

Route 1, Box 39
Kimberly, Idaho 83341

Jan. 12, 1972

Mr. Joel Gunn
234 Atwood
Department of Anthropology
University of Pittsburg
Pittsburg, Penn.

Dear Joel:

Thank you for your letter of Nov. 28th regarding recognizing a standardization of individual techniques on stone artifacts. You have hit on a very interesting field of stone working analysis and one that should be useful in lithic analysis and typeology. This Spring - or as soon as the weather permits - I will be glad to make some bifaces for you, but it is very cold here now and the stone is frozen which could vary the amount of applied force and necessary control. I will have to make my axes out of obsidian for this is the only material I have on hand.

In the meantime, you can contact Guy Muto at Washington State University, Dept. of Anthropology, Pullman, Wash. Please ask him for a copy of Dr. Henry T. Irwin's publication of "Description and Measurement in Anthropology". I think you will find it of interest. This combination of computerized measurements together with your electronic projection of the contoured target could be a whole new approach in evaluating lithic materials.

For what it is worth, my personal advice in regard to your project would be to use more advanced stages of flaking than the hand axe to insure more positive tests. Also to explore aboriginal pressure techniques as pressure flaking exhibits greater control, rhythm, and more repetitious flake scars detached under the same conditions. If you can locate aboriginal caches or burial concentrations of arrow-points with uniform characteristics of workmanship, they would be far more useful than those made by myself or my students. Our replicas are usually patterned after a particular aboriginal artifact, while prehistoric man made a specific artifact over a long period of time with little or no deviation. Since the purpose of the Bordes and Crabtree experiments have been to replicate a variety of techniques, I think we perhaps would show more variation due to constantly attempting to replicate various tool types of diverse industries.

There are, however, certain sets of conditions that will have to be considered for successful results in artifact analysis. The lithic material must be comparable in texture or degree of vitreousness. Coarse granular materials lack elasticity and the worker will detach shorter flakes and the artifact will be thicker in section than when a more vitreous stone is worked. Also, one must consider the manufacturing stage and the intention of the worker. The technique used to manufacture a hand axe is not as refined or consistent as that employed in making other tool types. For example, the technique used to make axes from Olduvai Gorge will be less sophisticated than that needed to produce the Acheulean axe from southern France - due mainly to the worker's intent and a more advanced knowledge of lithic technology.

CC.4.3.83.1

Also the shape of the initial piece of stone must be considered for it influences the orientation of the flake scars and even the same worker will produce diverse flaking patterns on individual specimens for detachment will conform to the original form of the unworked material.

Too, the detached flakes are often more diagnostic than the finished product since the platform preparation and other diagnostic criteria are removed with the flakes. Also, the early stages of flake removal are often of a random nature in both size and character for they only represent the worker's intent to reduce the magnitude of the piece to workable size. The positive and negative bulbar areas, their definition and depth, as well as the force waves are important in determining the technique used.

I have discussed your project with Dr. Earl Swanson and he is most interested in the results. He suggested your analysis of the cache of Clovis material found at the Simons site in Idaho which appears to be very uniform. You might be interested in contacting him regarding seeing some of the casts of this material.

You also ask about others who might contribute specimens for your project. Two very fine flintknappers who could contribute to this project are: Dr. Irwin Rovner - University of Wisconsin and Mr. Bruce Bradley, Leckhampton House, 37 Grange Road, Cambridge, England. Mr. Rovner was one of my students and Mr. Bradley has studied with both Bordes and myself and a little with Jacques Tixier.

Good luck on your application to the field school and I will be interested to learn more of your new approach to analysis of flaked stone implements. Please keep in touch.

Sincerely yours,

Don E. Crabtree

cc-Dr. Earl Swanson
Idaho State Univ.
Dept. of Anthropology
Pocatello, Idaho