Preliminary Trimming & Edge Preparation Help To Change This Chip Of Dacite Into An Arrowhead Preform More Efficiently.

For this small arrowhead making project, I start with a chip of Dacite, a volcanic material which is not so glassy as obsidian. The piece measures a little over 2” long, in a roughly triangular shape. It is about 3/8” at its thickest, with sharp edges all around.

The first step is to trim the thin edges into the approximate shape of the arrowhead which I want to make. I use the edge of the pressure flaking tool to “shear” off the thin edge. The motion is like that of a paper cutter, pressing the edge of the tool against the thin edge of the stone, shearing the tool against the stone using the tip of the tool as the pivot point. A shearing motion. This removes a line of small chips along the edge.

Next I grind the edge with medium coarse carburundum. This can be done with sandstone or any rough material. This grinding creates a platform against which I press the tip of the tool. This edge is about 1/16” or so, enough to provide a good seat for the tool. It is strong enough that it will not collapse under a little pressure. If fact, it resists until I build up enough pressure and force to initiate a long flake.

Grinding leaves some stone dust on the edge. This powder helps the tool get a good grip and not slip.

All breaking of flakes from the chip takes place on the “under” side of the chip, against the protective leather pad in my left hand. So, after every flake removal, it is a good thing to turn the chip over so that I can see the results. This provides me with an opportunity to evaluate each flake removal and to adjust the pressure force and angle as needed to achieve my objective.
Learning To Use Your Legs Provides Extra Power And Drive To Increase The Success Of Your Pressure Flaking Efforts.

I hold the chip in the palm of my left hand, on a leather pad. I seat the back of my left hand securely against my left thigh, close to my knee, for support. My right hand is supported against my right thigh. I press the tip of the flaking tool tightly against the ground edge. And I hold the handle of the pressure flaker flat against the palm of my right hand.

By squeezing my legs together, I apply pressure at the tool tip into the mass of the material, with an orientation toward the underside face of the chip, reaching out toward the opposite edge. While I squeeze my legs together, I also hold my right wrist straight and stiff, to keep the pressure of my right leg all concentrated in the tip of the pressure flaking tool, against the platform edge on the stone.

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While the pressure is fully built up or “loaded”, I snap or flick my wrist to initiate the fracture which pushes a flake from the underside of the stone chip. As the flake releases, the pressure is still on the base of the flake. This helps cause the flake to continue breaking away from the stone, as long as the pressure is maintained. Of course, this happens in an instant. The “crack” of the breaking stone is a welcome sound, and an indication of a successful effort. In the follow through the pressure flaker should land basically in a flat position against the leather pad, not pointing in to the pad. This final position also helps to protect your hand.
Overall Shaping And Thinning Of The Arrowhead Preform Prepares The Rougher Face For Finish Flake Removals.

The objective of the next pressure flake is to follow the ridge left by the previous flake, beginning where the tool is indicating, and proceeding across the preform to remove as much of this visible thickness as possible. To do so, the edge is ground down to provide a base upon which I can apply a great deal of pressure. The grinding also leaves the edge a little rough, with some stone dust, which gives the tool a good grip so it will not slip under pressure. Now I load up the pressure directed into the mass of the preform, and, when the load is right I use a flicking, prying motion to initiate the snapping off of the next thinning flake.

This thinning flake actually travelled all along the previous flake ridge, across the middle of the point and it ends under my thumb almost at the opposite corner of the arrowhead preform.

1. Flake removal for the large photo on this page.
2. Pressure on the next ground platform is "loaded".
3. Hear the "crack" at the moment of flake removal.
4. The platform edge is now gone with the flake.
Small Point Pressure Flaking; Edge Preparation Makes It Possible To Drive Flakes Beyond The Mid-Line, Thinning The Preform.

Here we see the first sequence of pressure flakes on the smooth face of the chip. This surface usually has some curve across the face. Thinning flakes on smooth, curved material, tend to reach across the face nicely. I place the tip of the tool against the edge and build up the load of pressure. Then, snap the tip down while keeping pressure loaded. The flake travels in the line of the force at the instant the break initiates. So, I want the pressure to be reaching toward the opposite edge to produce a long flake removal.
Here I need to remove more material from the rougher side of the preform, to smoothen the face and to make the arrowhead thinner.

To accomplish this objective, I again trim along the edge, to create a long platform where I will apply the pressure tool to remove another series of thinning flakes. At the risk of sounding overly repetitious, this edge preparation is again a key aspect of the pressure flaking procedure.

After trimming the side edge, I grind the new edge for tool grip and support. Then I remove a series of six thinning flakes, spaced evenly along the edge, with minimal overlap of each previous flake. See the final photo in this group.

To create the notches for a small arrowhead, I make an initial narrow indentation at the chosen location for each notch. Do this with very short flakes from one side of the preform. This creates a socket for my pressure tool. Working from the same side, I rough up the inside edge a little, to get a good grip. Now, turn the point over. Press the tool against the rough edge to drive off a guide flake from the bottom face. Repeat at both locations. Then, set up the same way, to make guide flakes on the opposite face. At this stage, I switch to a smaller pressure flaking tool, to work the point of the tool inside the notch. I do not want to touch the corners of the barbs or the tang when I am pressing inside the notch, or I might break them.

1. Locating the start of the notches for the point.
2. Turn over and press against the roughened edge.
3. Here is the first guide flake for this notch.
4. Indicating the guide flake at the second notch.
5. Using a smaller pressure tool to work the notches.
6. Press inside against the edge to remove a flake.
7. Here is the next flake removed for this notch.
8. Next notch flake removed, same side as photo 6.

(Continued ... )
I repeat the setup process for each new flake in the notches. Trim the edge, working from the same side as I applied the pressure for the previous flake. Rough up the new edge with the tool. This creates a working edge close to the face from which I want to remove the next notch flake.

Now, I turn the point over and apply pressure to the new edge to remove the next flake. Repeat until I finish the notches. I keep the flaking tool sharp and I try to avoid accidently banging the tool against the barb or the tang at the instant when I remove the notch flakes, lest I break them.

Hint: you will break the barbs, and then you will know what I mean. It is all part of the learning process.

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Once The Notches Are Complete, Then You Can Finish Shaping The Edges Of The Arrowhead, Including A Final Sharpening.

After I finished the notches on this arrowhead, I wanted to straighten the edges out at the same time as I needed to clean up the rougher surface of the point. So I trimmed the edges with a series of very short flakes, just enough to make the edge straight and leave it thick enough to push off a single pass of sharpening flakes down each edge of the rougher face.

After grinding the edges a little, I proceeded to push off one last row of pressure flakes along each edge. For this line of flakes I used the smaller tool, since I wanted to create a uniform series of small flakes along each edge.

At this time I also sharpened the tip of the arrowhead to the shape which I wanted for the point.

All but one of the photographs in this brochure were taken by my stepdaughter, Li Ting Kong, while I made the arrowhead, on August 30, 2009. I think that she did an excellent job.