

Scene 1

Don: This is the use of the antler billet for percussion. This tool is a piece of caribou antler. Its surface is a little harder than that of a deer antler. However, the interior of the caribou antler is a little lighter, but I find it very satisfactory for percussion work. This shows the initial stages of making a bifacial tool. You notice the fingers on the left hand feel for the ridges and they position the tool. The left hand and the tips of the fingers are used in guiding and detaching the flakes from the underside face of this artifact. Notice the angle at which the tool is held. The thumb is held fairly free so there is no shock on the artifact. The force of the percussion blow is directed towards the mass of the artifact to prevent fracture.

Herb: Don, you mentioned that the thumb is held loose to prevent shock, would you explain that?

Don: If the thumb is pressed down too firmly on the artifact when the blow is delivered, there will be enough force from the thumb to cause the artifact to break. Since the leading edge of the artifact has been prepared to receive the impact of the blow from the antler billet, flakes are caught on the underside of the artifact by the fingers and then released. One must be very careful when a flake is detached that it be released before the second blow is delivered, otherwise it will drive the flake directly into the fingers or into the hand. It is a fairly dangerous maneuver and you can get severe cuts if you have failed to judge whether a flake has been dislodged. If it has been dislodged and is not released and one strikes in the same place a second time, the flake will be driven on in underneath the artifact into the fingers. This thinning flake had very little leading edge, but it did thin the surface on the underside. The distal end of the flake was quite thick and this is a thinning technique.

- Herb: With this thinning technique, if you just hit the edge of it you pull a very thin blade off the bottom. If you hit back in do you knock a blade but a thick blade off?
- Don: Yes, right at the time of impact you press in with your antler billet in order to take this thick flake off. Because of the lack of material on the leading edge, one must deliver a fairly fast blow. The edge of the platform must be sufficiently strong to withstand the force of the blow which must be of sufficient force to remove considerable mass of material back under the edge of the biface. This is done by using the core method. This is not a blade being reshaped, this was a very thick bifacial core tool, but now it is being thinned for either a bifacial knife or a projectile point. As the tool is being turned you can see how it is being thinned. I don't know if we have an end shot of this one to show you the cross section of the biface, but it is becoming quite thin. Of course, the thinner it becomes, the weaker it becomes and the more careful one has to be in delivering the blow of the proper intensity to remove one of these very wide flakes.
- Herb: You have this now in a rough form of a sphere point or something of this nature?
- Don: Yes, this can be adapted to most any sort of a cutting implement, or as a lance point knife, projectile point, or whatever function it is to serve. But, it can be adapted for many diversified artifacts after it has been thinned. Then it can be pressure flaked to make the edge more uniform and regular which cannot be obtained by percussion work alone.
- Herb: I don't know whether this is the right place to drop this here, but we haven't mentioned it up to this time. The material that you are working is obsidian and is extremely sharp is it not?
- Don: Right. Obsidian is particularly sharp because it is a non-crystalline material and the flakes break out to infinitive which gives an edge sharper than a razor blade. One usually develops slight cuts from just holding the obsidian

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unless the edge on the underside of the hand is trimmed. If the blow is directed inward towards the hand one will get severe cuts even without removing a flake. A glove or pad can be used to protect the hand, but then the fingers can't be used to feel the underside of the artifact. If one uses the braille system and you actually feel the contours of the surface with the fingers to guide the flakes for you can't see the underside of the artifact, only the top side or that portion facing the operator.

Herb: So, therefore, the bottom part you actually hunt for and feel for these planes and striations that you want to remove?

Don: Right, that governs the place at which the blow to the artifact will be delivered.

Herb: SCENE 2.

Don: This is an alluvial nodule of obsidian. The base has been struck off in preparation for the platform. All of the cortex will be removed from the surface. As the nodule rolls in the gravels of the alluvial deposits, it becomes bruised, and it develops a series of little cones on the entire surface. In order to produce a tool of sufficient strength, one must first remove all of the cortex which contains the stresses and strains that have been caused by the rolling and bruising of the cobble.

Herb: Now where your thumb is placed there, Don, your thumb on your left hand and your forefinger on your right hand, is this where you are going to attempt to strike this and remove a blade?

Don: The cobble is held in the left hand and the striking will remove the surface between the thumb and little finger. The cobble is then rotated and the surface removed in this manner until we are rid of the cortex. This is roughing out a thick biface and a hammerstone can be used as the tool. There was an undetected flaw which became apparent when the flake was removed. A fairly heavy antler billet is being used with considerable force in order to get a

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flake of this size. This tool can be used for any functional purpose such as a handaxe, a chopper or anything that could be adaptable at this stage which requires a very heavy surface and which will take a lot of abuse. We will continue on with this particular one showing the thinning.

Herb: SCENE 3 - is the same piece of material and you have just sort of knocked off a bunch, and got it up to the point where you are really ready to do some fine work.

Don: I have now removed all of the cortex and, I hope, all of the imperfections on the surface. You will notice I am using a fairly heavy billet with considerable speed and I strike fairly hard in order to remove these flakes. Between each stroke there is a positioning of the tool. Because the fingers are not long enough to feel the ridges, the core must be examined after each flake is removed to determine the point of impact and the direction of the blow. This is a very simple, crude bifacial tool.

Herb: SCENE 4.

Don: This is the same piece of stone that we were working on before, but it is now taking shape. Instead of being a thick, percussion-made bifacial tool, it is now taking the shape of a thin point which could later be used as a more refined cutting tool. Notice the thinness of the biface. This was made from a core tool and was not made from a flake. As the tool is turned, you can see the thinness. Now the biface is developing thinness by the use of the refined percussion technique.

Herb: This was started from one (I will call it rock) you call it technically what you want. You started with one rock and now you have worked this down to this very thin piece of material.

Don: Right, the rock that we started with, Herb, was a big cobble that had been abraded and that was spherical or ovoid in shape. The biface was made by removing the cortex and is actually from the center of the cobble. We re-

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moved all of the outer stone and now have a biface which is actually made from the center of the cobble. Notice the thinning flakes on the artifact - they are done very carefully. Any blow that is struck too far inside the artifact will cause it to be broken. This shows trimming and smoothing of the edge in preparation for the next series of flakes.

Herb: Don, on this particular three scene series here, the variety of tools that you used, you started with what tool and you went to what tool?

Don: I started with a soft hammerstone, one of sandstone with sufficient weight and mass to permit making the initial breaks on the big cobble rock. An antler doesn't provide enough shock to detach the first initial breaks. Then I go to a heavy antler billet - a short and very thick one from an elk antler. This is of a deer antler and it is used in the manner of a billet, or as one would use a hammer to drive a nail. The hammerstone is used as one would hold a projectile for throwing. When striking with a billet, you utilize facets on the corner of the worn billet which provides a sharper projection on the striking tool. In the picture it looks like the billet is fairly rounded. This is making the edge of the artifact a little more regular by striking very lightly with the billet tool. Notice the thinness of the artifact which has been achieved by the use of the lighter tool. Notice the forefinger keeps catching the flakes, feeling them as they come off and dropping them down each time. By pressing the left hand on the inside of the left knee and letting the elbow of the right hand rotate on the right thigh you bring the artifact and the billet together, and this increases the accuracy.

Herb: SCENE 5.

Don: Now we are using a hammerstone for the Levallois flake technique. This core has a faceted platform prepared with a ridge in the center of the platform. This ridge is established to receive the blow. This wasn't satisfactory, the

blow was directed too much inward and, therefore, it removed the distal end from the Levallois core. The core is held between the thumb and index fingers of the left hand. The blade should have terminated and feathered out to produce a true Levallois type flake. But this blow wasn't successful because there was too much inward pressure and, therefore, the force was directed inward. As a result, the Levallois flake bent around and over the tip and did not feather out. This depicts the use of a hammerstone to flake a bifacial tool showing how the edge of a very light hammerstone can be used instead of the antler billet. However, using this tool requires more care and more precision for any miscalculation of striking the edge of the artifact can cause the shattering of the biface much more easily than when using the antler billet. It also is a little more difficult to obtain the proper speed, or momentum, when using a hammerstone. It also produces a different type of flake which has excessive undulations and they are not as smooth and they are not as thin. There is considerably more depth of bulbs of percussion when using the hammerstone than there is when using the billet. But, with practice, considerable accuracy can be obtained by using just the hammerstone. The edge of the hammerstone becomes softer and more abraded with use.

Herb: SCENE 6. What are you doing here, Don?

Don: This shows the pressure technique of removing a right angle edge. The material used is a piece of glass and the surface is flat. This shows the technique of removing the right angle edge in order to prepare platforms for seating the tool to apply the pressure which will carry the ^{retouched} flakes clear across the surface of the glass. Notice, there is a piece of protective leather pad held in the palm of the hand. The right hand holding the pressure tool is placed against the inside of the right knee. Pressure is exerted by both knees. The right knee exerts

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pressure to the right hand and the left knee pushes against the back of the left hand. This allows one to exert considerable pressure without tiring the operator. You will notice that each time I seat the pressure tool, I nibble the edge of the flake a little. Then the glass is turned over, as the last flake scar provided the platform for removal of the next flake. The material is turned each time a flake is removed until one has removed all of the right angle edges. This photo illustrates the finished edges showing the short, scalloped flakes on the edges. The edge has a sinuous, or a pie crust sort of an appearance. These projections provide the platform for the next series of flakes which will remove all of the surface past the center of this particular slab of material. This is the last flake to be removed. The specimen is available if we want further close-up photos. This specimen should have been turned with the edge view facing the camera.

Herb: SCENE 7.

Don: The use of another pressure technique, this is the pressure finishing of a percussion made bifacial artifact.

Herb: This is for your real fine work, Don?

Don: This is for the fine work. There is always an initial flaking to remove all of the projections which were left by the percussion work. This is done to make the artifact a little more regular before one starts the series of precision pressure flaking. Then a platform is established in line with the ridge to remove the next flake. Notice there is a downward pressure applied to remove the flake. Then there is a back hand pressure applied to remove a portion of material to reseal the tool. But each time one slightly nibbles ahead on the edge of the artifact so that the tool can be positioned directly over the ridge. It is not necessary to examine, each time, the position of

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the platform for I am familiar with the location of the ridges and their relation to the surface of the last flake.

Herb: For a person that is starting out should examine each one of those ridges before they start on another one.

Don: Yes. Each one is a separate operation and each one must be prepared. Notice the hollowness of the bulbs left underneath the edge of the artifact and the thinness of the edge. It is not an obtuse angle. This is a very sharp edge. The platform was removed with the flake, leaving a very sharp razor-edge on the edge of the artifact.