

THE STRATIGRAPHY OF CHAVEZ PASS RUINS

JAMES SCHOENWETTER

Department of Anthropology

Arizona State University

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Two forms of bedrock occur in the Chavez Pass Ruins district. The older bedrock is Navajo Sandstone, which is recognized as a terrestrial deposit in this area and therefore rather highly variable in regard to particle size. One also observes ancient erosion channels and lenses of evaporite deposits in various places within the sandstone. The second bedrock deposit is a basalt flow. This overlies the Navajo Sandstone and is generally horizontal. It is likely that a fault running south-west to north-east south of the Area 1-Area 2 complex has created two significant geological features. The first of these is the spring which today feeds a cattle tank, which seems to emanate from the Navajo Sandstone deposit as a result of faulting. The second is the block faulting of the basalt capping layer with consequent southward strike and the creation of a "spine" of basalt bedrock on the northern peripheries of Pueblo I and Pueblo II.

Three forms of non-indurated deposit directly overlie these bedrocks. Directly overlying the Navajo Sandstone is a deposit of chemically weathered sandstone which frequently is observed to contain lenses of a greenish white clay deposit (probably kaolinite). In the area of the cemetery district east of Pueblo II one frequently finds this chemically weathered sandstone as a very thin layer with apparent caliche flecks and nodules. In its upper portions, this deposit

may have some admixture with charcoal. The deep reddish soils of the terraces of Area 4 apparently are of this weathered sandstone deposit. The second non-indurated deposit is chemically weathered basalt which has formed clays and which contains pebbles of unweathered basalt in its lower portions. This deposit may be very deep (as occurs on the top of Chavez mountain), or it may be quite shallow (as occurs in the southern portions of Area 1 and Area 2). The third non-indurated deposit is weathered basalt also, but occurs in the form of a white unit of silt and clay size particles. The deposit occurs on the surface of the block faulted, dipping, basalt in the areas of Pueblo I and Pueblo II. It is apparently the result of ground water movement along the fault line, which has bleached the bedrock and left a remanant salt deposit. Each of these non-indurated, primary, deposits probably formed beneath a stable soil profile.

There are five younger non-indurated deposits which appear, given their content of charcoal and artifactual materials, to have developed during the period of use and residential occupation of the Chavez Pass Ruins district. The oldest of these is a brown, fairly coarse-grained deposit which has been observed as the fill of crypts cut into the sandstone bedrock to the east of Pueblo II and north of Pueblo I in cemetery areas. This deposit is informally called the older brown midden. Older brown midden also occurs as a sheet deposit in the cemetery district. This may be an intentional sheet midden, but this seems unlikely as it is very limited in extent. It seems more likely that older brown midden was used to cover as well as fill early crypt graves and the lensing observed results from sheet wash of the covering deposits. Superimposed upon the older brown midden one observes a red brown deposit rich in charcoal and artifacts. This deposit is particularly well represented in the cemetery districts of the Pueblos II and III, and apparently constitutes the majority of

the fill of the buried and collapsed rooms of all the Pueblos. Some grave crypts intruded through the red brown midden deposits to the sandstone bedrock are filled with red brown midden. Other graves have been observed intruded into the red brown midden deposits and filled with red brown midden. Some of the latter are interments in bell-shaped pits. There seems little question that the red brown midden deposit is a combination of intentional deposition and slope wash where it occurs, particularly in the cemetery districts. Palynological evidence suggests the red brown midden deposits of the cemetery districts date AD 1125-1315. Ceramic associations, alternatively, suggest that the red-brown midden used as room fill in Pueblo I and Pueblo II dates after AD 1325. It seems not unlikely that the red brown midden deposits of the cemetery districts were used as room in-filling materials at the later date.

Superimposed upon the red brown midden is another brown deposit, again rich in artifacts and charcoal, which is informally called the younger brown midden. I have never observed younger brown midden as a fill of interment pits or utilized as a fill above such interments. The observed pattern is one of extensive, sometimes up to 35 cm deep, slope wash deposit. Younger brown midden also constitutes a portion of the fill of abandoned rooms, as is best evidenced to-date in the area east of Pueblo II.

Dense concentrations of pot sherds, lithic debitage and stone tools in the areas of Pueblo I and Pueblo II appear to be the result of deflation of the younger brown midden, and thus concentration of the artifactual material. To-date, no obvious occupational midden deposits have been found in any of the Pueblo areas. The dense concentrations of artifactual remains which appear at the surface in some portions of Area 1, Area 2 and Area 3 all seemed to be deflations of younger brown midden, rather than primary midden deposits. In the cemetery districts associated

with Pueblo I and Pueblo II one commonly observes pits dug into and through younger brown midden which have been refilled with cobble-to-boulder sized rock and younger brown midden redeposition. To my knowledge, no burial materials are found in these associations. Also, as far as I am aware, there is no clear evidence that these features are substantively younger than the younger brown midden itself.

The depositional unit which is apparently younger than the younger brown midden and the pits which intrude the younger brown midden is to be found exposed along the arroyo cut entrenching the valley of Chavez Pass. Generally, as evidenced by terracing features on the floor of the Chavez Pass valley, the deposits of Area 4 are either more ancient than the horizon of occupation or relate to that horizon. This youngest unit, however, does overlies such terraced features stratigraphically and therefore may relate to the very latest horizon of occupation. As portions of these deposits contain a small amount of artifactual material, they may be linked to the occupational horizon of Chavez Ruins. It is not improbable, however, that in fact this deposit completely postdates the occupation horizon.

It is fairly clear that the surface presently observed in the major room blocks of the Pueblos, in the area of terracing which is identified as Area 4, in the area at the top of Chavez mountain, and also in the cemetery districts, is not the surface upon which the latest occupation of the Chavez Ruins district took place. There are many biological and geological indicators of mass wasting in a very recent period, and it is certain that a good deal of erosion has taken place since occupation occurred. The surfaces of the architectural and agricultural terraces, then, very likely once contained an A soil horizon which no longer exists. The deflation of younger brown midden deposits in the

cemetery districts in the areas of Pueblo I and Pueblo II also argues for the stripping of surface deposits since occupation. The surface of agricultural lands observed on the top and terraces of Chavez mountain is very evidently not the surface actually utilized for agricultural production.

One of the principal archaeological implications of the study of the stratigraphy of the Chavez Pass Ruins is that almost all of the deposits which are likely to be encountered in the excavation of room blocks are in fact artifacts. The room fill deposits seem to be middens of various colors which were utilized rather generally as fills. As a result, artifacts of a variety of chronological positions would appear mixed together at almost any depth below surface in room fill. Excavation of room blocks in terms of "natural stratigraphic levels", therefore, probably will not prove at all productive for chronological control. These data suggest that excavation controlled by arbitrary levels will also be wholly ineffective, or rarely effective, in producing chronological control of associated architectural or artifactual materials.

Chronological research to-date has concentrated on the pollen sequences in depositions from the cemetery district. A sequential ordering of the pollen records obtained indicates, indeed, that the general superposition of middens of different colors in the cemetery districts is chronologically significant. However, the superpositions and deposits often occur in lense form. Therefore, the absence of a given stratum in a particular excavation unit would not necessarily denote the absence of a chronological horizon. Excavation of the cemetery districts in terms of "natural" stratigraphic units will be ineffective unless large areas -- perhaps on the order of 10 x 10 meter squares -- are exposed at once. The excavation of such large units would allow stratigraphically related lensed depositions to be exposed in plan and removed as units.