Tape #1



The material that follows on this tape concerns cones.

Don: In flake manufacturing of artifacts because each and every flake -------------
are characters of the different types of flakes and flake assemblages. The first cone that we are examining is a perfect cone showing the angles and no fractures on the edges. This is entirely circular at the distal end of the cone, there is a slight truncation at the top of the cone showing the point of impact. The blow or force was directed vertical on the face of the piece of material in order to remove a cone of this dimension.

Swanson: All right, that was perpendicular to the original face of that material, and that's what gets you this flat well striking platform and the whole core comes down and then this spreads out away taking off this very large flake, laterally, as its force spreading away. Is that what's happening.

Don: Yes. The truncation is most important because it shows the type, it indicates the type of tool that was used because it will show the point of impact & the amount of area that contacted the implement, that detached the cone. In some cases, the cone will not be conical in shape but there is a disfusion [diffusion] of bulb which is a part of the cone will show that the point of contact elongated the cone and the cone can be much elongated, but still have the same angle that a normal cone would be. A direct sharp one.

Earl: What you get is just a longer cone instead of this shorter one? What makes it for a longer cone than this one? This actually is fairly long considering that it funs from here to here.

Don: The force wasn't directed exactly straight down, and this is the part that took the flake off.

Earl: Running out this way.

Don: It's a peculiar sort of break but what has happened is since the force [wasn't] directed vertically it was directed at an angle and since the mass was greater at one edge of the cone, it took off the distal end or one edge of the cone along with the force.

Earl: Ya, it just ran out this way. The flake where this side here comes out as the edge right to this end here. Why don't we call this one No. 1 and put it in a sack marked No. 1., and what this shows is that actually you can use a full cone to detach a large flake.

Don: Right.

Earl: Now onthis one here did you do this to free the cone.

Don: I freed the cone, Yes., but it has some bifacial flaking on it in order to free the cone.

Earl: Right. Did you take the flakes off on the other side first?

Don: Yes, on the other side first.

Earl: To create a platform.

Don: And intersected the marginal breaks or the marginal fractures of the cone that were existent within the block that weren't visible by removing these other flakes they intersected the cone scar.

Earl: Is that why they stepped here?

Don: There is not enough showing but there is considerably larger piece of material before the cone was freed. And this is from another flake on the opposite side.

Earl: Right, then you used that as a platform for this flake which came across here which freed the base of the cone on this face.

Earl: This glass one where the cone is completely detached a perfectly ve rtical globe? Incidently on No. 1 was that done with a hard hammer?

Don: Yes, it was that was done with a hard hammer.

Earl: Was this done with a hard hammer too?

Don: This was done with my rubber band, my sling shot arrangement. It has an end shot in it, I use a chill shot which would be equal to a hard hammer.

Earl: Yes, right I see.

Don: What I was doing in using this method was increasing the velocity in finding the forces to one very fine point and then as the projectile would strike the point, the energy was disapated and it wouldn't cause a shattering of the glass.

Earl: Yes I see.

Don: This is a test or an experiment showing the regularity and consequency of angle of a cone, that's why these experiments were done.

Earl: Right. On that sling you mean that shot is attached to a sling which you can whip.

Don: No I use the same as the little kids nigger shooter.

Earl: Oh, I see, ya with a wide frame and a rubber band.

Don: In order to replicate this aboriginal method I suggest one would probably place a little rounded pebble on the material and then take a flexible piece of wood that's very springy and then pull this back to the right tension and let the piece of wood strike the pebble to concentrate the forces directly vertical and downward in order to make this puncture, and cones can be used to perforate flakes by the use of this method. For instance, if you want to make a bracelet or a disk you want to drive a cone out of the center, this method can be used, and then you enlarge the hole produced by the removal of the cone. But you can see bracelets out of tabular pieces of flint and then they would produce the cone first and then enlarge the center of the hole made by the cone, until they had it in bracelet shape. What would you call them, circlets, horizor?

Earl: Why don't we call this one cone #2, actually you got two cones out of this glass block, each was detached the same way, and one of these came out perfectly circular and the other didn't exactly come out that way.

Don: It was slightly at an angle showing the distortion of the cone.

Earl: Right, o.k.

Don: This by the way is a television tube.

Earl: Is that right?

Don: It's nice thick glass.

Earl: It's good material.

Don: Yes it is it's very hard, it's been fired awfully hard, you can't score it with a glass cutter.

Earl: Well, let's take 3 here.

Don: ______ samples and for angle studies this one is showing the flexing of the glass, of course, was dissipated and you get a ring and then as your velocity was decreased it starts to spread and tear away from the opposite sides.

Earl: I wonder why, it looks like over here, Don on this the flexing is that vertical part, that's part of the flexing itself, see around here it runs like this and then as it loses force it lifts at the face.

Don: Yes, and pulls away the opposite edge.

Earl: Right, and this must have been hit with a hard hammer too?

Don: That was done the same way using the sling shot.

Earl: You used a shot in a shooter. O.K. Here, of course, the force went out nearly vertical on this side where it lit quite broadly on this indicating pretty accurately the direction of the blow, that is, I think you can probably measure along this slope, and this one the intersection of the angles at a horizontaling give pretty much the direction of the blow.

Don: Yes, it will correspond with this one. Now, the motion measuring these cones to make a gauge and if you have a fork a gauge a wire with a fork on the end of it that corresponds to the cone then one can overlay a flake scar and show the exact direction of the force. You can take an artifact and on the leading edge and put your little gauge on the side and it will show the exact direction of force. I think this is quite uniform.

Earl: You would have to manufacture as kind of a gauge yourself, wouldn't you?

Don: Yes, I just take and bend a piece of wire and held it vertically over one of these and I used the bent piece of wire but the wire is bent as it corresponds with the cone.

Earl: Yes, right, I see. Well, you could do it just make a series of this little wire gauges at various angles.

Don: Well, the angle is constant, Earl.

Earl: The angle is constant.

Don: That is the thing that I have been working on now is to prove that the angle remains constant and your force is dissipated equally in both directions of the end point of force, and is much the same as hunting bears and you will hit on one angle which comes off the other. This ~~step is~~ stays the same and I think this definitely proves by a study of all of these cones ~~that~~, we have some 40 or 50 of them here, that these angles are going to remain much the same. Since they do it will help us in defining different techniques, different core types ~~being~~ by studying platforms which are the truncated part of a cone.

Earl: Yes, you don't change the angles involved in the cone you simply change the cone itself.

Don: You change the direction of force in order to produce the same cone.

Earl: Right, you tip the cone out one way or another but the angles involved in the cone itself remain the same. This cone is not symmetrical in the sense that it runs out to here.

Don: But your forces did radiate in all directions at the point of impact and it seemed to radiate ~~consistently~~ very consistently ~~even~~ even changes of material. Your cone is well defined but your forces still radiate in the same manner from a point of impact.

Earl: So that by taking your fork gauge and laying the prongs, both prongs or just one prong?

Don: Just one prong.

Earl: One prong on the flake scar along the face of the flake scar.

Don: Two prongs, I made it out of silver wire and I ~~sawered~~ soldered one little leg on the other and then I bent the wire just to overlay the angle of the cone. You will only use one leg of the cone ~~two of the~~ to show with your angle but it is easier to do it that way so that you are exactly vertical with the cone and it is easier to make them so that your gauges ?

Earl: Right, you simply lay ~~one end~~ leg of the fork ~~along~~ along the face of the flake scar and the point, the apex of the cone, the wire cone will give you the ~~shape~~ angle of the blow and the direction it came from.

Don: The normal conseption has been to show like the directions of Burin blows and that only gives one angle it doesn't give the back angle, it gives you the angle facing you. If the flake scar is facing you directly all you see is the one angle but you don't see the inclined angle going the other direction, so you actually have two angles. You have the one that removed the cone or part of the cone, and the other is your vertical angle running the longitudinal length of the flake or flake scar.

Earl: Right, but you have changed the position one fork against the face of the Burin scar with the other fork out away and the apex of the cone will tell you just exactly what the slope of the blow was.

Don: Right.

Earl: O.K. These will be the no. 3 and no. 4. These two small cones No. 3 o.k.

Don: Normally the only angle that considered is the one single angle or the one single direction and we have a direction but we don't have the angle that the blow had been struck. Now another example for a cone study is by taking a tabular piece of material (in this case we used glass) it was struck directly downward on this edge and that removed half of cone.

Earl: I see, right.

Don: That is the half cone.

Earl: Yes, half of the cone came out of the mass of material here and the other half is still within the flake which was detached.

Don: We have the one we can do the overlap here and I will put this one right back on there and this is a half cone. This is much the same now as a side struck flake and these little flakes were very usable because they are perfectly straight and they're triangular and they can be formed into multiple use tools of various types.

Earl: Yes, Well this edge of the tabular material this way illustrates exactly the principal of detaching a flake from a core. Right?

Don: Yes.

Earl: And those come with an edge which is already for work and pretty well keeled and backed.

Don: This way the flake is both useful and the core is still ______ used to provide a platform for additional flakes.

Earl: Yes, Now why did you call this a side struck blow.

Don: Well it struck on the leading edge of a retangular surface and since the edge is flat there is no ridge to guide the flake. It is allowed to spread and the forces spread in the same manner as the cone spreads and the it comes to the leading edge. It is elongated and this is one of the triangular distal end of the cone.

Earl: Right, so now this was struck back from the edge here.

Don: Briefly down from the end taking off the far edge the leading the opposite edge. It is struck from this direction and then the forces are allowed to spread and take off this triangular piece because the opposite edge does have a ridge and there is a greater mass and so it pulls away from the leading edge and it makes a triangulate shaped ____________.

Earl: In in other words in a tabular p material of this kind if you strike your blow on the edge of one of the faces along their divertly and take off across the narrow edge of this tabular material than the ________ the other face of the tabular material is where the expansion of the cone takes place producing a flake which is ridged or keeled across the force of the blow because the cone pulls off the lower leading edge opposite the striking platform.

Don: A core used for removing these types of flakes to be ______ used for implements would be most difficult to recognize. It would have no resemblance to a core., and would be passed by without knowing that it was a core. Yet, the flakes are much in evidence but I have yet to see a core where repeated sizes struck flakes have been removed yet Don Tuohy had quite an assemblage of these flakes from Lake Winamucha. This was a pattern that was followed by these people because they wanted a special type flake apparently for specialized tools. Because of the leading edge of this being thick or the distal end of the cone it is in

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subject to shock and it is a much stronger flake to be used for tools than a blade because from compression a blade inherits strains within the blade. This is a much stronger and a straighter piece of material to be used for tool production. Then actually blades are without their curvature.

Earl: Right, it has the keel too ~~and xxxx~~ for tensile strength. Of course, if you were to take this and remove a series of these side struck flakes ~~as~~ if the last one were carried all the way out to the end of the tabular block you would never know that this type of ~~x~~ flake ~~has~~ been produced because the overlap of the flake scar would eliminate it, the evidence you need.

Don: These flakes must be spaced so that your next blow is considerably beyond the distal end of the last flake. As we come down to a corner of a tabular piece and by applying force at this corner vertically we remove ~~1/4~~ quarter of a cone. This is the little 1/4th of a cone and this can serve no particular purpose.

Earl: It just clears the core I suppose.

Don: Yes, and this would provide a platform for a blow taken in the opposite direction.

Earl: Yes, you come around the end again and take the leading edge of the end of this last series. Rdghtçcthatcwoudcsetcxxxxcyoucupçcccdc

Don: Right, that would set you up.

Earl: O.K. Well this would be cone No. 4. So we have the small ~~1/4~~ quarter cone, a 1/2 cone and the core itself.

Don: Here a tabular a block of glass have been used for experimenting, Earl, has been showing a repetition of these half cones removed from the edge producing a ~~service~~ surface such as that.

Earl: Yes, this is the kind of surface you get. It looks to me like the kind of surface you get if you were setting up a ~~xxxxx~~ tortoise ~~score~~ core and detaching those long blades. In other words ~~the~~ by taking off this kind of half cone on a tabular piece of material when it radiates out here it takes off the lower leading edge, what you do is if this were on broad flat face instead of on this narrow one what ~~you~~ you'd do would ~~do is~~ be to set up a whole series of half cone basals scars, these the base of the cone the ~~negatvie~~ negative scar on the face directed from both ~~sizes~~ sides would permit you to take off a very large blade with its edges all controlled by these half cones which have been taken off along the edge. So that instead of taking it on the narrow face here these have been taken off the broad face on each side then you could have gone to one end of this tabular material and taken off your Levallois flake.

Don: Right.

Earl: With its width controlled by those half cones. In effect all that would keep the Levallois flake from being an enormous half cone would be the preceding one. So that what you could use presumably would be a hard hammer to take off what amounts to be a big blade, which otherwise you couldn't do.

Don: This's also called turning the edge.

Earl: Right, which you could do by grinding as well as by this kind of detachment of half cones, along the edge, but you can either grind or polish the edges to do it. Could you turn the edge by other than half cones of this type?

Don: You can take off much smaller portions of cones and your next series would remove this back part on here so that you would start in getting a trapazoidal shape of a cross section of a blank such as this, then your long flakes can be taken from this leading edge across here and then doing the opposite side over on this side. And this technique is much like sharpening knives, like with Mississippi Valley knives they have these spiral tips that are sometimes called projectile points. But actually they're retouching from the same edge of a knife. This knife was retouched from the same edge all the time and you atart in developing this type of a cross section but instead of being such sharp angles here why they're considerably less than the 90 degree angle.

Earl: You don't take off as much of a cone. You take off some portion less than half a cone. Of course, when you look at this end on in the trapazoidal shape the effect of turning the edge here then is to give you a platform which you would use from the base of the cone and should be striking from the flake face at the base of the cone at the base of the half cone and driving across the broad face so that instead of using the trapazoidal cross section to strike the overhanging edge from beneath, you strike that overhanging edge from the base of the face that has been flaked.

Don: Right, and where the truncation of the cone has taken place at the top of the tabular piece of material these little pits are very good for seating your tool because you couldn't take them from a right angle edge or an edge with a 90 degree angle. It must be removed other than because you will leave an area in the center that will still be flat and it is impossible to remove flakes entirely across the face of the artifact or this example we have of glass.

Earl: Now, would you use the ridge between these half cone flake scars as the guide to striking?

Don: Yes, I use those. This is much the same as the Levallois, A faceted platform, Now these flakes where it struck directly above, each one of the ridges are going to have a distinctive faceted character.

Earl: In other words when you strike here to take off this side you are going to carry that faceting with it right on the platform because you will detach a fair chunk right across the face here. In fact, you will detach the whole ridge area and get your flake coming out to the depth of the preceding flake scar.

Don: The ridge area will be the truncation of the cone. That will be the tip of the cone.

Earl: Right, that you take across the broad face.

Don: That's right.

Earl: The ridge between the flake scars the half cones you have already taken off is your platform. This will be No. 5.

Don: I want to show that piece of the ridges. This is the one we examined first, Earl. Now the flake scars have been taken from the top right down all the way across on these faces from one edge to the opposite edge.

Earl: Right, carrying all the way across so that actually you need turn only one edge to flake a broad face.

Don: Yes.

Earl: And you turn the other edge to get the opposite face.

Don: Just one edge has been done on this example.

Earl: Yes, Well that shows it perfectly clear. It also leaves ~~the~~ an edge which appears to be bifacially flaked which really ~~opened~~ wasn't the intent, that is it wasn't bifacially flaked in order to get a cutting edge imparticular, ~~as if~~ just to get a platform to seat the tool.

Don: Because if you have a 90 degree edge your tool will slip and you can't get sufficient purchase to drive that cone part.

Earl: Right, so that the angle between the face of the scar of the half cones on the short edge and the flake scar which now runs across the broad flat face. The angle is less then 90 degrees. It's an acute angle between the base of the half cone and the flake scar which goes across.