MICROWEAR ANALYSIS OF STONE TOOLS
FROM 41CP220
CAMP COUNTY, TEXAS

FOR
AmaTerra, AUSTIN, TEXAS

BY
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Microwear Analysis of Five Stone Tools from 41CP220, Camp County, Texas

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Five stone tools from site 41CP220 in Camp County, Texas, were submitted for microwear analysis on June 6, 2012 by Mason Miller of AmaTerra Environmental, Inc.

The five artifacts were cleaned by brief agitation in an ultrasonic water bath, each suspended individually in a plastic bag with water and a few drops of ammonia, and rinsed in distilled water. Freehand drawings were made of both faces of the artifacts for recording microwear observations and the locations of photomicrographs. After initial examination at 10X, microwear attributes such as edge flaking, polish and striations are recorded and photographed at magnifications from 50X to 500X using a reflected-light differential-interference Olympus BH-2 microscope with Nomarski optics.

ANALYSIS

Artifact Bag 953 is an end fragment of an early stage biface made of metaquartzite. This raw material is particularly challenging for microwear analysis because of the density of reflective crystals on all surfaces which masks small areas of polish. However, the bifacial edge, fracture edges and ridges were carefully examined at high magnification and there is no microwear evidence in the form of polish, striations, or microflaking to indicate that this fragment was used.

Artifact Lot 150 is an early stage biface made of metaquartzite. Cobble cortex remains on one end and one lateral edge. One sharp bifacially flaked lateral edge has been created. This sharp potentially usable edge was examined at high magnification on both faces and there is no evidence that the edge was used. There are small flake scars on the irregular surfaces at the distal end of the biface, but there is no evidence at high magnification of polish anywhere on this edge. This biface was not used.
**Artifact Bag 1301** is a large complete triangular biface with a straight base made of high quality brown chert. At low magnification the edges are rounded and polished (Fig. 1).

![Artifact Bag 1301](image1)

**Figure 1.** Image 1301 side 1c @ 50X; the edge is rounded and polished.

Invasive polish is very well-developed on flake scar ridges on all edges, and multidirectional striations, parallel and oblique to the edge are visible (Figs. 2 and 3). Invasive polish on the high and low microtopography of the chert surface is from contact with soft animal tissue.

![Artifact Bag 1301](image2)

**Figure 2.** Image 1301 side 1c @ 200X; deep striations originating at the edge of the biface are direct evidence of the edge having been used to cut soft animal tissue in the presence of grit particles.
Polish on the central ridge has long, deep coarse striations roughly parallel to the long axis that are likely from thrusting motions (Fig. 4).

Figure 4. Image 1301 side 1d @ 200X on the central ridge. Broad deep striations are from coarse grit particles dragged down the thickest part of the biface when it was thrust into animal tissue during butchering activities.
Figure 5. Image 1301 side 2b @ 500X; extensively reworked invasive polish is crosshatched with fine and coarse multidirectional striations that reflect multiple cutting motions.

Every surface on this biface has well-developed invasive polish from contact with soft animal tissue, and multidirectional striations that reflect multiple cutting motions (Fig. 5). This is a very well used butchering tool.

**Artifact Bag 321** is a tiny bifacially modified pebble. The raw material looks like chert. The sharp edge produced by the removal of cortex from opposite faces is heavily damaged from use with multiple step termination flake scars on one side of the edge. This utilized section of the edge is approximately 0.5 cm long. This kind of edge damage is typical of wear from contact with a hard material like bone or antler.

At high magnification there are only a few places along the utilized edge where polish can be found. I think this is because the utilized surfaces disappeared from attrition quickly as the small tool was used. Directional indicators (striations) reflect scraping motions perpendicular to the edge (Fig. 6) and multidirectional cutting actions (Fig. 7).
This very small pebble tool was used in both cutting and scraping motions on a hard material. There is so little of the utilized edge with polish, that the type of contact material can not be determined. It is difficult to imagine the task for which this tiny tool was selected, but the step termination flake scars and the long sleeks in Figure 6 indicate use on a hard material.
Artifact Bag 445 is a complete flake of gray chert with cobble cortex on one edge. The narrow distal end of the flake, opposite the platform and bulb of percussion, has irregular auto retouch flakes detached from both the ventral and dorsal faces. Polish is visible at a magnification of 10X along this edge (Fig. 8).

Figure 8. Image 445 side 2 tip @ 50X; flake scars along the edge at the tip are rounded and polished.

At high magnification moderately well-developed invasive polish is on both sides of this utilized edge at the tip, with a crosshatch of multidirectional single striations that reflect multiple cutting motions in soft animal tissue (Fig. 9).

This distal end of this flake tool was used to cut animal tissue.

Figure 9. Image 445 side 2b @ 200X. A crosshatch pattern of single striations is in invasive polish on the dorsal side of the flake at the thin tip. The triangular pattern of striations is characteristic of multiple cutting motions. The arrows are parallel to some of the striations visible in this photomicrograph.
SUMMARY

The high magnification microwear analysis of five artifacts from site 41CP220 is summarized in the following table. The two early stage biface fragments made of metaquartzite were not used. The large complete late stage biface is a very well used butchering tool with evidence of cutting animal tissue on all edges and surfaces. The tiny pebble tool was used to cut and scrape an unknown hard material. The chert flake was used to cut soft animal tissue.

<table>
<thead>
<tr>
<th>Artifact Number</th>
<th>Form</th>
<th>Material</th>
<th>Utilization</th>
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<tr>
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<td>early stage biface fragment</td>
<td>metaquartzite</td>
<td>not used</td>
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<tr>
<td>Lot 150</td>
<td>early stage biface fragment</td>
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<tr>
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<td>chert</td>
<td>well used butchering tool</td>
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<tr>
<td>Bag 321</td>
<td>pebble tool</td>
<td>chert</td>
<td>cutting, scraping hard material</td>
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<tr>
<td>Bag 445</td>
<td>utilized flake</td>
<td>chert</td>
<td>cutting soft animal tissue</td>
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