

Scientific Archaeology vs. The Discovery Channel

Why the Cave is the ideal environment for Archaeological Site Recreation Software

Modern archaeology has progressed to the point where excavations are performed scientifically, with great attention paid to recording minute details to a high degree of accuracy. An unfortunate aspect though, is that the sites being excavated are buried in the numbers; that is, it seems that archaeologists are too involved with recording everything exactly to such an extent that no conclusions are ever made, no light is shed on the history of a site. The opposite extreme can be seen in television programs commonly seen on the Discovery Channel, shows that try to make the ancient world interesting and exciting to viewers. Sites are reconstructed and history reenacted based on clues that turn up at archaeological sites. However, while entertaining, no archaeologist would trust anything they saw on such a program, and they certainly would not use it as a source of research. The question is, do these sides of archaeology need to be so far apart? Is there a way to merge them, so that archaeologists would be more willing to make conclusions, to recreate the story of ancient history based on archaeological evidence? It is possible that computer software based in a three dimensional immersive environment could be the answer.

Much of the early archaeological work done was not performed in a strictly scientifically manner. The first archaeological excavations were performed by wealthy individuals with free time and a curiosity about what lay in the ground, and perhaps an interest in seeing the wonders of the past. The pastime soon turned into a science though, but not an exact one by any means. In fact, many of the systems used by modern archaeologists have been developed in response to the mistakes of the past.

Archaeologists often were trying to prove literary sources such as the Bible or the Iliad when excavating, and often fudged the evidence or mistakenly reconstructed their sites to force them to fit into what the archaeologist saw as correct. Whole layers of material culture were ignored or destroyed, either because they weren't as interesting, or obscured the particular layer that an archaeologist found interesting.

Besides motivated malpractices like those above, some archaeologists just used techniques that did not fully record everything that they encountered, and the information missed was erased forever. The danger of archaeology is that it is a destructive science. When a layer is excavated, it is literally destroyed. The only way to learn anything from that layer is to record everything in it, as after it is excavated those objects will never be in place again, for a future archaeologist to find and analyze. That is why archaeology is a science that is so concerned with precise measurement and obsessive recording of facts. There's only one chance to do it right, and an archaeologist's professional reputation is on the line at every excavation; if the rest of the archaeological community feels that someone has not adequately excavated a site, it would be very difficult for that archaeologist to ever get a dig again.

This need for archaeologists to do everything to such a high degree of accuracy and correctness has had a further, perhaps unfortunate impact on archaeology. While

early archaeologists such as Hienrich Schleimann may have been excavating with the purpose of exposing the cities of Troy and Mycenae as written about in the Iliad, a feature of modern archaeology is a trend towards an unwillingness to reconstruct the history of excavated sites.

The obsession with correctness and accuracy is only one factor contributing to this problem. Archaeology is one of those unfortunate sciences that is plagued by a vast number of very unscientific fringe theories, whose proponents may be labeled ^nut jobs.~ Highly suspect and wildly speculative theories have always plagued archaeology, Egyptology in particular, with its wealth of alien, Atlantean, or other explanations for the pyramids, stories of undead mummies and their curses, and similar ideas. Of course, those that consider themselves scientific archaeologists react strongly against these theories, saying that while they may explain things in some way, there is absolutely no evidence for them in their precise records of material culture and the theories are groundless. In fact, it is extremely dangerous for archaeologists to be associated with such theories or the people who espouse them, as this will lead to a weakening of that archaeologist's professional reputation.

The combination of the intense need to be correct and exact, and this unwillingness to be associated with groundless opinions or theories that are disproved lead to modern archaeology's great failing: archaeologists produce site reports that are lists of pottery, artifacts, and dimensions. Precise measurements always, but hardly ever a description or story that would lead to an insight into the past.

But what sparked the first excavations, an interest in physical examples of the ancient past and the stories those objects tell, is what still interests people today in the field. It is interesting and entertaining to try to imagine the lifestyles of ancient people,

and the stories of their lives and times by looking at the items they used to use and the buildings they erected.

The Discovery Channel is a perfect example of these yearnings in practice. The channel creates ^marketable archaeology,~ interesting half hour or hour long shows that extract the necessary or interesting information from archaeological excavations and uses it to reconstruct the ancient past. Good narration, snazzy graphics, and interesting historical recreations juxtaposed with ancient artifacts, buildings, and sites is a formula that works, that captures our interest in the ancient past, and tells us a story. One could say that this too is archaeology, although much less scientific and much more fun. Essential information is distilled from the volumes of site reports, and used to create entertaining and informative stories of the past.

Of course, those fringe elements and crazy stories that permeate archaeology are also entertaining, and the Discovery Channel gives them equal airtime, as many viewers are just as interested in the adventurers who try to find Atlantis or El Dorado as are interested in the tomb of Alexander the Great. These shows reflect the romantic aspects of archaeology, the discovery of new things, ancient treasures, or remnants of ancient legends. So why does archaeology in practice and the dreams that lead to archaeology need to be so far apart in reality?

Computer software that recreates an entire excavation, from the architecture to the artifacts to the trenches and layers and all the information associated with them, may be the answer. Martha Joukowsky, an archaeologist at Brown University who currently runs an excavation in Petra, Jordan has said, ^In order to truly understand a site, one has to be in it. You have to walk around and see the relationships of everything yourself.~ This may be central to the archaeologists' unwillingness to make historical conclusions. Perhaps if

an archaeologist excavating his own site could see and understand many other, related sites, he would be able to make broader conclusions and contribute more to a unified understanding of the history of an area.

The Cave, or three dimensional immersive visual environment may be a key way of allowing archaeologists to understand many sites. A user in a Cave environment that is running such an Archaeological Site program will actually feel as though he were at that site. The wealth of recorded scientific information can be visually rendered, by creating three dimensional projections of the architecture, trench layers and loci, artifacts and special finds, while allowing the user to ^query~ objects and bring up all the relevant information on each. Supposing an archaeologist finds a special artifact at his site, and by understanding similar artifacts' dating and locations at other sites, he can make a conclusion to his own artifact's date, thereby dating the entire layer in which the artifact was found, as well as any architecture whose foundations were laid in that layer. In such a way, many more conclusions could be made by correlation with other sites and other known data and check points, to such an extent that an archaeologist excavating at one site might be able to recreate an entire area's history over a certain period of time.

Such software, if made accessible and easy to use for archaeologists, could do much to reverse the current trends in archaeology, and help allow archaeologists to synthesize more data, from sites other than their own, hopefully leading to a greater willingness on their part to draw conclusions from the data. Archaeologists who in the past had to wait years for site reports to be published could instead get the raw information from the programs by ^travelling~ to other sites and seeing them for themselves. And the visual aspect is very important, both because many archaeologists need to walk around a site to understand it, but also because on the basest level a picture

is worth a thousand words. Visual explanations are much easier to understand than written ones, and this software and environment offers the perfect merging of visual information with recorded information, the two elements that are key to archaeological understanding, and hopefully to efforts to explain the past.