

# Archaeology in the Age of Technology: 3D Modeling

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2006 SIUE Anthropology Senior Project

## Introduction

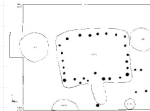
- ◆ Project investigated how IT can be rewarding to the field
- ◆ Two Major Questions
  - What uses do archaeologists have for IT?
  - How can the IT field help the public understand archaeology?
- ◆ Case Study: 3D Assembly of Pottery Fragments
- ◆ Software Assessment: Blender

## Blender

- ◆ Build two-dimensional items into three-dimensional objects
  - Textures for realism
  - Lamps for lighting
  - Cameras for pictures
- ◆ Free and Open-Source
- ◆ Glossary
  - Render
  - X,Y,Z Coordinates

## Background Information

- ◆ A.E. Harmon Site
  - Recently excavated by SIUE in Edwardsville, Illinois
  - Late Woodland-Emergent Mississippian Periods
- ◆ Housing Architecture: Late Woodland Period
  - Keyhole Structure: Smaller dwellings
  - Semisubterranean with a ramp
  - Large enough to accommodate two or three people



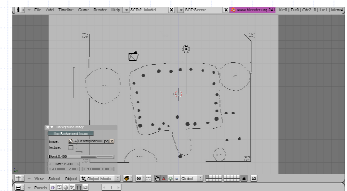
## Feature 103

- ◆ Keyhole Structure
- ◆ Dated to Late Woodland Period
- ◆ Identifying Mark of Societal Change



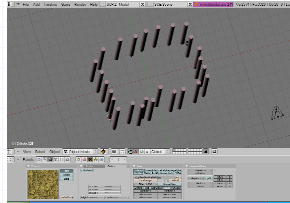
## Building F103

- ◆ Drawing of the feature was scanned
- ◆ Set on a grid to scale
- ◆ 1 unit = 20 cm



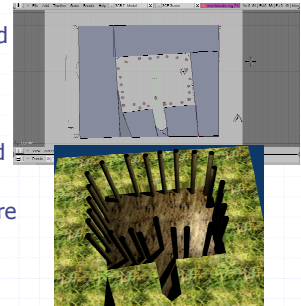
## Building F103: Posts

- ◆ Cylinder shape used and resized to posthole
- ◆ Bark texture applied
- ◆ Post copied and placed over other postholes



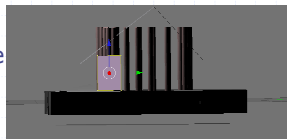
## Building F103: Ground Cover

- ◆ Cube shape used and set around feature
- ◆ Vertices pulled to desired angle
- ◆ Grass texture applied
- ◆ Plane shape used to cover inside of feature
- ◆ Dirt texture applied



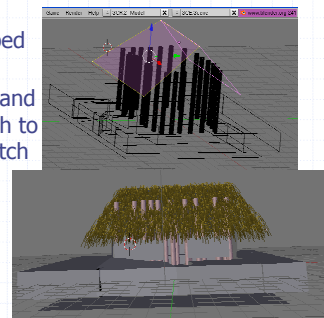
## Building F103: Walls

- ◆ Plane shape used for each side
- ◆ Mud-and-stick texture applied
- ◆ Planes were squared to create illusion of rows



## Building F103: Roof

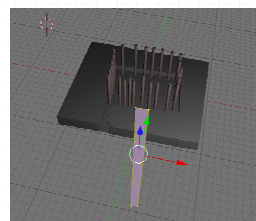
- ◆ Two planes dropped over posts
- ◆ "Particles" added and increased in length to create look of thatch
- ◆ First of four roofs made



## Building F103: Final Render

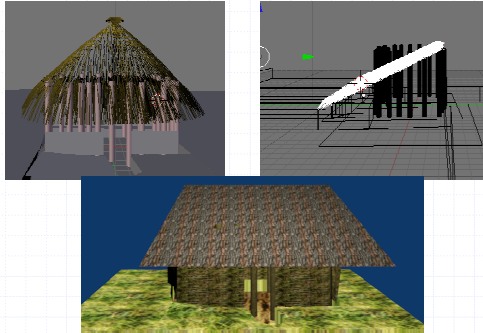


## F103 Experiments: Ramp

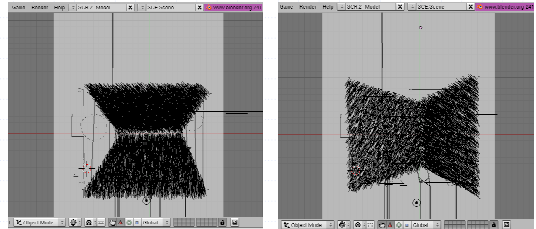


- ◆ F103 ramp = 90 cm long
- ◆ Extend ramp
- ◆ Estimate probable location of pit

## F103 Experiments: Roof



## F103 Experiments: Roof



## Visual Representation

- ◆ Brainstorm
- ◆ Visualize Theories
- ◆ Educate the Public
  - Show them how
  - See the research



## Concluding Remarks

- ◆ Educating the public for the future
- ◆ IT aids in understanding concepts
- ◆ Technology can be low-cost
  - Blender is free
  - A start for larger applications

Thank You!

Any Questions?