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Jan. 19, 1971

Miss Barbara Harkness
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Dear Barbara:

Thank you for your letter of January 12th and description of the artifacts in question. It is difficult to answer all your questions without actually seeing the material.

Most preforms are made by direct percussion. But when the blank is a flake and a small projectile point is desired, the preform stage is unnecessary and all of the flaking is done by pressure alone. I do believe that indirect percussion was used to thin and make regular the large ceremonial pieces of obsidian with a minor amount of pressure retouch on the margins. When one of the thinning flakes would terminate in a step or hinge fracture and the thinning flake taken from the opposite side was short of intersecting the hinge, a pressure tool was used to remove the surplus material. As I remember at one of the sites where the ceremonials occurred, a large number of thinning flakes were associated which were much too large to have been removed by pressure. The flakes were quite uniform and were detached with precision and accuracy not found in direct percussion. Direct percussion and indirect percussion cause more rippling than the force of pressure. Obsidian is considerably more fragile than the siliceous rocks and probably very dear to them, so they took less chance of breakage by not being as bold when striking as they would be with their local materials.

About the heat treatment of Flintridge material - I have seen only one blade core untreated and that was made from Harrison County flint. You have definite proof of thermal alteration when you find a dull texture outside and the vitreous texture inside the core. The outside of a heated piece remains the same and only when a blade is removed on the core modified in some way to expose the interior surface will the change of texture be noted. Not all pieces will have the color change. Even though the texture change is not obvious to the eye, it will be quite obvious to the worker for the material will behave quite differently and will allow him greater control. If you will heat some of the Flintridge material in your oven - raising the temperature slowly to 500°F and cooling it slowly, you will note the difference when removing flakes before and after. Of course, the material must be covered with sand and when the cooling process starts do not open the oven door until it is really quite cold.

I hope these brief comments will help. Time and space does not permit adequate coverage of answers to your questions. I hear the rumor that Carl Thagan may pay us a visit at the University soon. Hope it is true.

Sincerely yours,

Don E. Crabtree

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