steel for hot cutting. He welds it to softer bodies so the struck end of the chisel will mushroom rather than a dimple in the hammer face. H-13 is an air hardening steel and once worked very hard to totally anneal. S7 or S5 is very good for impact tools. Don't overlook rebar, and super quenched mild steel has proven quite useful.

The chef knife he forged was 1095 steel, Japanese-style Santoku, single -bevel, with a hidden tang and a fullered groove. He made a very strong case for simple carbon steels effectiveness and ease in heat treating.

There was a steady stream of useful information only a small part which is covered here. For those of you who did not make it, you missed a good one.



Tong half, boss has been flattened and jaws being worked. Shown at a different angle below.



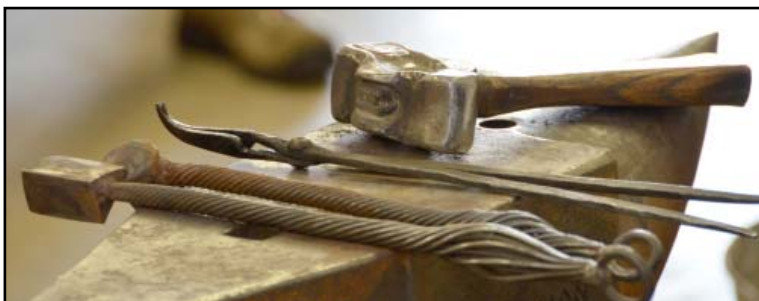
Tong jig in use.



Round bar formed by jig.



Super light weight tongs.



Tools used and made by Arnon



Two more examples of light weight tongs.





## Arnon Kartmazov, Bridgetown Forge continued...



Butcher tool.



Tong jig and finished tong halves.



Finished tong half shown with jig.

## Arnon was asked about super quenching...

I use super quenched mild steel for fullers, power hammer top tools, springs of all sorts ( such as leg vice springs, gate latch springs, power hammer clapper die springs), any kind of guillotine tool dies, and, of course, tongs. I used to use spring steel or designated tool steel for power hammer tools, but nowadays find it simply unnecessary. The only exception to this rule is any kind of punch, chisel, drift or mandrel. These tools take a real beating and are exposed to prolonged high temperature and abrasion. Anything but a designated, properly heat-treated tool steel will gall, deform, and otherwise fail. I'm not a fan of cooling my chisels after every blow or two, which is what you have to do if you use a non-designated steel. A well-made H-13 chisel will last a lifetime, and even under heavy use will require only an occasional light honing. Steels like T-1 ( the tungsten variety, not the armor plate) and M-2 are also very good for hot work applications, whereas steels like S-7 or S-5 work very well as hand mandrels and drifts. If used under a hydraulic press, however, H-13 will work better, as it can take more heat without distortion.

### The Super Quench

5 gallons of water, salt to saturation - just keep adding salt and stirring till it no longer dissolves. Then as 16oz of Dawn Blue dish washing liquid, and 16oz of Simple Green surfactant (available at any Lowe's or Home Depot). Stir with a stick before use. Keep covered to prevent evaporation, and wash quenched parts thoroughly under running water to prevent rust. Use on mild steel only. No tempering required.

**Thank you Arnon Kartmazov of Bridgetown Forge!**

Arnon offers classes and has items for sale at his website: <https://bridgetownforge.com/>

Check out this video:

The Clever Cleaver Part 1: Carter Cutlery and Bridgetown Forge Collaborate on a New Design

<https://www.youtube.com/watch?v=AEHj4BSH2YQ&feature=youtu.be>