

ARTIFACTS AND FEATURES CHRONOLOGICAL SEQUENCING

The Museum's Coso petroglyph tours are world famous, but you may not be aware that we are active in many other areas related to archaeology. This article is one of an occasional series describing some of the archaeological things we do. Today we start to discuss chronology and how archaeologists establish a chronological sequence at a site and across a region. Modern Americans have been accused of being obsessed with time, but, in the case of archaeology, determining the time that events occurred really is important! Only then can we infer social processes.

So how is it done? There are two primary categories of techniques, qualitative and quantitative. Qualitative techniques establish the sequence in which events occurred, while quantitative techniques determine the actual dates (or attempt to). Qualitative techniques include stratigraphy and the use of marker artifacts. Quantitative techniques include correlation with known events, dendrochronology (tree-ring dating), radiocarbon, obsidian hydration, archaeomagnetism, and a host of more specialized techniques. Today both categories are used in conjunction with each other, so that they reinforce each other. The discussion today will focus on qualitative methods.

Qualitative methods were developed first, and are still very useful, the most basic being the determination of the stratigraphy at a site. The use of stratigraphic sequencing as a serious technique dates from the early 20th century, and is particularly associated with A. V Kidder and his classic excavation at Pecos Pueblo, New Mexico. It depends on the principle that, at any site, materials are deposited in sequence, the older materials first (deeper); the sequence of deposits is the stratigraphy of the site. Determining the stratigraphy requires conducting the dig with meticulous care, typically with a trowel, so the strata are revealed and noted; this is the standard technique today for research digs, although salvage digs are often conducted more hastily. A site may be excavated by natural strata or by arbitrary levels, at the discretion of the excavator; in general, arbitrary levels are used unless and until there is good reason to use natural strata. As the excavation proceeds, artifacts are removed for study and curation and their position is documented in the field notes.

Coupled with stratigraphic analysis as a qualitative technique is the use of artifacts as chronological markers. Styles of artifacts change through time, making them good temporal markers. The logic runs, for example: "If ceramic style A is always found below style B, then A is older than B. Furthermore, if we now find style A at another site, we know that site is contemporaneous with the level containing A at the previous site." Thus, it is possible to construct sequences across large areas based on stratigraphy and markers. This was the standard method for constructing chronological sequences prior to the development of quantitative methods, and is still used today. The drawback, in the absence of quantitative methods, is that the sequences lack absolute dates. Still, the combination of stratigraphy and marker artifacts was the basis for construction of the famous "Pecos Sequence", of Basketmaker II through Pueblo IV, which still guides southwestern archaeology.

In our next column we will continue the discussion of marker artifacts as applied here in the Great Basin and Upper Mojave Desert.