

# ZEA MAYS-ING MAYA:

## INTEGRATING MICROSCOPIC EVIDENCE FOR CORN PROCESSING AT COPÁN, HONDURAS

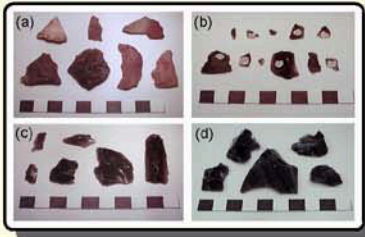
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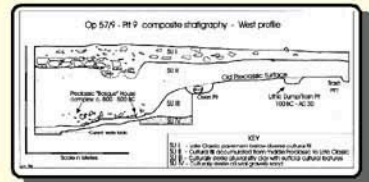


1. Location of the ancient Mayan Copán site in Honduras, Central America.



2. A sample of the artefacts analysed in this study. Note the small size and varied forms of the flakes. All artefacts other than those in (a) are obsidian. Scales are in centimetres.

Archaeologists have long known that corn (*Zea mays*) played an important role in the diet of the ancient Maya peoples of Mesoamerica. This belief is based on several indirect lines of evidence, including ethnographic analogy, the presence of stone grinding tools (*manos* and *metates*), stable isotope studies, and palaeobotanical research.

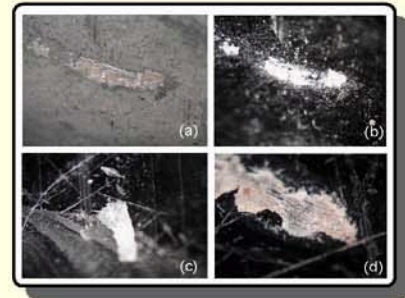


8. Profile of University of Queensland Pit 9, Copán. Artefacts studied microscopically came from inside and around the lithic dump/trash pit dating from 100BC - AD30'.

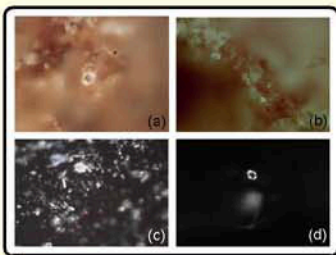


3. Use-wear on obsidian artefacts. Clockwise from top left these images show (a) crack-ring ladders; (b) striations at 45 and 90 degrees to the artefact edge; (c) striations parallel to a used edge inside flaking scars; and (d) feather and bending fractures on a used edge.

Microscopic residue analysis of stone artefacts can now be added to this suite of approaches. The examination of 150 lithic artefacts from Copán, Honduras, revealed direct evidence for the processing of *Zea mays* 2,000 years ago. *In situ* analyses of organic residues in the form of starch grains and cellulose were combined with concurrent use-wear analysis to assess artefact function. The range of activities discovered included slicing and chopping fresh corn, as shown by the presence of dried liquid residues with large numbers of adhering corn starch grains. As corn is usually dried and then ground to make flour, this finding reveals aspects of Maya behaviour not previously noted archaeologically.



7. Plant residues. Images (a) and (b) show a dried liquid residue with adhering corn starch grains in bright and dark-field lighting conditions respectively. Image (c) is plant cellulose and (d) is plant epidermis resembling that of corn.



4. Corn starch residues. Images (a) and (b) are *Zea mays* starch grains in the soil adhering to the artefacts, while (c) and (d) show corn starch on obsidian artefacts. All photographs are at 500x magnification.

This analysis represents one of the first studies of plant residues on lithic artefacts in Mesoamerica, and emphasises the importance of a broad-based approach to the assessment of artefact function.



6. A *metate* and *mano*, grinding stones used in food preparation, in the kitchen of a modern family in the Copán Valley. Archaeologists in Mesoamerica traditionally associate corn processing with grinding stones such as these.



5. Corn growing in the Copán Valley today