A REPORT ON THE 1969 NSF FLINTWORKING SESSION SHOSHONE FALLS, IDAHO

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In recent years archaeology has progressed from a basically historical discipline to a recognized scientific discipline. Archaeologists are now collecting and analyzing data in ways which contribute to general anthropology. Anthropological theories are being generated by and tested with archaeologically derived data. Recent developments such as sophisticated collecting methods, radiometric dating techniques, and statistics have aided in making archaeology a legitimate science. Perhaps one of the greatest contributions to the science of archaeology has been the experimental flintworking of such scholars as Francois Bordes, Jacques Tixier, and Don Crabtree.

I was fortunate enough to have the opportunity of participating in an experimental flintknapping school sponsored by the National Science Foundation and directed by Mr. Don Crabtree. From July 5 to August 5, 1969, I and three other anthropology graduate students worked 6 to 10 hours per day at experimental flintknapping. During each daily session, Mr. Crabtree demonstrated various techniques and then advised us while we attempted these techniques ourselves. The following are some observations and feelings resulting from my experiences during the school session.

Mr. Crabtree had us begin the flintworking session by attempting to flake a nodule and this policy of having us learn by experience was continued throughout the session. This policy of learning by making mistakes and then seeking expert guidance from Mr. Crabtree was perhaps the greatest virtue of the school. I found that I could ask more intelligent questions about a particular technique after I had attempted it and failed in some way. I also found that with more experience there were and are more questions and problems which come to mind.

We were shown so many techniques and gained so much information in this thirty day period that it is impossible to give a complete account. We learned how to prepare various kinds of cores and produce blades by direct percussion, indirect percussion, and pressure. We learned how to produce microliths, various unifacial tools, and burins from the blades we produced. We were shown how to manufacture bifaces by direct percussion and indirect percussion using both hammerstones and antler billets. Various styles of hand-held pressure flaking of projectile points were demonstrated. With the help of Mr. Gene Titmus, Mr.

Crabtree demonstrated several fluting techniques such as indirect percussion, pressure, and direct percussion. We learned that various manufacturing techniques can be determined by observing variations in the flaking debitage. We learned how important materials are in determining the technique, style, and quality of flaking. By duplicating a number of known types of artifacts (e.g. Folsom), Mr. Crabtree demonstrated that several techniques could have been used for their manufacture. In short, we got an extensive and intensive introduction to experimental flintknapping.

From my own point of view, one of the greatest contributions of the school was the appreciation I gained for the mental and mechanical skill involved in flintknapping. Most archaeologists probably view flintknapping either as exceedingly difficult or very simple. In fact. it is neither opinion that is true. To produce a desired artifact requires superb coordination of the flintknapper's mind and muscles. This coordination is called "feel" by Mr. Crabtree and he stressed the importance of acquiring "feel" from the first day of the session. However, it took me several weeks of concentrated effort to even begin to obtain the elusive "feel" for producing a series of well-controlled percussion or pressure flakes. It is clear that an artist's and/or engineer's brain combined with a craftsman's hands are needed to produce consistent and uniform results in lithic manufacture. This should encourage us to appreciate even more the intelligence and sophistication of our stone age ancestors.

Some more specific points which I consider important experimental problems are as follows: First, a detailed study of the fluid mechanics and other physicochemical processes involved in the removal of flakes by conchoidal fracture is highly desirable. Ideally, this should be done in collaboration with a professional physical scientist. Second, since lithic materials are such an important determinative factor in flintworking, and exhaustive study of materials should be made that would supplement those already done by Mr. Crabtree. In addition, further experiments with heat treating are called for. Third, thorough analyses of debitage from various lithic assemblages are greatly needed for establishing traditions of lithic tool manufacturing techniques. In the past, archaeologists have completely ignored or, at best, slighted the wealth of information which is included in so-called waste materials. Fourth, reports of experimental work by Bordes, Tixier, Crabtree, and their students need to be made available to the archaeological fraternity as often and as fast as possible. Mr. Crabtree has set a good example for the rest to follow. In addition, studies (such as that of Gould's in Australia) of the few remaining native flintknappers need to be made before this data is lost forever.

Finally, as Mr. Crabtree has pointed out, some of the knowledge gained through experimental flintknapping needs to be applied to the study of prehistoric lithic assemblages. Bordes and Tixier have already done this to a certain degree in the Old World, but, except for Crabtree's work, there has been no experimental approach to New World lithic assemblages. It is certain that when this is done, many archaeological concepts of culture history and culturological processes will change. It is to be hoped that those of us who attended the 1969 flintworking session and other students of experimental flintknapping can contribute some additional knowledge to the science of man.