Test Experiments of Shaping Wooden Objects With Flaked Stone Artifacts.

To emphasize the importance of studying the debris of aboriginal flaked stone implements and determine if some of the flakes, which are normally unrecognizable as functional tools, could serve as cutting implements, limited tests were made with stone tools to shape wood, antler, horn and bone. Some flakes were used freshly struck - others were modified into burins, saws, and scrapers. Cores were used as choppers. Flaked stone tools used were of the chopper-cleaver style.

Lithic materials used included a wide range of textures from vitreous and glassy to rough and granular, i.e. man-made glass; obsidian from different localities; ignumbrite from several sources; basalt; chalcedony (including varieties which had been artificially altered by thermal treamtent) (Tebiwa, Vol. 7, No. 1, 1964); varieties of silicified sediments; quartzites formed by deposition of chalcedonies in a matrix of sand grains; and meta-quartzites formed by metamorphism loosely binding particles of quartz by heat and pressure.

Materials used in the experiments were:

Manufactured glass	Homogeneous, vitreous, keen, brittle
Obsidian	Homogeneous, vitreous, keen, brittle. Some with inclusions.
Ignumbrite	Homogeneous, vitreous, keen. Subject to crushing.
Basalt	Homogeneous, vitreous but not glassy, tough. Edges not as sharp as glass.
Chalcedony (Untreated)	Homogeneous, tough, satiny texture. Sharp but without keen edges.
Chalcedony (Treated)	Homogeneous, vitreous. Sharp edges and tougher than obsidian.
Silt Stone	Clevage planes, weak edges. Lacks toughness
Silicified quartzite	Semi-granular, tough. Irregular edges.

Meta-quartzite	Very granular, tough. Resists percussion. Unsuited for pressure. Saw-like edges.

For working hard woods, a tool was made by cleaving a large cobble with a hammerstone by a single direct percussion blow and then the edge flaked on the margin away from the first plane of fracture. The result was a plano convex implement resembling an incomplete core. The plano face of the chopper is flat at the margin opposite the bulb of applied force (in this case the bulb of percussion) and becomes increasingly convex near the bulb. This gives the worker a tool with a cutting surface which is both flat and curved. Which end of the chopper face is used depends on the type of cut desired.

For the cutting experiment, the cortex part of the cobble served as a hand rest and the plano side was used to cut the black oak stave. Because of the hardness of the oak, the cutting edge angle of the chopper was approximately forty-five degrees to the plano face. This style of chopping tool makes a very smooth cut - either flat or curved, depending on the needs of the user. The working edge of the chopper withstands considerable abuse in forming such hard material. The ventral, or flat, side of the chopper showed no sign of use flakes until it was accidentally struck on the supporting anvil. The ventral side showed very small use flakes less than a quarter of an inch in length and terminating in step fractures into the body of the chopper. Generally, the use flakes were formed at the margins of the bulbar parts of the original sharpening flake scars. To a great extent, the dulling of the tool was due to its edge being contaminated by crushed wood fiber. We had to preserve the weight of the implement and, therefore, when sharpening, I could not remove large flakes. Resharpening was accomplished by removing thin flakes which, because of their thinness, lack the strength to terminate by feathering and, as a result, they hinge thereby causing the edge to be thickened at their point of termination. Normally, such scars are

considered to be the result of function but, in reality, are merely the result of resharpening. When the working edge of the chopper became too obtuse for further sharpening, it was abandoned and a new chopper substituted. Use flakes on the ventral side of the chopper are generally accidental - either due to improper use of the implement or the result of striking the support. These flake scars have diffused bulbs of force, are rapidly expanding and terminate in a hinge or step fracture.

When the working tool is a scraper or a burin and it is used for functions such as scraping and planing, the edges bear use flake scars which are very short, rapidly expanding and terminate in a hinge or step fracture. These use flakes in no way resemble the scars left by turning the edge or by intentional retouch. When the planing or scraping tool is unhafted and hand-held, only small use flakes will be removed which will terminate in a step fracture but they will not terminate like those removed individually by either pressure or percussion.