ARCHAEOLOGY EXCAVATION SIMULATION: Shift the Emphasis Back to Reality

by Paul C. Thistle

The science we simulate
Archaeologists Excavate Carefully
Archaeologists Record Meticulously
Excavation Findings
Excavated Features
“Simulation” Definition

**simulation n.** 1. a **model** or set of circumstances **imitating** a **real** or hypothetical **thing**, state of affairs, **or process**. 2. **representation of select key characteristics** of the operation or features of one process or system through the use of another. 3. **simplified version of reality bounded by artificial constraints** and a **limited number of variables**. 4. sham, counterfeit, feigned

**Key Issues:**

i) **valid sources** of information

ii) selection of **key characteristics and behaviours**

iii) **fidelity to reality**

iv) **validity of outcomes**
Sandbox Simulation

Incorrect digging through top layer 1 into layer 2; two layer colors are visible in the discard pile, so the layers have been mixed.
Simulation Alternatives
Simulation Far Removed from Reality
Virtual Simulation

Caption: Virtual reality archaeology. Archaeologists interacting with a virtual reality simulation of an archaeological site using infrared cameras to accurately track their location in space. This is then used to digitize data on the screen. Virtual reality (VR) involves a person interacting with a computer-generated reality, used for educational purposes. This work is being carried out by CINECA, the inter-University consortium of Bologna, Italy.

Figure 2: The custom on-screen visualization, running TGS Open Inventor and using customized Visual C++ programs.
Reproducible Excavation Reality Aspects
Surface Level Simulation
Historic Level Simulation
Prehistoric Level Simulation
Simulation Activity
Logan Museum of Anthropology ARCHAEOLOGICAL SITE LEVEL REPORT

SITE NAME: Logan Museum Site
SITE NUMBER: WI/ROCK/LMA.1

EXCAVATORS: Logan Museum Staff
DATE: 07/07/03

SQUARE NUMBER: 10
LEVEL NUMBER: 2

SUMMARY DESCRIPTION OF DEPOSITS/GENERAL REMARKS:
Looks like it is steel. It is rusty & dirty at bottom.

SOIL TYPE: Paper

ARTIFACTS:

<table>
<thead>
<tr>
<th>MAP LEGEND #:</th>
<th>FIELD #:</th>
<th>LOCATION: From N:</th>
<th>From E:</th>
<th>ARTIFACT TYPE:</th>
<th>MATERIAL:</th>
<th>MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>in 18 in</td>
<td>Steel</td>
<td></td>
<td>Steel</td>
<td>9 x 13 x 3/4 in</td>
</tr>
</tbody>
</table>

FEATURES:

<table>
<thead>
<tr>
<th>MAP LEGEND #:</th>
<th>FEATURE TYPE:</th>
<th>SIZE:</th>
<th>FEATURE DESCRIPTION/CONTEXT:</th>
</tr>
</thead>
</table>

FAUNAL REMAINS:

<table>
<thead>
<tr>
<th>MAP LEGEND #:</th>
<th>FAUNAL REMAINS DESCRIPTION/CONTEXT:</th>
<th>CLASS:</th>
<th>SPECIES:</th>
</tr>
</thead>
</table>
In-Class Pre-Visit Instructions

Logan Museum of Anthropology

ARCHAEOLOGICAL EXCAVATION SIMULATION INSTRUCTIONS

1) LOOK AND RECORD FIRST. DON'T DISTURB OR TOUCH items in the square until all information possible is accurately recorded. Only pencils are allowed on site.

2) From what you know, see, and measure, FILL IN AS MUCH INFORMATION AS POSSIBLE about Level 1 in the spaces provided on your Archaeological Site Level Report (page 2).

3) MAP WHAT YOU HAVE FOUND as accurately as possible by drawing it to scale on your Archaeological Site Level Plan (page 3). Make a legend for your map of the "excavation" square; list everything discovered on this level; and label each mapped item with its legend number.

4) ONLY NOW, CAREFULLY PICK UP EACH ARTIFACT and fully describe what you have found in the remaining spaces on the Archaeological Site Level Report (page 2). Also record any features (e.g., a grouping of stones, ash, or other evidence of human activity) and faunal (animal) remains in the appropriate spaces on this form.

5) Carefully record your "excavated" object's field number on the Site Level Report and place it at the work station provided for your square.

6) "EXCAVATE" LEVEL 2 by removing the paper that serves as the floor of the level just completed. Set this paper aside under your work station.

7) REPEAT THE ABOVE STEPS for each of the levels below the first. NOTE: care, accuracy, and the recording of full details are extremely important because YOU ARE DESTROYING THIS SITE FOREVER by "excavating" it!
ARCHAEOLOGICAL EXCAVATION PERMIT APPLICATION

Introduction:

The vast majority of Ontario’s history happened long before Europeans arrived on the scene to record events in writing. For example, Native peoples have been living in this region for as long as 9,000 years. In fact, Europeans were not guided into this area by Native people until about 400 years ago. Therefore, at least 95% of our local history is found only in the artifacts (objects made by human beings) and the other physical evidence left behind by these Native peoples in their former settlements that we now call “archaeological sites” (locations where physical remains of past human activities remain). Even after records were kept in writing, many facts were never written down and are known today only by their physical remains or through oral stories. Therefore, if we wish to learn more about the greatest part of our history, we need to carry out professionally done “archaeology” (the scientific study of the physical remains of previous human activity) to understand our past.

The only record of much of our history contained in archaeological sites can be destroyed forever by natural erosion, construction activities, theft, looting, or what is known as “pot-hunting,” or by poorly done archaeological excavations (also known as “digs”). We have only one chance to obtain valuable information from an archaeological site by carefully studying and recording it exactly as it was left before it is destroyed forever by any of the above activities.

The Ontario Heritage Preservation Laws:

Because of the value of this archaeological information about the past for all citizens of the province, archaeological sites must not be disturbed, altered, or destroyed (e.g. by a construction project) without a permit issued by the Government of Ontario. All archaeological sites are protected and it is illegal to remove artifacts from an archaeological site or to destroy the physical information contained in archaeological sites without official permission. In this case, “finders are NOT keepers.” Those who are granted an archaeological permit must agree to certain conditions which are to be reported fully on what has been found and to ensure that the materials recovered are held in trust to be preserved for the benefit of the people of Ontario.

To take part in our archaeological excavation simulation, please read and sign the form on the next page.
Correcting the Simulation Emphasis

Focus on:

i) the **reproducible reality**

ii) selection of **limited** number of **significant** elements

iii) using **valid information & skills**

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