

Cutlines for ~~Hohokam Paper~~ Experiments in Replicating Hohokam Points  
by Don Crabtree

Plates

I. Hohokam

- a. This point shows minute serrations on both margins made by well spaced removal of unifacial micro-flakes until intersection with the barbed portion. The barbs were made by bifacial removal of conchoidal flakes which terminate in a feather edge at the medial line. Flake scars show boldness and assurance of the maker.
- b. Shows serrations graduated in size with spacing becoming increasingly larger toward the base. Serration and notching are bifacial on both lateral margins. Serrations at tip are diminutive becoming larger and deeper toward the base, gradually progressing from serrations to notches to barbs.
- c. Barbs asymmetrically spaced with a comparatively wide interval between the barbs. Abrupt change from barbs to serrations. Serration made by bold bifacial flake removal.

II. Hohokam

- a. Corner-notched unserrated point.
- b. Single example of obsidian used for this point style. Point shows a flared base with two projections on each margin.
- c. Irregular notching, the result of platforms crushing before notching was completed.
- d. Shows flat base and regular bifacial notching. This style was more commonly done in obsidian but this specimen is of other siliceous material.

III. e. Corner notched point with rudimentary bifacial notching.

- f. Concave based point with lateral notches evenly spaced.
- g. Point with broken stem; lateral notching lacks definition and regularity.
- h. Point with straight base with notches graduated in size becoming larger as they approach the base. Tip of this point is well made by regularly terminated flakes at the median line.
- i. Point with slightly concave base with notches becoming larger toward the base, corners rounded on second notches.

## II. Hohokam - continued

- j. Barbed and serrated point. Barbs are serrated on their distal edges as well as the lateral margins of the point. Serration and barbing is by pressure with bifacial removal of micro-flakes.

## III. Hohokam

- a - g. These points are shorter narrower than those illustrated in Plates I and II and are considerably more consistent in form and technique. Material preference is obsidian, f, g and h are varieties of chalcedony and p is of quartz crystal. All the rest are obsidian perhaps from a single source, however, the different specimens show varying degrees of translucency. Bases are straight to slightly concave. Technique of flake removal similar on all points. Only l indicates that it was derived from a flake because of curve in the longitudinal axis; all the rest are quite straight.

## IV. Hohokam

- a - j. Side-notched points showing variety of notches. Variability arises from position and direction of notches in relation to the body of the point. Most have a bi-convex cross-section; three are plano-convex and appear to have been derived from flat flakes or wide single-ridged blades. All are made of a light colored siliceous material probably indicative of heat treatment. Flakes removed at right angles to lateral margins. See Plate 12 for close-up of a.

## V. Hohokam

- a - j. Other variations of side-notched points but inferior workmanship. Generally plano-convex in cross-section and derived from assorted flakes in a variety of materials. a. obsidian, b. basalt, c. brown jasper, d. red jasper, e. pegmatite quartz, f. grey siliceous rock, g. semi-translucent brown chalcedony, i. cream-colored jasper, j. light siliceous rock.

## VI. Hohokam

- a and b. Side-notched points of obsidian which show a brownish or amber color when held up to a light, a material not common in the western U.S. The points are randomly flaked and show poor control with edges dulled during flaking.
- c. Side-notched point with straight base made on a flake of greyish semi-opaque chalcedony.
- d. Side-notched point with deep basal indentation made of a silver sheen obsidian. Straight edges reveal good flaking control.
- e and f. Side-notched points made of red jasper. Steep bifacial flaking producing a strong medial ridge on both faces of both points.
- g. Obsidian point with 2 notches on each basal margin. Well controlled

## VI. Hohokam - continued

flaking with sharp edges. No other similar styles occurred in the representative collection.

h. Shouldered point of grey siliceous rock, possibly a reworked knife or projectile point. Base deliberately truncated by removal of several flakes at right angles to longitudinal axis of the point. Entire perimeter of the stem has been intentionally abraded. Tip formed by alternate flaking and designed to resemble an engraver's V point. The tip has polish from use, function unknown.

i and j. Two side-notched points of translucent chalcedony. j, evidence of thermal treatment. Serrations produced by unifacial and unilateral flake removal. i retains natural texture indicating no thermal alteration, numerous step fractures illustrate that the material did not respond well in the unaltered condition.

## VII. Crabtree

a. Dorsal and ventral views of thick obsidian flake blank detached from water-tumbled cobble. Single ridge established to guide and control flake detachment. Note step fractures on first flake scar on dorsal surface, the result of use of a hard hammerstone.

b. Ventral surface of a flake blank after straightening by percussion. Note that marginal flake scars intersect the initial flake scar.

c. Dorsal surface of blank after surplus material, cortex and dorsal ridge have been removed. Sometimes mistaken for an ovate bifacial knife. Note the irregularity of the edges with no evidence of pressure flaking.

d - g. Percussion preforms in final stage before pressure flaking. Note the random nature of flake scars, somewhat irregular edges and deep or prominent bulbs of force. Compression rings are quite prominent in flake scars.

## VIII. Crabtree

a. Preform in first stage of pressure flaking, silicified sedimentary stone from Nevada.

b. Preform in first stage pressure flaking. Harrison County, Indiana flint. Note the step fractures on the face which will be eliminated in next stage of pressure retouching.

c. Preform in pressure stage, broken and repaired. Indiana flint. Broken by improper support and incorrect angle of pressure.

VIII. Crabtree - continued

- d. Second stage retouching, thinned by pressure and notched. Material heat treated opaque variety of chalcedony.

IX. Crabtree

- a. Diagonal parallel pressure flaking, flakes are removed from the margins by pressing away from the worker (Drawing 3). Flakes terminate without hinge or step fractures at the median line and intersect those detached from the opposite margin. Angle of downward pressure is proportionately greater than inward pressure.
- b. Deagonal parallel pressure flaking, flaked from only one margin by feathering and terminating the flakes at the opposite margin, but carefully controlled to avoid removing the opposite margin. Held in same manner as described for a, but the left hand was allowed to slightly rotate with a follow through of the pressure tool as flakes were curved and detached.
- c. Collateral pressure flaking typical of Hohokam. Flakes detached by directing pressure at right angles to the lateral margins and terminated by feathering at the median line. Point is solidly supported against the inside of the left thigh (Drawing 2) to cause the feathered termination and prohibit rolling as the flakes are removed. Heavy bulb of force causes the margins to be thin and yet leave the medial portion thicker to strengthen the point.
- d. Diagonal parallel pressure flaking done by supporting the back of the left hand on top of the left thigh and keeping the angle and spacing constant. Careful platform preparation and the material and working conditions must be ideal for this style of flaking.
- e. Pressure flaked, notched and serrated point. Shows stage before converting notches into barbs by removing the distal edges of the notched portion. The interval of notching governs the spacing of the barbs.
- f. Point showing expansion of notches, a stage of barbing. Distal edges of barbs are slightly serrated as are some styles of Hohokam points. Basal character conforming to the pressure preform, a deviation not characteristic of the Hohokam points.
- g. Stage of a notched point before barbing showing wider spacing usually necessary for barbed points.

## X. Crabtree

- a. Second stage of pressure flaking of preform shown as a of Plate VIII with flakes directed at a diagonal angle across the face of the preform.
- b. Preform with parallel diagonal pressure flaking done by pressing away from the worker. Angle of flake scars are the same on both margins and both faces.
- c. Preform showing pressure thinning by terminating the flakes at the median line and intersecting flakes detached from the opposite margin. Detached flakes are quite thin and uncurved. Point is evenly flaked on both faces and was thinned in this manner rather than using a thin flake as a blank.
- d. Unbarbed notched point with serrated distal end.
- e - g. Three points illustrating serrations and barbing similar to Hohokam styles.

## XI. Crabtree

- a - c. Three points replicating some of the Hohokam points illustrated in Plates II and III. Downward pressure is greater and applied at right angles to the longitudinal axis of the point, then inward pressure is applied. Rigid support was used.
- d - f. Replicas of Mayan lithic material from British Honduras, showing elaborate multiple notching. Holding during pressure is often difficult as it is with the Hohokam points. Pressure flakes detached are often larger in area than the cross section of the area being flaked.

## XII. Hohokam

Closeup of point a Plate IV which illustrates superb aboriginal craftsmanship. The point is extremely thin, uniform bifacial flaking with no step fractures. The lateral margins show meticulous unifacial serrations with a spacing interval of approximately one millimeter.

Continued for  
Drawings

1. Showing position for one method of turning the edge to produce a bevel, a method or stage of platform preparation.
2. Shows one method of holding for pressure flaking, the back of the left hand supported against the inside of the left thigh. The knees may also help in exerting greater force. Collateral or diagonal flaking may be done in this position depending upon the angle at which force is applied in relation to the lateral margin of the point.
3. Shows a method of holding for pressure flaking for diagonal parallel flaking. Force directed at an angle to the lateral margin and applied away from the worker. The knees may also be used to exert greater force.
4. Pressure flaking method described as being used by the Australian aborigines. Force is applied away from the worker. Method of support may be varied.
5. Shows another pressure flaking method in which force is exerted away from the worker. This drawing shows use of wood as a solid support but it may also be used with softer support such as the top of the thigh.
- 6 and 7. Simple free hand holding method used for notching and serrating points with thin martins which do not require the removal of large flakes. Note the right thumb pressed against the underside of middle finger of left hand which locks the two hands together and provides leverage and stability.
- 8 - 10. Three views of pressure notching showing left hand rested on the inside of the left thigh. The knees may assist in applying additional force. Note the interlocking of right thumb with fingers of the left hand providing additional leverage and stability.
- 11 and 12. Showing simple free hand holding pressure method used to correct ~~the shape of the tip along the margin of a point and also in shaping and~~ irregularities along margin of a point and also in shaping and sharpening tips of projectile points.

## Plates:

The collection of Hohokam points fall into several general categories: (1) barbed, (2) deeply serrated, (3) triangulate, (4) utility.

Plates I and II show a material preference of impure opaque chalcedony with one exception of obsidian. Points range from the most simple made on a flake to the more complex and elaborate barbed styles.

### # 1 Hohokam

#### Plate I (Hohokam) (a), (b), (c) and Plate II (f) bottom row:

Examples of barbed points. Features in common are:

- (1) <sup>in TEXT</sup> Indentations at the base are made deeper than the marginal barbs for hafting purposes, but this causes the base to be weakened. Upon withdrawal, breakage very close to the base could occur. The general form, fragile nature and style of the base would indicate the point is intended for one shot only.
- (2) Point is well oriented. Bifacially pressure flaked with expanding and graduated marginal flaking.
- (3) Very straight with longitudinal alignment.
- (4) In relation to the base, distal end is thicker but terminates in a sharp point.
- (5) Distal ends are narrow and attenuated in relation to the length.
- (6) Flake scars are collateral, or at right angles to the long axis.
- (7) Flakes terminate by feathering at the median line.
- (8) Before notching, the width of the flake scars become progressively smaller as the flaking progresses from the base to the tip (distal end).
- (9) Base of point is bi-convex but, as the point becomes increasingly narrower, it gradually becomes diamond-shaped in transverse section.

Plate I (Hohokam) (a): Tips are broken on all of the barbed points. However, this point has very minute serrations on both margins but made by well spaced removal of unilateral micro-flakes until intersection with the barbed part. Barbs are made by bifacial pressure flake removal. When making barbs, flakes detached are chondroid in nature and feather out at the median line. Flake scars show the boldness and assurance of the maker.

#### Plate I (b) Hohokam :

Serrations graduate in size and spacing becoming increasingly larger as they approach the base. Both serrating and notching is done bifacially on both lateral margins. At the distal end, the serrations are diminutive and as they progress toward the base they become larger and deeper, gradually progressing from serrations to notches to barbs. ~~Number and spacing of barbs is not standardized in the four points represented.~~

Plate I (Hohokam) (c):

~~Base of point in incurvate, or concave.~~ Barbs are spaced asymmetrically with a comparatively wide interval between the barbs. There is an abrupt change from barbing to serrating. Serrating is by bold bifacial flake removal.

Plate II (Hohokam) (F bottom row):

Unique in that the barbs as well as the margins are serrated. Serrating and barbing technique is by pressure by bifacial removal of micro flakes. Barbs are serrated on their distal edge.

Plate II (Hohokam) (a bottom row):

Rudimentary bifacial notching. A on top row and A on bottom row are corner notched for hafting.

Plate II (Hohokam) (b bottom row):

Concave base with evenly spaced lateral notches.

Plate II (Hohokam) (c bottom row):

Broken stem. Lateral notching lacks definition and regularity.

Plate II (Hohokam) (D bottom row):

Tip is exceptionally well made by regularly terminated flakes at median line. Point has graduated notches and flat base.

Plate II (Hohokam) (e bottom row):

Slightly concave base. Corners rounded on second notches.

Plate II (Hohokam) (a top row):

Corner notched unserrated point.

Plate II (Hohokam) (b top row):

Single example of obsidian being used for this style point. Point has a flared base with two projections made on each margin.

Plate II (Hohokam) (c top row):

Irregular notching the result of the platforms being crushed before notching was completed.

Plate II (Hohokam) (d top row):

Point of siliceous material with flat base and regular bifacial notching. This style is usually common to obsidian.

## #21 Hohokam

Plate III (Hohokam) (a to g):

Points are shorter and narrower than those on plates I and II and are considerably more consistent in form and techniques. Material preference is obsidian. All are obsidian except f, g, and h which are varieties of chalcedony and p of quartz crystal. Obsidian is apparently from one source but of varying degrees of translucency. Bases are flat to slightly concave. Techniques of flakes removal are much the same on all points. Only l, the smallest, indicates that it was derived from a flake because of the curve in the long axis. The balance of the points are straight.

## # 3 Hohokam

Plate IV (Hohokam) ( a to j):

All side-notched points but represented by a variety of notches. The position and direction of the notches in relation to the body of the point is also variable. Bases are generally flat or concave. One point is slightly convex. F has an indented base. Form is generally an elongated triangle. For the most part, they are bi-convex. Three are plano-convex and appear to have been derived from flat flakes or wide single-ridged blades. All material is a light colored siliceous rock indicative of thermal treatment. Flaking is at right angles to the lateral margins. Point a exhibits superb workmanship, being extremely thin with no step fractures and uniformly bifacially flaked. Lateral margins are meticulously serrated unifacially with a spacing interval of approximately one mm. A superb example of aboriginal art.

## # 4 Hohokam

Plate V (Hohokam) ( a to j):

Other variations of side-notched points but inferior workmanship. Generally plano convex in transverse section and derived from assorted flakes and materials. (a) obsidian, (b) basalt, (c) brown jasper, (d) red jasper, (e) pegmatite quartz, (f) grey siliceous rock, (g) semi-translucent brown chalcedony, (h) Light opaque chalcedony, (i) cream-colored jasper, (j) light siliceous rock.

## #4 Hohokam

Plate VI (Hohokam) ( a and b):

Different type of obsidian, the thin margins reflecting a brownish or amber color when held to a light. Material not common in Western U.S.A. Points show random and assorted sized flaking and poor control with poor edges dulled in the flaking process.

(c) Side-notched point of greyish semi-opaque chalcedony made on a flake and, in silhouette, resembling points a and b

(d) Silver sheen obsidian side-notched point with deep basal indentation. Straight edges reveal good flaking control and a variation of outline.

(e and f): Two side-notched points of red jasper with steep bifacial flaking to establish ridges or keels on median line of both surfaces. Both points are of duplicate material, techniques, and form - possibly the result of the same workman.

(g) Obsidian double side-notched point. No other similar styles were represented in the representative collection. Well-controlled flaking with sharp edges.

(h) Shouldered point of grey siliceous rock - possibly remodified from a projectile point. Base is deliberately truncated by the removal of several flakes at right angles to the long axis. The entire perimeter of the stem margins has been intentionally abraded. Tip formed by alternate flaking and designed much like an engravers V point. The tip of the V is polished from use. Function unknown.

(i and j): Two side-notched points of translucent chalcedony. J has deep basal indentation and shows evidence of thermal treatment. I retains natural texture indicating no alteration. Point has numerous step fractures showing that the material did not respond well in the untreated condition.

(j) Serrated by unifacial and unilateral flake removal.

Plate VII (Crabtree) (a):

Large thick obsidian flake blank detached from water-tumbled cobble. Single ridge was established on the dorsal side to guide this flake blank. Note the step fractures on first flake scar, the result of using a hard hammerstone.

(b) Ventral surface after straightening by percussion. Note the marginal flaking intersects the initial flake scar.

(c) Dorsal surface of blank after surplus material, cortex, and ridge were removed. Sometimes mistaken for an ovoid bifacial knife. But note the edges are irregular with no evidence of pressure flaking.

(d), (f), (e) and (g): Percussion preforms in final stage before pressure flaking. Note random nature of flake scars, deep bulbs, and compression rings.

Plate VIII (Crabtree) (a to g):

Showing opposite side of points on Plate VII

Plate IX (Crabtree) (a):

First stage of pressure flaking. Material is siliceified sedimentary stone from Nevada.

(b) First stage pressure flaking. Harrison County, Indiana flint. Note step fractures on exposed face which will be eliminated in next stage of pressure retouch.

(c) Pressure preform, broken and repaired. Indiana flint. Breakage was due to improper support and incorrect angle of pressure.

(d) Second stage retouch thinned by pressure. Material heated opaque variety of chalcedony.

Plate X (Crabtree) a, b, c, and d:

Un-notched points showing styles of pressure flaking before point is serrated, notched and barbed.

- (a) Diagonal parallel pressure flaking. Flakes are removed from the margins by pressing away from the worker. Left hand is rested on the inside of the left thigh. Flakes terminate without hinge or step fractures at the median line and intersect those detached from the opposite margin. Angle of downward pressure is proportionately greater than inward.
- (b) Pressure flaked from one margin only by feathering and terminating the flakes at the opposite margin, but controlled to avoid removing this lateral edge. Left hand was allowed to slightly rotate with a follow-thru of the pressure tool  $\times$  as flakes were curved and detached. Held in the same manner as point a.
- (c) Collateral pressure flaking typical of Hohokam. Flakes detached by directing the pressure at right angles to the lateral margins and terminated by feathering at the median line. Point is solidly supported against the inside of the left thigh to cause the feathered termination and prohibit the rolling of the point as the flaked are removed. Bulbs of pressure cause the margins to be thin and yet leave the median part thicker to strengthen the point.
- (d) Diagonal parallel pressure flaking done by supporting the back of the left hand on the top of the thigh and keeping the angle and spacing constant. Platforms and conditions must be ideal for this style of flaking.
- (e) Pressure flaked serrated and notched point. Stage before converting notches into barbs by removing the distal edges of the notched part. The interval of notching governs the spacing of the barbs.
- (f) Point showing expansion of notches, a stage of barbing. Distal edges of barbs are slightly serrated as are some styles of Hohokam. Basal character conformed to the pressure preform, a deviation not characteristic to Hohokam.
- (g) Stage of notched point before barbing showing wider spacing.

Plate XI (Crabtree)

- (a) Second stage of pressure flaking of point "a" on Plate IX. Flakes are directed at a diagonal angle.
- (b) Parallel diagonal pressure flaking by pressing away from the worker. Angle of flake scars are the same on both margins and both faces.
- (c) Point showing pressure thinning by terminating the flakes at the median line and intersecting those detached from the opposite margin. Detached flakes are very thin, uncurved, and point is evenly flaked on both faces. Point was thinned in this manner rather than using a thin flake as a blank.

(d) Unbarbed notched point with serrated distal end.

(e), (f) and (g): Styles of barbing similar to Hohokam.

Plate XII (Crabtree):

(a), (b), and (c) are replicas of points shown on Plate II (Hohokam). Downward pressure is greater and applied at right angles to the longitudinal axis, then inward pressure is applied. Rigid support is used.

(d), (e), and (f). Replicas of Mayan lithic industries (British Honduras) and others showing elaborate multiple notching. Holding during pressure flaking is difficult as are the Hohokam points. Pressure flakes detached are often larger in area than the cross section of the part being flaked.

Plate XIII (Hohokam)

An enlargement of point a Plate IV showing minute denticulations. A superb example of aboriginal eyesight and craftsmanship.