Oct. 15,1967

Dear Jacques:

Sorry for the long delay in writing and shall try to be more prompt in the future. I have had fifteen wonderful days experimenting in stone-working with Francois Bordes and we accomplished many things. He was very successful with his newly developed indirect technique of making blades with a reindeer antler punch and a billet. Most of the work was done on obsidian as we had a short supply of good flint. Flint works much better than obsidian as the obsidian has a tendency to fracture more easily from the shock than does flint.

I made several attempts at Capsian cores and blades and had some success but not to the degree of the Capsian people. I make the core by the use of indirect percussion and also prepare the top of the core by the same technique. After a series of blades are removed from the perimeter of the core, I either have to individually flake each platform; or to sever the top of the core by indirect percussion. But in removing the top of the core, the rejuvenation flake would go beyond and remove part of the opposite side, causing that edge to be rounded and unsuitable for further blade removal. I hold the core between my knees, supporting the nodule with a heavy leather pad.(Bordes hold his core between his feet). Because of insufficient support at the base of the core, the flakes are quite curved and not as flat as I would like them to be.

I have also tried the direct percussion technique of blade making by holding the core on the outside of the left thigh and striking at a very low angl angle on a prepared platform, but am not accurate enough yet to repeatedly make thin blades. The platform has been prepared by isolation and grinding. The percussion tool is of either soft basalt or Moose antler. The blow must be of the exact intensity - just enough to remove the blade, and the energy must be dissipated just as the blade leaves the core. Too much force will cause the blade to break from end shock and insufficient force will cause the blade to either hinge or step fracture - thereby rendering the core useless for removing additional blades. The pressure of the core against the thigh appears to dampen the force, thereby reducing the amount of breakage.

After the Capsian style core has had blades removed from its entire perimeter, it is then suitable to have pressure flakes removed from the exterior surface. There are so many contingencies to be considered and developed that it will be some time before it is entirely resolved and much experimentation is still necessary. Wish I could give you more information.

The drawing you sent (Fig. 1) is certainly an enigma and difficult to understand. You are a keen observor to have remembered the same thing happening in France. I have made several blades by pressure and by indirect percussion that have the same character. The blade apparently flexes beyond its elastic limit on the ventral side and causes a portion to be left free while the dorsal side is still intact. The portion of the blade just under the platform must support the force and, at the same time, transmit the same force to the rest of the blade and permit its entire removal.

I too find that the grooved pad makes flakes with a slightly different character. The grooved pad permits the flakes to clear the artifact without breaking and also,because of the ridgity of the pad, it gives a more solid support and causes the flakes to feather out or terminate without a step or hinge fracture. The flakes can be made longer by changing the

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angle of force and by a slight grinding on the marginal edges to prevent their crushing. When the grooved pad is used, it prevents the movement of the artifact and helps eliminate the undulations that occur when using a pad of soft material.

Very often in the North and Meso-america there occurs projectile points made by the parallel oblique retouch - usually associated with the earlier complexes such as Folsom, Eden, Plainview, Agate Basin, Browns Valley, Cape Denbiegh and numerous places in Mexico and Central America. Titmus gets this effect and he holds his artifact in the left hand and rests it on his first and second fingers with the left hand between the legs and with the back of his hand on the inside of his left thigh. He presses very slowly away from him and this causes a different type of flake removal. It is most difficult to do until one develops considerable strength in the fingers of the left hand. His results appear to be those made by a left-handed person. Francois observed and tried the Titmus technique and am sure he can demonstrate it to you.

To answer your question about the length of obsidian blade by using pressure - it is about seven inches long and three quarters of an inch wide.(When I am lucky). The word "spacking" must be a typeographical error for there is no such word in the English language. Imagine it should have been flaking. If you are in doubt, please return the letter (I have no copy) or give me the entire sentance and will translate for you. Sorry about my poor typing.

Just received a note from your artist stating that he has developed a new method of illustrating the Polyhedral core. I will be glad to hear more details. Hope to send you soon a paper on the polyhedral cores that you might find of interest.

Am so sorry that you could not have been here with Francois. I had Gene Titmus come down for a few days and the three of us were working. We needed you to be with us to have made it complete. Had some rewarding experiments in making blades and bifacial artifacts. If the Lithic Tech. Conference for March in Calgary develops I do hope that you can come over with Francois. Am sure that Gene and I will make it.

Thanks for the kind words about the writings in Tebiwa. I will never attain your perfection but I shall try at least to make them understandable.

Will write again soon to tell you of any new developments.

Your very good friend,

Don E.Crabtree

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